

# UNIVERSITY HOUSING INTERFACE

**Final Documentation** 

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## **1 Background**

The Off-Campus University Housing Interface Project is part of a bigger website called GardenStateApartments.com. GardenStateApartments.com is New Jersey's first free online apartment rental network. Its goal is to deliver a broad array of marketing products and services through personal relationships and technology. With a staff of real estate professionals, they are able to serve brokers, managers, property owners, and the entire renting community of New Jersey. GardenStateApartments.com creates a virtual community developed to bring New Jersey renters, property managers, landlords and realtors together, and help them accomplish their goals. It is committed to being a reliable source of residential real estate solutions, primarily for students and faculty. GardenStateApartments.com is a startup company based out of EDC III, located on the NJIT campus, on the corner of Warren Avenue and Lock Street. It is under the heading of Garden State Apartments/ Jersey Apartments, LLC (Limited Liability Company).

The current AS-IS system only allows users to search apartments. The current

GardenStateApartments.com website has search features that would allow a non-registered user to search for apartments free of charge. It even has an "add to favorites list" available to people who register to their system. On the other hand, it lacks certain features that a real-estate website would require in order to make a mark in the student housing market. Competitor websites that offer housing solutions for students and faculty have these features and a look to match the demographic they are trying to attract. Many of these websites effectively use graphics design and web development techniques that give their websites a look that is sufficient enough to hold younger people's attention long enough to sell their information. Specifically, the current AS-IS system lacks a means for students or faculty to look for a sublet. It also needs a convenient way for a student to find a roommate in the New Jersey area. Most importantly, the new website interface would need a look that would be attractive to younger users.

The purpose of the Off-campus University Housing Interface Project is to add value to an existing ecommerce website by adding more features to it, such as the ability to search for a roommate using key information given by the user or search for available sublets in the area based on a user's location. The newly developed services that are included in this system are apartment searching (basic search and a more convenient advanced search function), finding roommates by providing certain criteria for the interface to search for or an information hub for students and faculty. From an aesthetic view, the look and feel of the website will also be geared towards a younger demographic and will be a different experience compared to the current GardenStateApartments.com website. In general, the objective of this system is to provide significant housing solutions for faculty and students in New Jersey.

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## **2 Problem Statement**

The goal of this project is to design a web-based system, which will be complemented by a university housing interface. A system with these requirements must be extremely user-friendly, speedy, space efficient, and easy to navigate. A few pages also must be added to the existing website.

To create a successful system, the team plans on conducting marketing research, systems analysis, and planning; designing, developing, and testing a graphical user interface; and documenting all of the components that make up the project. With these technical requirements met, as well as tools and techniques associated with e-commerce marketing, Garden State Apartments/Jersey Apartments, LLC will be able to use the project team's end-product to effectively brand their e-commerce website to the public.

To enhance the user-friendliness of the website, there will be a focus on simplicity and clarity. The person using the website shouldn't have any doubts during his or her experience of browsing content. To ensure this ease, the project team has conducted marketing research, getting a feel for what type of content works and does not work for websites of potential competitors.

A graphical user interface, GUI, based on university housing, will be designed by the team to be applied to the existing Garden State Apartments website, which is encoded in HTML, PHP, MYSQL, and Java. The interface design will be heavily based on load speed. The website loading speed cannot be any different for someone with a 14.4 Kbps modem than someone with a T3 line. The main objective is to keep a page, especially the website's home page, from overloading. The principal function on the website is searching for a listing. The project group will design a search function quick enough to keep the user interested and remain at the website.

The look and feel of the GUI also must attract student and faculty because they are the target audience. The project team is fully aware of the audience and will design the GUI accordingly. To

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retain interest during the browsing experience, the user will have the option to research information on a desired university by way of school biography pages, provided by the Garden State Apartments website. Each school biography page will link to the university's website and corresponding links of interest, as well as note specific statistics of the school.

The project team plans to keep the website interactive for users, yet not so busy to the point that it will deter anyone. Fewer mouse-clicks will enable the user to locate the desired content in efficient time and without getting lost. Easy navigation plays an important part in the project team's design. The interface will be designed to be consistent with other navigation points and should provide an easy, interesting, informative experience.



# **3 Market Research**

The following research for the Garden State Apartments University Housing website was gathered from five competitor websites that offered information on sublets, room mates or apartments for the college student demographic in New Jersey. This research contains opinions and comments dealing with the key features that made each of those five websites unique and helpful. A significant amount of information in each comment mentions the aesthetics and "look and feel" of each website. This is an important factor, because the Garden State Apartments University Housing website has to be an attractive system that should keep any college student's attention focused on the website. The practical features and positive characteristics of each of the five competitor websites were also noted, along with the negative characteristics that should be avoided in the Garden State Apartments University Housing website.

#### • och101.com

#### o <u>Features</u>:

- § General: Navigation bar (home link, about us link, student housing link, and moving advice link), drop down menu listing "Network sites"
- § Home Page: quick search, "search here" button link, "list here" button link, "member login" button link, "Moving Advice" link, links for "Sign up information" or user registration (available for students, private landlords, property managers and schools), advanced search by school, advanced search by area
- § "Search Here" Page: A map of North America where each state or region is a link to click on. The link leads to a page where the state or region is



separated into sections. Each section has its on pull down menu listing schools.

- Likes: This website is simple, has a straight forward look and feel, and appears 0 interesting. From the home page, it clearly shows where to go if someone (Faculty or Student) were interested in going to the website in search of a room mate, a rental, looking to put up a place for rent, or if you're a school interested in providing an off-campus housing service (free of charge to the school). Information is neatly organized on the home page. Navigation is easy to use. The basic functions of the website are visible and easy to see without having to touch the scroll bar. The search option is very useful. It starts out with a map of North America and requires you to click a region where you want to search for housing near a school. Pull down menus are used very well in this website when selecting schools in the search option, reducing the amount of long lists of links. I like the fact that the search functions are very easy to see and use. I also like how the text is large and easy on the eyes. The web page has a noticeable theme to it. The use of mouse roll over techniques is both creative and interesting. The graphics design of the website gives it a fun look while keeping it professional. It makes good use of pictures in appropriate places. This obviously works well with the demographic that it's trying to target (college students 18-20+). This website is a perfect example that "less is more".
- <u>Dislikes:</u> Things seemed to be clumped together. On the home page, it looks like the links are a little bit crowded together. There is a bit of empty space that could be used in order to space things out more evenly. On the management tools page,

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the listing of tips is a bit boring to look at. The tips could be separated into categories in order to give it a more organized look. The website could use a link to a page that shows recently added listings. If that part were added, this website (which is already well done) would be considerably better.

#### Campusrent.com

- o <u>Features</u>:
  - § General: Navigation bar (find a place or roommate link, add your listing link, campus news link, campus jobs link, campus money link, campus store link)
  - § Home Page: Section for recently added listings, "What's new?" link, list of links of states to search for apartments, roommate finder, member login link, signup link,
- <u>Likes:</u> This website is very basic one that has a few useful features. It has a feature that allows people to search for a roommate through a separate service (CampusRoommates.com) that uses a rating system on people who are registered into CampusRoommates.com. Registered people on CampusRoommates.com can post a roommate want ad or respond to ads. Another very useful feature that I did not see on any of the other university housing websites is a section where the most recently added listings are displayed on the home page in a very visible area. There is also a "What's new" link that brings up a page that has more detailed information on the most recently added listings.

<u>Dislikes:</u> One of my initial impressions of this website is that it is somewhat boring to look at and unprofessional. In the home page, there is a long list of links on the left hand side of the web page and most of the links have text that is too small (in my opinion). Most people would not be interested in scrolling down to see all the links on the page or take the time to read small text. Their attention will be drawn towards what is already on the browser from the moment the page is loaded on the screen. Another issue about the website is the layout and the color scheme. The layout is not interesting at all and shows a lack of creativity. The color scheme for the web page does not seem to be able to keep my attention for long either. I personally find it a bit nauseating to look at.

#### housing4students.com

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- o <u>Features</u>:
  - § General: Link that leads to a tour of the website for school administration
  - § Home Page: Member login, map of the United States with links to click on to make a search, user registration, member login (with lost password retrieval), search field, section of links for students, section of links for landlords, section of links for schools
- <u>Likes:</u> This website has an organized, clean-cut look to it. It looks very professional and highlights important information well. The graphics design of the page is well done and is aesthetically pleasing. One interesting feature of this web page is the link in the top right corner that leads to a tour for school administration. When you click on the link, a very smooth running short video

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movies opens up, and highlights some of the features of the website. The search options are easy to find and use. The map on the home page is one way to search for listings, and the search field below it is the other way to find listings. This website seems to have almost the same level of quality that och101.com has, but still has a few weaknesses.

<u>Dislikes:</u> The look of the page doesn't seem to be geared towards the younger demographic (18-20+ year old people) that it's supposed to target. Yes, it's very professional looking, but it doesn't seem to have the look that younger people will find attractive. Even the video itself is only geared towards school administration. It would have been useful to have another video that would be a way to grab students' attention while being helpful by showing what this web page could do to help them with their housing needs. The lack of a navigation bar is not a good thing. Another slightly annoying characteristic of this website is its use of a pop-up window when the "student center" link is clicked. That alone will cause people to be turned off by this website.

#### offcampusnetwork.com

- o <u>Features</u>:
  - § General: Navigation bar (links for apartments, home rentals, roommates, landlords, renting and moving), quick search field by city
  - § Home Page: free rental search field (with 2 other search options),numerous links that lead to information for renters and property managers



- <u>Likes:</u> This website is slightly similar to CampusRent.com, because of its overall plain look and feel. It does look slightly professional. The only features that really stand out are the navigation bar, quick search and free rental search.
- <u>Dislikes:</u> This website has many of the same weaknesses that CampusRent.com had, in addition to a few more. There are a few long lists of links that are scattered on numerous parts of the home page. In fact, there seem to be several important links at the bottom of the home page. The look and feel of the website does nothing to attract a young demographic that most college students belong to. In fact, there are very few things on the home page itself that identifies it as a website for finding university off-campus housing. It looks more like a website that would cater to older people who are just looking to find apartments or list a property. To say that this website is dull would be an understatement. The color scheme is lackluster and bland.

#### usacampusrentals.com

- o <u>Features</u>:
  - § General: Navigation tabs (search listing, create listing, account manager)
  - § Home Page: Login link, login field, news letter link, in-depth quick search field
- <u>Likes:</u> This website has almost the same type of quality that och101.com has, with a few exceptions. It has tab links that add to its ease of use. The home page is well organized and most of the important information is visible without having to use the scrollbar. The look and feel of this website is definitely on target with the



demographic that it is supposed to attract. The graphics design of this website is well done and appealing. There are pictures that give the website a younger look that some of the other websites lack. The color scheme is pleasing to the eye.

<u>Dislikes:</u> Even though this is the second website that demonstrates a little bit of "less is more", it does seem very limited in the amount of features that a person can use. It looks like it only has three main features. It has no option to search for roommates. The quick search option only lists two cities, and lacks other things if you try to use it.



## **4 Glossary**

The following listing of terms is of those that appear frequently throughout the documentation of the project.

<u>Administrator-</u> One who manages the arrangements and tasks needed to control the operation of a plan or organization

<u>Apache Web Server</u>- Often referred to as simply Apache, a public-domain open source Web server developed by a loosely-knit group of programmers.

<u>Apartment</u>- A room or suite of rooms designed as a residence and generally located in a building occupied by more than one household.

<u>API (Application Program Interface)</u>- A set of routines, protocols, and tools for building software applications.

**Broker**- One that acts as an agent for others, as in negotiating contracts, purchases, or sales in return for a fee or commission.

**<u>HTML</u>** (HyperText Markup Language)- A markup language used to structure text and multimedia documents and to set up hypertext links between documents, used extensively on the World Wide Web.

Internet- A global network connecting millions of computers.

**Landing Page**- Often referred to as a Home page, the main page of a Web site which serves as an index or table of contents to other documents stored at the site.

Landlord- One that owns and rents land, buildings, or dwelling units.

**Lease**- A contract granting use or occupation of property during a specified period in exchange for a specified rent.

<u>MySQL</u>- An open source RDBMS that relies on SQL for processing the data in the database and provides APIs for the PHP language, amongst others.

<u>PHP (PHP Hypertext Preprocessor)</u>- An open source, server-side, HTML embedded scripting language used to create dynamic web pages.

**<u>Programmer</u>**- An individual who writes computer programs.

**Prototype**- An original type, form, or instance serving as a basis or standard for later stages.

**<u>Query</u>**- A request for information from a database.



**<u>RDBMS</u>** (Relational DataBase Management System)- A type of database management system (DBMS) that stores data in the form of related tables.

<u>**Rent</u>**- Payment, usually of an amount fixed by contract, made by a tenant at specified intervals in return for the right to occupy or use the property of another.</u>

**<u>Roommate</u>**- A person with whom one shares a room or rooms.

<u>SOL (Structured Ouery Language</u>)- A standardized query language for requesting information from a database.

**<u>Sublet</u>**- Property, especially an apartment, rented by a tenant to another party.

**Tenant**- One that pays rent to use or occupy land, a building, or other property owned by another.

Testimonial- A statement in support of a particular truth, fact, or claim.

<u>URL (Uniform Resource Locator)</u>- The global address of documents and other resources on the World Wide Web.

<u>User</u>- An individual who uses a computer.

Web Page- A document on the World Wide Web, identified by a unique URL.

<u>World Wide Web (WWW)</u>- A system of Internet servers that support documents that are specially formatted in a markup language, called HTML, that supports links to other documents, as well as graphics, audio, and video files.



# **5 Project Organization**

### 5.1 Team Structure

The development team consists of six-man team which the following: project manager, PHP programmer, HTML programmer, systems analyst, market research analyst, and graphic art designer/html programmer. The responsibilities and roles of each team member are described in section 5.3.

## **5.2 External Interfaces**

The following external interfaces will be used in this project. Members of the project team may contact sponsor via email. Direct contact such as calling the sponsor is initiated through the project manager. Thus, team members are allowed to contact an external interface via e-mail. If a timely response is not received within the timeframe, then alternate contact methods shall be used.

#### **Sponsor:**

Sandeep R. Kancherla (Sunny) - President

- <u>sunny@gardenstateapartments.com</u>
- Office: 211 Warren Street (EDC III)
- Tel: 973-954-2787

#### **Professor:**

Osama Eljabiri

- <u>oe2@njit.edu</u>
- *Office:* 2315A GITC building
- Tel: (973) 642 -7123

#### **Developer:**

Hans

- Email not available (communication was made through sponsor)
- N/A
- N/A



## **5.3 Internal Structure**

# 5.3.1 Roles and Responsibilities

| Role                                       | Responsibility  |
|--|---|
| Project Manager<br>Mahmoud Hasan           | Arrange all meetings, point of contact for rest of staff and external interface, coordinate all due dates for the project, create weekly reports and put them online. Make sure that the project and all meetings are being conducted properly and efficiently. Looks for any growing or unknown problems with our project. |
| System Analyst<br>Michael Linderman        | Makes sure all requirements for the project are update and selects only the essential ones for development. Makes sure that the system being produced adheres to the high standard which is required.   |
| Market Research Analyst<br>Joshua Gorospe  | Collects and analyzes data to evaluate existing markets and competitors. Identification of competitors and the monitoring of changes in the industry. Data collected are college vital statistics and competition haves and have-nots (eg. What they lack in respect to features and added value).                          |
| HTML Programmer<br>Ibrahim Mohammed        | Leads in the coding and implementation of this project. Does the majority of the coding and implementation of the website interface. Leads the team in testing the functionality of the interface design.   |
| PHP Programmer<br>Cesar Cheng-Robles       | Design tables for the database and constructing a metadata schema to the parser.  |
| HTML Programmer/Graphics<br>Moises Cordero | Graphics implementation of project utilizing PHP and HTML.  |

# 5.4 Staffing

| Role                          | Staff Member       | Start Date | End Date |
|-------------------------------|--------------------|------------|----------|
| Project Manager Mahmoud Hasar |                    | 09/26/05   | 12/06/05 |
| Systems Analyst               | Michael Linderman  | 09/26/05   | 12/06/05 |
| Market Research Analyst       | Joshua Gorospe     | 09/26/05   | 12/06/05 |
| HTML Programmer               | Ibrahim Mohammed   | 09/26/05   | 12/06/05 |
| PHP Programmer                | Cesar Cheng-Robles | 09/26/05   | 12/06/05 |
| Graphic Designer/ Programmer  | Moises Cordero     | 09/26/05   | 12/06/05 |

## **5.5 Communication**

Weekly meetings were held according to scrum rules in the library and at EDC III during various time slots. Team met most of the time on Friday, Sunday, Monday, and Tuesday Additional meetings were scheduled accordingly when needed. Team members maintained contact primarily via e-mail and cell phone.

# 6 Task Analysis

# 6.1 Work Break Down Structure (TASK ANALYSIS) - Overview

| Team Member        | Task   |
|--------------------|--|
| Mahmoud Hasan      | Communicate with the sponsor to obtain project scope and requirements                      |
|                    | Construct a team schedule, identify tasks and responsibilities                             |
|                    | Deliver bi-monthly progress reports to sponsor and professor                               |
|                    | Monitor risks and team progress  |
|                    | Strategize design strategies   |
|                    | Construction of FDD and features list  |
| Michael Linderman  | Communicate with sponsor to gather software requirements                                   |
|                    | Obtain functional and non-functional requirements  |
|                    | Write-up problem statement   |
|                    | Identify project goals   |
|                    | DFD modeling   |
|                    | Glossary documentation   |
|                    | Compilation of final document and deliverables   |
| Ibrahim Mohammed   | Modeling Sequence diagrams   |
|                    | Modeling Use-Case diagrams   |
|                    | Modeling Class-diagrams  |
|                    | Worked jointly with PM (Mahmoud) to obtain the prototype and design of interface           |
|                    | Designed the website interface (all the landing pages and links associated with each page) |
|                    | Coding the website interface (all the landing pages and links associated with each page)   |
|                    | Lead the creation and implementation of the interface final look for capstone presentation |
| Cesar Cheng-Robles | FDD documentation  |
|                    | Identification of stakeholders   |
|                    | Construct metadata tables  |
|                    | Working with the existing framework  |
|                    | Expand and collapse of search features   |
|                    | Design a component of backend (search functionality)                                       |
| Moises Cordero     | Created website logos and graphics   |
| Joshua Gorospe     | Conduct market research analysis   |
|                    | Document research analysis and provide several analysis regarding competition              |



| Team Member    | Task  |
|----------------|---|
|                | Background write-up for the mid-term (Oct 11. 2005)   |
| Joshua Gorospe | Assess the risks associated with the project (eg. schedule delays, insufficient resources, etc) |
| Joshua Golospe | Gather vital statistics for college university links for the website.                           |

# 6.2 Work Break Down Structure – Timeline of Tasks

| Work Breakdown Structure        | Start    | End       | Allocated         |
|---------------------------------|----------|-----------|-------------------|
|                                 | Time     | Time      | Person(s)         |
|                                 |          |           |                   |
| Project Initiation              | 0/12/05  | 0/20/05   | Maharana 1        |
| Project Selection               | 9/13/05  | 9/20/05   | Mahmoud           |
| Team Formation                  | 9/20/05  | 9/23/05   | Mahmoud           |
| Background                      | 10/6/05  | 10/7/05   | Joshua            |
| Problem Statement               | 10/7/05  | 10/9/05   | Michael           |
| Project Planning                |          |           |                   |
| Identifying Project Goals       | 10/3/05  | 10/11/05  | Mahmoud, Michael  |
| Project Scheduling              | 10/3/05  | 10/11/05  | Mahmoud           |
| Assigning tasks                 | 10/3/05  | 10/11/05  | Mahmoud           |
| Features List                   | 10/3/05  | 10/11/05  | Cesar & Mahmoud   |
| Risk Management                 | 10/3/05  | 10/11/05  | Joshua            |
|                                 |          |           |                   |
| System Analysis                 |          |           |                   |
| JAD Session                     | 9/27/05  | 10/09/05  | Team              |
| Stakeholders Identification     | 9/27/05  | 10/09/05  | Cesar             |
| Requirements Gathering          | 9/27/05  | 10/09/05  | Michael           |
| Functional requirements         | 9/27/05  | 10/09/05  | Michael           |
| Market Research                 | 9/27/05  | 10/09/05  | Joshua            |
| Modeling Use-case diagrams      | 10/7/05  | 10/10/05  | Ibrahim           |
| Modeling Class diagram          | 10/7/05  | 10/10/05  | Ibrahim           |
| Modeling Sequence diagrams      | 10/7/05  | 10/10/05  | Ibrahim           |
| Modeling DFDs                   | 11/21/05 | 11/28/05  | Michael           |
| inducing Di Do                  | 11/21/00 | 11/20/00  |                   |
| System Design                   |          |           |                   |
| Prototyping                     | 10/12/05 | 10/20//05 | Ibrahim & Mahmoud |
| Coding Front-end Design         | 10/19/05 | 11/18/05  | Ibrahim           |
| Partial Back-end Design         | 11/21/05 | 11/30/05  | Cesar             |
| Design Database and Forms       | 10/24/05 | 11/25/05  | Cesar             |
| Design Sublet Page Landing Page | 10/24/05 | 12/01/05  | Ibrahim           |
| Design Roommate Landing Page    | 10/24/05 | 12/03/05  | Ibrahim           |



| Design Apartment Landing Page<br>Documentation<br>Graphics Design Logos and Pictures | 10/24/05<br>10/12/05 | 12/01/05<br>12/05/05 | Ibrahim<br>Michael |
|--|----------------------|----------------------|--------------------|
| System Testing   |                      |                      |                    |
| Website navigation tests   | 12/03/05             | 12/05/05             | Ibrahim and Cesar  |
| Quality Assurance testing  | 12/03/05             | 12/05/05             | Cesar              |
| Testing for bottlenecks  | N/A                  | N/A                  | N/A                |
| Speed and Performance of Website   | N/A                  | N/A                  | N/A                |
| -  |                      |                      |                    |
|  |                      |                      |                    |
|  |                      |                      |                    |



# 7 Time Management

## 7.1 Schedule

This section details all aspects of managing the project relevant to task assigning, planning, and control the work. The allocated time for the completion of the project is one semester length. The calculated man hours per team member are 160 – 180 hours of work, which totals to14 weeks. Since the team has six members, the approximated total man hours required to finish the project is 1080 hours. Following scrum rules, weekly meetings were held at least 3 times a week where each member of the team presented their work and gave updated progress regarding assigned task. In fact, some team members are well off in exceeding in putting in 180 hours for the project. Now, problems with time constraints were addressed to the team as some members of the team fell behind in completing assigned tasks.



## 7.1.1 Initial Planning

|    | 0   | Task Name                              | Duration | Start       | Finish      | Predecessors |
|----|-----|--|----------|-------------|-------------|--------------|
| 1  |     | Project Initiation                     | 15 days  | Thu 9/8/05  | Mon 9/26/05 |              |
| 2  |     | Project Selection                      | 3 days   | Tue 9/6/05  | Thu 9/8/05  |              |
| З  | -   | Meet Sponsor                           | 1 day    | Thu 9/15/05 | Thu 9/15/05 |              |
| 4  |     | Reserve Project                        | 1 day    | Tue 9/20/05 | Tue 9/20/05 | 3            |
| 5  |     | Identify Positions for Project         | 1 day    | Wed 9/21/05 | Wed 9/21/05 | 4            |
| 6  | THE | Post Vacancies for Positions           | 1 day    | Thu 9/22/05 | Thu 9/22/05 | 5            |
| 7  | -   | Interview applicants                   | 1 day    | Sat 9/24/05 | Sat 9/24/05 | 6            |
| 8  |     | Follow-up Interview for applicants     | 3 days   | Sun 9/25/05 | Tue 9/27/05 | 7            |
| 9  | THE | Finalize Team                          | 1 day    | Fri 9/30/05 | Fri 9/30/05 | 1            |
| 10 | THE | Submit finalized team form             | 1 day    | Fri 9/30/05 | Fri 9/30/05 |              |
| 11 | THE | Team meeting to introduce team members | 1 day    | Mon 9/26/05 | Mon 9/26/05 |              |
| 12 | THE | Assigning roles and responsibilites    | 1 day    | Mon 10/3/05 | Mon 10/3/05 | 10           |
| 13 | TT  | Forward team names to sponsor          | 1 day    | Fri 9/30/05 | Fri 9/30/05 |              |
| 14 | THE | 1st Team meeting with sponsor          | 1 day    | Tue 10/4/05 | Tue 10/4/05 |              |

This block of timeline shows the project selection process, project reservation, and team construction. During this sprint, team meets with the sponsor for the first time. The first team meeting with the sponsor occurred on Tuesday, October 4 at 9:00 PM at EDC III. The meeting lasted an hour. We conducted a JAD session during that meeting to obtain an overview of the requirements. In fact, JAD session was a requirements gathering session.



## 7.1.2 Sprint 1

|    | 0   | Task Name                                   | Duration | Start       | Finish       | Predecessors |
|----|-----|---|----------|-------------|--------------|--------------|
| 1  |     | Sprint #1 Begins                            | 11 days  | Mon 9/26/05 | Fri 10/7/05  |              |
| 2  | THE | Project Planning                            | 3 days   | Mon 9/26/05 | Wed 9/28/05  |              |
| 3  |     | System Problem Statement                    | 4 days   | Mon 9/26/05 | Thu 9/29/05  |              |
| 4  | TIT | Requirements Gathering                      | 10 days  | Wed 9/28/05 | Sun 10/9/05  |              |
| 5  | THE | Analysis of Requirements                    | 10 days  | Wed 9/28/05 | Sun 10/9/05  |              |
| 6  | THE | Market Research Gathering                   | 6 days   | Tue 9/27/05 | Mon 10/3/05  |              |
| 7  |     | Analysis of Market Research                 | 3 days   | Mon 10/3/05 | Wed 10/5/05  | 9            |
| 8  |     | Construct Features List                     | 11 days  | Wed 9/28/05 | Mon 10/10/05 |              |
| 9  |     | Modeling High-Level Sequence Diagrams       | 4 days   | Tue 9/27/05 | Fri 9/30/05  |              |
| 10 | TT  | Modeling High-level Class Diagrams          | 1 day    | Tue 10/4/05 | Tue 10/4/05  | 3            |
| 11 | THE | Modeling High-level Use-Case Diagrams       | 1 day    | Sun 10/9/05 | Sun 10/9/05  | 6            |
| 12 | TT  | Risk Management for Initiation and Planning | 7 days   | Mon 10/3/05 | Mon 10/10/05 |              |

Sprint 1 timeline shows the tasks associated with the milestone. The project began with the project manager mapping out a plan to complete the tasks required for each milestone. Tasks were assigned to each member of the team in this sprint. The requirements' gathering continues during this phase. We began building the features list based on the requirements we obtained during the JAD sessions. In addition, we used object-oriented modeling to design the features.

## 7.1.3 Sprint 2

|    | 0   | Task Name                                      | Duration | Start         | Finish        | Predecessors |
|----|-----|--|----------|---------------|---------------|--------------|
| 1  |     | Sprint #2 Begins                               | 13 days  | Wed 10/12/05  | Tue 10/25/05  |              |
| 2  |     | Front-end requirements gathering               | 6 days   | Sun 10/9/05   | Fri 10/14/05  |              |
| З  | TIT | Continue building features list                | 9 days   | Mon 10/10/05  | VVed 10/19/05 |              |
| 4  | THE | Modeling instances of Use-Case Diagrams        | 3 days   | Tue 10/11/05  | Thu 10/13/05  |              |
| 5  |     | Modeling instances of Class Diagrams           | 2 days   | Fri 10/14/05  | Sat 10/15/05  |              |
| 6  | III | Modeling instances of Sequence Diagrams        | 1 day    | Mon 10/17/05  | Mon 10/17/05  | 2            |
| 7  | 111 | Risk Assessment for system analysis and design | 1 day    | Wed 10/19/05  | Wed 10/19/05  | 5            |
| 8  | THE | Website Content identification                 | 3 days   | Thu 10/20/05  | Sat 10/22/05  |              |
| 9  | THE | Sketching Website Interface                    | 1 day    | Sun 10/23/05  | Sun 10/23/05  | 7            |
| 10 | THE | Prototype/Mockup Version #1 of TO-BE System    | 7 days   | VVed 10/19/05 | Tue 10/25/05  |              |
| 11 |     | Prototype/Mockup Version #2 of TO-BE System    | 7 days   | Wed 10/19/05  | Tue 10/25/05  |              |
| 12 | THE | Midterm Presentation                           | 1 day    | Tue 10/25/05  | Tue 10/25/05  |              |

Midterm preparation tasks assigned. Object-oriented modeling continued during this phase. In fact, we constructed low-level models of the features describing the process furthermore. Also, prototypes 1 and 2 of the TO-BE system was created and presented on Tuesday, October 25 at 6:30 PM. Tuesday marked our first presentation with the sponsor attending.



### 7.1.4 Sprint 3

|    | 0 | Task Name  | Duration | Start        | Finish       | Predecessors |
|----|---|--|----------|--------------|--------------|--------------|
| 1  |   | Sprint #3 Begins                                   | 11 days  | Tue 10/25/05 | Mon 11/7/05  |              |
| 2  |   | Continue building features                         | 10 days  | Wed 10/26/05 | Mon 11/7/05  |              |
| 3  | - | Modify prototype version #1 and #2                 | 10 days  | Wed 10/26/05 | Mon 11/7/05  |              |
| 4  |   | Fine-tune system requirements and interface look   | 1 day    | Fri 10/28/05 | Fri 10/28/05 |              |
| 5  |   | Sketch landing pages (main, sublet, roommate)      | 4 days   | Mon 10/31/05 | Thu 11/3/05  |              |
| 6  |   | Sketch College research page                       | 4 days   | Mon 10/31/05 | Thu 11/3/05  |              |
| 7  |   | Sketch Main links and Navs for roommate and sublet | 4 days   | Mon 10/31/05 | Thu 11/3/05  |              |
| 8  |   | Begin designing landing pages                      | 3 days   | Tue 11/1/05  | Thu 11/3/05  |              |
| 9  |   | Begin designing research landing pages             | 3 days   | Thu 11/3/05  | Sat 11/5/05  |              |
| 10 |   |  | 2 days   | Sat 11/5/05  | Mon 11/7/05  |              |

The design of the website begins during this sprint. Continuous meetings with the sponsor have given us enough time to begin sketching the pages in website layout. Sketching process occurred on Oct 31 thru Nov 3, which lasted four days.





#### 7.1.5 Sprint 4

|    | 0   | Task Name  | Duration | Start        | Finish        | Predecessors |
|----|-----|--|----------|--------------|---------------|--------------|
| 1  |     | Sprint #4 Begins                                     | 11 days  | Thu 11/10/05 | Mon 11/21/05  |              |
| 2  |     | Met with the developer of the original system        | 1 day    | Tue 11/8/05  | Tue 11/8/05   |              |
| 3  |     | Meet with team to discuss framework                  | 1 day    | Tue 11/8/05  | Tue 11/8/05   |              |
| 4  |     | Continue with designing features                     | 3 days   | Thu 11/10/05 | Sat 11/12/05  |              |
| 5  |     | Interface design of roommate landing page            | 4 days   | Mon 11/14/05 | Thu 11/17/05  |              |
| 6  |     | Interface design of apartment landing page           | 2 days   | Fri 11/18/05 | Sun 11/20/05  |              |
| 7  |     | Interface design of sublet landing page              | 3 days   | Sun 11/20/05 | Tue 11/22/05  | 11           |
| 8  |     | Interface design of university housing maing page    | 10 days  | Sat 11/12/05 | Tue 11/22/05  |              |
| 9  |     | Prototype listing results page                       | 2 days   | Fri 11/25/05 | Mon 11/28/05  |              |
| 10 | III | Prototype my accounts main landing page              | 3 days   | Tue 11/29/05 | Thu 12/1/05   | 9            |
| 11 |     | Created college research tables for backend          | 3 days   | Wed 11/16/05 | Fri 11/18/05  |              |
| 12 |     | Team downloaded apache server, mysql, and myphpadmin | 3 days   | Thu 11/10/05 | Sat 11/12/05  |              |
| 13 |     | Team members learning php and mysql                  | 7 days   | Wed 11/16/05 | VVed 11/23/05 | 12           |

Our first meeting with the developer occurred the first day of sprint 4. The lead PHP programmer presented questions to the developer regarding how the database is going to be built. The developer meeting lasted 2hrs. The meeting occurred on November 8, 2005 at 6:00PM at EDC III. The goal of the meeting was to explain the framework, which describes how the database needs to be structured. After the November 8 meeting, team members began learning PHP. During that time, the lead PHP programmer explained the complexity of the framework and that he will need help in constructing the script files.



#### 7.1.6 Sprint 5

|    | 0    | Task Name   | Duration | Start        | Finish       | Predecessors |
|----|------|---|----------|--------------|--------------|--------------|
| 1  |      | Sprint #5 Begins  | 10 days  | Thu 11/24/05 | Mon 12/5/05  |              |
| 2  |      | Design favorites interface for my accounts page                     | 4 days   | Wed 11/23/05 | Sat 11/26/05 |              |
| 3  |      | Design, code, and test advanced search page                         | 4 days   | Wed 11/23/05 | Sat 11/26/05 |              |
| 4  |      | Design sublet search page   | 4 days   | Wed 11/23/05 | Sat 11/26/05 |              |
| 5  |      | Design roommate search page   | 5 days   | Sat 11/26/05 | Thu 12/1/05  |              |
| 6  |      | Design testomonial page   | 4 days   | Thu 12/1/05  | Mon 12/5/05  |              |
| 7  |      | Presentation rehearsal  | 1 day    | Sun 12/4/05  | Sun 12/4/05  |              |
| 8  | III  | Compile video presentation of system                                | 2 days   | Sun 12/4/05  | Mon 12/5/05  |              |
| 9  | E    | Finalize documentation  | 2 days   | Sun 12/4/05  | Mon 12/5/05  |              |
| 10 |      | Deliver all documentation and deliverables to sponsor and professor | 1 day    | Tue 12/6/05  | Tue 12/6/05  | 1            |
| 11 | T    | System presentation   | 1 day    | Tue 12/6/05  | Tue 12/6/05  | 8            |
|    | 20.0 |   |          |              |              |              |

Our progress in learning the framework continues to be minimal. In fact, most team members met 5 times a week at one point to understand the framework. The learning curve was too high to overcome. At that point, the project manager communicated to the professor that the system we are building requires a framework that is highly complicated. Also, the amount of time to learn to framework is not enough because of the high learning curve. PM sent an email to professor and sponsor explaining to them that teams programmers weren't capable of handling the system within the given time period.

## 7.2 Gantt chart

Gantt charts given below outline the tasks and steps in respect to completion dates. The tasks shown are completely dependent upon each other. Being able to progress from one task to the other and completing a task is important to the overall success of the project. Modules 7.2.X (where X is 7.2.1, 7.2.2, etc) shows the Gantt chart with some of the paths shown in parallel. One approach that the team adopted when traversing through the task timeline is to move in a parallel direction. Moving in a parallel direction is working on multiple tasks simultaneously in given timeframe. This allowed us to manage our time by completing tasks ahead of schedule.



#### 7.2.1 Initial Planning



## 7.2.2 Sprint 1

|    | 0 | Task Name                                   | Sep 18, '05 Sep 25, '05 Oct 2, '05 Oct 9, '05 |
|----|---|---|---|
|    |   |   | SMTWTFSSMTWTFSSMTWTFSSMTWTFS                  |
| 1  |   | Sprint #1 Begins                            | 9/26 10/7                                     |
| 2  |   | Project Planning                            | 9/26 9/28                                     |
| 3  |   | System Problem Statement                    | 9/26 9/29                                     |
| 4  |   | Requirements Gathering                      | 9/28 10/9                                     |
| 5  |   | Analysis of Requirements                    | 9/28 10/9                                     |
| 6  |   | Market Research Gathering                   | 9/27  |
| 7  |   | Analysis of Market Research                 | 10/3 10/5                                     |
| 8  |   | Construct Features List                     | 9/28 10/10                                    |
| 9  | - | Modeling High-Level Sequence Diagrams       | 9/27 9/30                                     |
| 10 | T | Modeling High-level Class Diagrams          | 10/4 📩 10/4                                   |
| 11 |   | Modeling High-level Use-Case Diagrams       | 10/9 📩 10/9                                   |
| 12 |   | Risk Management for Initiation and Planning | 10/10   |



#### 7.2.3 Sprint 2



## 7.2.4 Sprint 3

|    | 0        | Task Name  |   | Oct 23, '05 | 00    | :t 30, 'C | 15  |      | Nov 6 | ,'05 |    |   |
|----|----------|--|---|-------------|-------|-----------|-----|------|-------|------|----|---|
|    | <b>°</b> |  | S | SMTWTFS     | SS    | MT        | WT  | FS   | SM    | TW   | TF | S |
| 1  |          | Sprint #3 Begins                                   |   | 10/25       |       |           |     |      |       | 11/7 |    |   |
| 2  |          | Continue building features                         |   | 10/26       |       |           |     |      |       | 11/7 |    |   |
| 3  |          | Modify prototype version #1 and #2                 |   | 10/26       |       |           |     |      |       | 11/7 |    |   |
| 4  |          | Fine-tune system requirements and interface look   |   | 10/28       | 10/28 |           |     |      |       |      |    |   |
| 5  |          | Sketch landing pages (main, sublet, roommate)      |   | 10          | 0/31  |           |     | 11/3 |       |      |    |   |
| 6  |          | Sketch College research page                       |   | 10          | 0/31  |           |     | 11/3 |       |      |    |   |
| 7  |          | Sketch Main links and Navs for roommate and sublet |   | 10          | 0/31  |           |     | 11/3 |       |      |    |   |
| 8  |          | Begin designing landing pages                      |   |             | 11    | 1         |     | 11/3 |       |      |    |   |
| 9  |          | Begin designing research landing pages             |   |             |       | 11.       | 3   |      | 11/5  |      |    |   |
| 10 |          |  |   |             |       |           | 11/ | 5    |       | 11/7 |    |   |

## 7.2.5 Sprint 4

|    | 0 | Task Name  | Nov 6, '05 Nov 13, '05 Nov 20, '05 Nov 27, '05              |
|----|---|--|---|
|    |   |  | F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S |
| 1  |   | Sprint #4 Begins                                     | 11/10 11/21   |
| 2  | = | Met with the developer of the original system        | 11/8 📷 11/8   |
| 3  | 1 | Meet with team to discuss framework                  | 11/8 📷 11/8   |
| 4  |   | Continue with designing features                     | 11/10 11/12   |
| 5  |   | Interface design of roommate landing page            | 11/14 11/17   |
| 6  |   | Interface design of apartment landing page           | 11/18 11/20   |
| 7  |   | Interface design of sublet landing page              | 11/20 11/22   |
| 8  |   | Interface design of university housing maing page    | 11/12   |
| 9  |   | Prototype listing results page                       | 11/25   |
| 10 |   | Prototype my accounts main landing page              | 11/29 12/1  |
| 11 | - | Created college research tables for backend          | 11/161/18   |
| 12 |   | Team downloaded apache server, mysql, and myphpadmin | 11/10 11/12   |
| 13 | = | Team members learning php and mysql                  | 11/16 11/23   |



# 7.2.6 Sprint 5

| -  | 0 | Task Name   |    |   | Nov 20 | ), '05 |       |   | Nov 27 | '05   |      | Dec 4 | 4, '05     |      |    |
|----|---|---|----|---|--------|--------|-------|---|--------|-------|------|-------|------------|------|----|
|    |   |   | TF | S | SM     | T W    | TF    | S | S M 1  | ' W T | F S  | SM    | TV         | V T  | FS |
| 1  |   | Sprint #5 Begins  |    |   | 1      | 1/24   |       |   |        |       |      |       | L 12/      | 5    |    |
| 2  |   | Design favorites interface for my accounts page                     |    |   | 11/2   | 3      |       |   | 11/26  |       |      |       |            |      |    |
| 3  |   | Design, code, and test advanced search page                         |    |   | 11/2   | 3      |       |   | 11/26  |       |      |       |            |      |    |
| 4  |   | Design sublet search page   |    |   | 11/2   | 3      |       |   | 11/26  |       |      |       |            |      |    |
| 5  |   | Design roommate search page   |    |   |        |        | 11/26 |   |        |       | 12/1 |       |            |      |    |
| 6  |   | Design testomonial page   |    |   |        |        |       |   | 1      | 2/1   |      |       | 12/        | 5    |    |
| 7  |   | Presentation rehearsal  |    |   |        |        |       |   |        |       | 12/4 | 1     | 2 4        |      |    |
| 8  |   | Compile video presentation of system                                |    |   |        |        |       |   |        |       | 12/4 |       | 12/        | 5    |    |
| 9  |   | Finalize documentation  |    |   |        |        |       |   |        |       | 12/4 |       | 12/        | 5    |    |
| 10 |   | Deliver all documentation and deliverables to sponsor and professor |    |   |        |        |       |   |        |       |      | 12/6  | Ì.         | 12/6 |    |
| 11 |   | System presentation   |    |   |        |        |       |   |        |       |      | 12/6  | È.         | 12/6 |    |
| -  |   |   |    |   |        |        |       |   |        |       |      |       | account of |      |    |



## 7.3 PERT CHART:

Figure below represents another method for project management. The functionally of this representation is that it displays a detailed flow of tasks going from one point to another. Now, the bow arrow shows that after testing we go back to the requirements gathering phase. We only do this when the system testing doesn't adhere to the specifications or it fails a test such a navigation test between pages. Ideally, testing includes functionality, errors, bugs, or any bottlenecks that might affect system performance. Since the backend was never built minimal testing was

**FIGURE 7.3** - Shows the major phases of development. No testing is done on the backend as the end still needs to be worked on.





# 8 Risk Management

In any project there should be some amount of risk or uncertainty involved. Risk is the measure of the likelihood of loss or returns that were less than expected. Risk management is the process of analyzing exposure to risk and determining how to best handle the certain generic situations that cause risk. Certain risks are acceptable, some are insignificant, and others should be handled carefully. There are ways for the group to handle risk. One way would be to accept it then move on. Another way would be creating contingency plans or positions to fall back on. Having strategies to handle risks should reduce the amount or the impact of risks that might occur.

The following tables identify risks that could affect the outcome of the Garden State Apartments' Off-campus Housing project and the impacts of each risk factor.

## 8.1 Initiation Phase

During the initiation phase, the project had only a few risks. The project was well-defined enough for all members of the team to understand it. A feasibility study was not necessary for this particular project. The objectives were generally clear to everyone since the sponsor was sure about what he wants.

| Risks                          | Impact        | Cost if Risk<br>Occurred                                    | Mitigation<br>Plan  | Risk Severity Scale<br>(0 = insignificant risk,<br>10 = highest risk) |
|--------------------------------|---------------|---|---|---|
| Poor definition of the project | Very low      | that the  | Frequent meetings<br>and constant<br>communication<br>between the team<br>and the sponsor |   |
| No feasibility study           | Insignificant | Insignificant   | Insignificant   | 0   |
| Unclear of objectives          | Very low      | Time wasted<br>on designs<br>that are not<br>related to the | Frequent meetings<br>and constant<br>communication<br>between the team<br>and the sponsor |   |



| sponsor's<br>wishes |  |
|---------------------|--|
|---------------------|--|

## 8.2 Planning Phase

Compared to the initiation phase, there were more risks involved during the planning phase. It is now moving into the direction of what would become the framework of the system. The impacts of the risks in this phase are still low despite the fact that there were more during this phase than the initiation phase. The clarity of the sponsor's ideas, sufficient planning, and effective placement of team members in their current roles have contributed to the low impacts in this phase. The reasons for the low risks were because of the sponsor's clarity of what he wants the system to be.

| Risks                            | Impact        | Cost if Risk<br>Occurred  | Mitigation<br>Plan   | Risk Severity Scale<br>(0 = insignificant risk,<br>10 = highest risk) |
|----------------------------------|---------------|---|--|---|
| Inadequate risk management plan  | Insignificant | Insignificant   | Insignificant  | 0   |
| Hasty planning                   | Very low      | Poor design<br>quality  | Frequent team<br>meetings,<br>constant<br>communication<br>between all team<br>members and<br>weekly progress<br>reports submitted<br>to the sponsor | 1   |
| Poor specifications/requirements | Low           | Poor design<br>quality  | Frequent team<br>meetings,<br>constant<br>communication<br>between all team<br>members and<br>weekly progress<br>reports submitted<br>to the sponsor | 3   |
| Unclear statement of work        | Very Low      | Poor design<br>quality and<br>time wasted<br>on designs<br>that are not<br>related to the | Frequent team<br>meetings,<br>constant<br>communication<br>between all team<br>members and<br>weekly progress<br>reports submitted<br>to the sponsor | 1   |



|                                      |          | sponsor's<br>wishes  |  |   |
|--------------------------------------|----------|--|--|---|
| Poor role definition                 | Very Low | Poor quality<br>of work in<br>general for<br>the entire<br>project | Team members<br>should have<br>constant<br>communication<br>with the project<br>manager. The<br>project manager<br>should<br>reconsider every<br>member's skill<br>set | 1 |
| Inexperienced team                   | Low      | Poor quality<br>of work in<br>general for<br>the entire<br>project | The entire team<br>should seek help<br>or training from<br>an experienced<br>professional  | 3 |
| Sponsor unclear about specifications | Very Low | An<br>unsatisfied<br>sponsor                                       | Frequent<br>meetings and<br>constant<br>communication<br>between the<br>team and the<br>sponsor  | 1 |

## 8.3 Design Phase

During the design phase the risks are slightly more substantial than the previous phases. These risks could turn into real problems if left unchecked and uncontrolled. Proper planning and avoidance should help to alleviate the risks involved in this phase. As it turns out, the impacts are low but not as low as the planning phase. None of the requirements have drastically changed at all. Most members show up for meetings and have schedules that are flexible enough for most people to schedule group collaboration.

| Risks                | Impact | Cost if Risk<br>Occurred | Mitigation<br>Plan   | Risk Severity Scale<br>(0 = insignificant risk,<br>10 = highest risk) |
|----------------------|--------|--------------------------|--|---|
| Personnel shortfalls | Low    | Poor quality of<br>work  | The project<br>manager should<br>talk to any<br>member about<br>any shortfalls and | 3   |


|                                       |          |  | make sure that                       |   |
|---------------------------------------|----------|--|--------------------------------------|---|
|                                       |          |  | members with                         |   |
|                                       |          |  | unsatisfactory                       |   |
|                                       |          |  | work performance                     |   |
|                                       |          |  | are cut from the                     |   |
|                                       |          |  | team immediately                     |   |
| TT 1° 4° 1 1 1                        | Х7 Т     |  |                                      | 1 |
| Unrealistic schedules                 | Very Low | Poor quality of                            | Every team                           | 1 |
|                                       |          | work and lack                              | member should                        |   |
|                                       |          | of face-to-face                            | tell the project                     |   |
|                                       |          |  | manager their                        |   |
|                                       |          | communication                              | daily schedule                       |   |
|                                       |          |  | and set the days                     |   |
|                                       |          |  | where the entire                     |   |
|                                       |          |  | team can meet                        |   |
|                                       |          |  | face-to-face                         |   |
| Developing the wrong                  | Low      | Poor design                                | The team                             | 3 |
|                                       | LUW      | -  | members working                      | 5 |
| functions                             |          | quality                                    | on the actual                        |   |
|                                       |          |  | project design                       |   |
|                                       |          |  | should have as                       |   |
|                                       |          |  |                                      |   |
|                                       |          |  | many meetings as                     |   |
|                                       |          |  | necessary to fix                     |   |
|                                       |          |  | the problem                          |   |
| Developing the wrong user             | Low      | Poor design                                | The team                             | 3 |
| interfaces                            |          | -  | members working                      | - |
| interfaces                            |          | quality and an                             | on the actual                        |   |
|                                       |          | unsatisfied                                | project design                       |   |
|                                       |          | sponsor                                    | should have as                       |   |
|                                       |          | sponsor                                    | many meetings as                     |   |
|                                       |          |  | necessary to fix                     |   |
|                                       |          |  | the problem                          |   |
|                                       | т        | D 1 '                                      | The team                             | 2 |
| Continuing stream of                  | Low      | Poor design                                |                                      | 3 |
| requirements changes                  |          | quality                                    | members and the                      |   |
| 1 8                                   |          | 1 7  | sponsor should                       |   |
|                                       |          |  | come to a                            |   |
|                                       |          |  | decision on a                        |   |
|                                       |          |  | finalized list of                    |   |
|                                       |          |  | requirements that                    |   |
|                                       |          |  | will not change                      |   |
| Lack of defined                       | Low      | Poor design                                | The team                             | 3 |
|                                       |          | -  | members should                       | 5 |
| development process                   |          | quality                                    | come to a                            |   |
|                                       |          |  | decision on the                      |   |
|                                       |          |  | development                          |   |
|                                       |          |  | process they                         |   |
|                                       |          |  | should use                           |   |
|                                       |          |  |                                      |   |
| Lack of considering                   | Low      | Time wasted if                             | The team                             | 3 |
| alternative designs                   |          | the original                               | members working                      |   |
| anomum ve debigins                    |          | -  | on the actual                        |   |
| I I I I I I I I I I I I I I I I I I I |          | design fails                               | project design                       |   |
|                                       |          | acoign rano                                |                                      |   |
|                                       |          | -  | should have as                       |   |
|                                       |          | and a final                                | should have as many meetings as      |   |
|                                       |          | and a final product that                   | many meetings as                     |   |
|                                       |          | and a final product that                   | many meetings as<br>necessary to fix |   |
|                                       |          | and a final<br>product that<br>the sponsor | many meetings as                     |   |
|                                       |          | and a final product that                   | many meetings as<br>necessary to fix |   |



# **8.4 Encountered Risks**

From the midpoint and continuing on towards the end of the semester, the team has been stuck in the design phase. There were a number of factors that caused this to happen. The best contingency plan that would have avoided such a pitfall in this particular project would have been a meeting with the previous web developer within the first weeks of the fall semester, in September. The delayed meeting between the project team and the previous web developer was only the tip of the iceberg.

This table shows all the risks that were encountered during the design phase.

| Encountered Risks   | Impact         | Cost if Risk<br>Occurred  | Mitigation<br>Plan   | Risk Severity Scale<br>(0 = insignificant risk,<br>10 = highest risk) |
|---|----------------|---|--|---|
| The first meeting with the developer occurred during the beginning of sprint 4 (around November 9 <sup>th</sup> ). The reason is that the developer was unavailable to meet beforehand to explain the framework the sponsor wanted the team to adhere to. | Very High Risk | of time wasted<br>on plans and  | Frequent<br>meetings and<br>constant<br>communication<br>between the<br>team, the<br>developer and<br>the sponsor.<br>Ask specific<br>questions about<br>the system's<br>framework | 10  |
| Team had late access to sponsor's<br>database during the project's<br>development   | High Risk      | A large amount<br>of time wasted<br>on plans and<br>designs that will<br>not work. The<br>team could have<br>used that time<br>learning the<br>developer's<br>framework | Frequent<br>meetings and<br>constant<br>communication<br>between the<br>team, the<br>developer and<br>the sponsor.<br>Ask specific<br>questions about<br>the system's<br>framework | 8   |
| Team had no access to the database systems  | High Risk      | The team has no<br>method to check<br>their work,   | The sponsor<br>should convince<br>the developer to   | 8   |



|                                   |                | which also leads                  | U                                |   |
|-----------------------------------|----------------|-----------------------------------|----------------------------------|---|
|                                   |                | to a large<br>amount of time      | the project team                 |   |
|                                   |                | wasted on plans                   |                                  |   |
|                                   |                | and designs that                  |                                  |   |
|                                   |                | will not function                 |                                  |   |
|                                   |                | on the sponsor's                  |                                  |   |
|                                   |                | database system                   |                                  |   |
| Team had no access to PHP         | High Risk      | A large amount                    | The sponsor                      | 8 |
| scripts                           | 8              | of time wasted                    |                                  | - |
| scripts                           |                | on plans and                      | the developer to                 |   |
|                                   |                | designs that will                 |                                  |   |
|                                   |                | not work                          | the project team                 |   |
| Team had no access to backend     | High Risk      | A large amount                    | The sponsor                      | 8 |
| scripts                           |                |                                   | should convince                  |   |
| I II                              |                | on plans and                      | the developer to                 |   |
|                                   |                | not work. The                     | grant the project<br>team direct |   |
|                                   |                | team could have                   | access to the                    |   |
|                                   |                | used that time                    | backend scripts                  |   |
|                                   |                | building the                      | ouchend sempts                   |   |
|                                   |                | framework of                      |                                  |   |
|                                   |                | the project                       |                                  |   |
|                                   |                | directly on the                   |                                  |   |
|                                   |                | sponsor's                         |                                  |   |
|                                   |                | database system                   |                                  |   |
| Team only had access to front-end | High Risk      | A large amount                    | The sponsor                      | 8 |
| code                              | 0              | of time wasted                    | should convince                  |   |
| eoue                              |                | on plans and                      | the developer to                 |   |
|                                   |                |                                   | grant the project                |   |
|                                   |                | not work. The                     | team direct                      |   |
|                                   |                | team could have<br>used that time | access to the<br>backend scripts |   |
|                                   |                | learning the                      | backend scripts                  |   |
|                                   |                | developer's                       |                                  |   |
|                                   |                | framework                         |                                  |   |
| Restriction of direct             | High Risk      | Questions about                   | The sponsor                      | 8 |
|                                   | Tingii Kisk    | the developer's                   | should allow                     | 8 |
| communication with the original   |                | framework are                     | some degree of                   |   |
| developer                         |                | not answered                      | direct                           |   |
|                                   |                | fast enough and                   | communication                    |   |
|                                   |                | the outcome is                    | between the                      |   |
|                                   |                | more time                         | developer and                    |   |
|                                   |                | wasted on                         | the project team                 |   |
|                                   |                | designs that will                 |                                  |   |
|                                   |                | not work                          | A . 1                            |   |
| Readjustments to requirements     | Very High Risk | A small amount                    | Avoid                            | 9 |
| were done late in the project's   |                | of time to create<br>a finished   | readjustments that will cause    |   |
| development                       |                | product, which                    | more project                     |   |
|                                   |                | will probably                     | time delays.                     |   |
|                                   |                | produce results                   | Reduce the                       |   |
|                                   |                | that are not                      | amount of                        |   |
|                                   |                | acceptable to                     | unfeasible                       |   |
|                                   |                | the sponsor                       | requirements                     |   |
| Significant changes to team       | High Risk      | Project time                      | Reassign                         | 8 |
| member job roles                  | THE THE        | delays caused                     | changes to job                   | Ŭ |
|                                   |                | by team                           | roles according                  |   |
|                                   | 1              | members                           | to each                          |   |



|                                    |                |                 | [                  | · · · · · · · · · · · · · · · · · · · |
|------------------------------------|----------------|-----------------|--------------------|---------------------------------------|
|                                    |                | learning new    | member's           |                                       |
|                                    |                | skills and not  | current            |                                       |
|                                    |                | enough time for | workload and       |                                       |
|                                    |                | team members    | skill set.         |                                       |
|                                    |                | to work on the  |                    |                                       |
|                                    |                | original        |                    |                                       |
|                                    |                | workload within |                    |                                       |
|                                    |                | their job roles | -                  |                                       |
| Team mates with no PHP             | Very High Risk | Project time    | Seek training      | 10                                    |
| programming knowledge learning     | 5 0            | delays caused   | from a             |                                       |
|                                    |                | by team         | professional       |                                       |
| PHP for the first time. The        |                | members         | who can help       |                                       |
| different levels of PHP experience |                | learning new    | explain the        |                                       |
| within the team produced a higher  |                | skills and not  | language, buy      |                                       |
|                                    |                | enough time for | programming        |                                       |
| learning curve to climb.           |                | team members    | books or take      |                                       |
|                                    |                | to work on the  | programming        |                                       |
|                                    |                | original        | tutorials          |                                       |
|                                    |                | workload within |                    |                                       |
|                                    |                | their job roles |                    |                                       |
| Lack of experience/knowledge       | Very High Risk | Project time    | Seek training      | 9                                     |
| required in PHP                    |                | delays caused   | from a             | -<br>-                                |
|                                    |                | by team         | professional       |                                       |
|                                    |                | members         | who can help       |                                       |
|                                    |                | learning new    | explain the        |                                       |
|                                    |                | skills          | language, buy      |                                       |
|                                    |                |                 | programming        |                                       |
|                                    |                |                 | books or take      |                                       |
|                                    |                |                 | programming        |                                       |
|                                    |                |                 | classes            |                                       |
| Shortage of team members with      | High Risk      | Project time    | Assign PHP         | 8                                     |
| -                                  | U              | delays caused   | programming        | 0                                     |
| significant experience in advanced |                | by the only     | tasks to other     |                                       |
| PHP programming                    |                | team member     | team members       |                                       |
|                                    |                | specialized in  | and give           |                                       |
|                                    |                | PHP being       | difficult tasks to |                                       |
|                                    |                | overwhelmed     | those who have     |                                       |
|                                    |                | by advanced     | more               |                                       |
|                                    |                | techniques      | knowledge          |                                       |
| Lack of understanding an           | High risk      | Project time    | Assign PHP         | 10                                    |
|                                    |                | delays caused   | programming        | 10                                    |
| advanced PHP framework built by    |                | by the only     | tasks to other     |                                       |
| the original developer             |                | team member     | team members       |                                       |
|                                    |                | specialized in  | and give           |                                       |
|                                    |                | PHP being       | difficult tasks to |                                       |
|                                    |                | overwhelmed     | those who have     |                                       |
|                                    |                | by an advanced  | more               |                                       |
|                                    |                | framework       | knowledge.         |                                       |
|                                    |                |                 | Also ask the       |                                       |
|                                    |                |                 | developer          |                                       |
|                                    |                |                 | specific           |                                       |
|                                    |                |                 | questions about    |                                       |
|                                    |                |                 | the framework      |                                       |
| Lack of team training in PHP       | High Risk      | Project time    | Seek training      | 9                                     |
|                                    | THEIL KISK     | delays caused   | from a             | 7                                     |
| programming techniques             |                | by team         | professional       |                                       |
|                                    |                | members         | who can help       |                                       |
|                                    |                | learning new    | explain the        |                                       |
|                                    |                |                 |                    |                                       |
|                                    |                | skills          | language, buy      |                                       |



|  | programming<br>books or take<br>programming |  |
|--|---|--|
|  | classes                                     |  |



# **9 Stakeholders**

## 9.1 Interactive Viewpoint Stakeholders

The Interactive Viewpoint Stakeholders are those individuals that directly interact or use the Garden State Apartments website. All users can be expected to be of different levels of technical experience, knowledge of real estate terms/information, age, and background. These users are divided into the following categories:

### 9.1.1 General Users

General Users are individuals that are potential customers and/or visitors to the Garden State Apartments website. These individuals will be given certain features such as the ability to search for apartments and to register for a specialized account.

### 9.1.2 Registered Users

Registered users are individuals or companies that have registered an account with the Garden State Apartment website. These registered users contain the following accounts:

### 9.1.2.1 Tenants

Tenants are individuals that have tenant accounts may or may not have an apartment. Tenants can be either Student Tenants or General Tenants. Both groups will be given features such as the ability to search for an apartment, search for a roommate, post a sublet for a current apartment, or post a listing for a roommate.

• *Student Tenants*: Specific tenants that are university students will be given additional features such as accessing relevant university web-pages.



• General (Faculty) Tenants: The remaining list of tenants which are offered the same features listed above.

#### 9.1.2.2 Landlords and Owners

Landlord accounts are those individuals that own or manage a few apartment(s).

These users are given features such as the ability to post apartments for rent.

#### 9.1.2.3 Property Managers

Property Managers are those individuals that manage medium scale apartment units. These users are given features such as the ability to post multiple apartment unit vacancies.

#### 9.1.2.4 Apartment Complexes and Large Communities

This account is generally assigned to real estate companies that own/mange large scale apartment complexes and/or large communities. These users are given features such as the ability to post multiple apartment and building vacancies.

#### 9.1.2.5 Real Estate Brokers and Agents

This account is assigned to individuals that provide real estate listings services directly to other clientele. These service providers are given features such as the ability to advertise their own listings from other clientele through the Garden State Apartments website.



## 9.2 Domain Viewpoint Stakeholders

The Domain Viewpoint Stakeholders are those individuals classified around specific domains of the Garden State Apartments website. These users are divided into the following categories:

### 9.2.1 Administrators

Administrators are individuals that administrate the criteria and focus of the Garden State Apartments website as well as manage other domain viewpoint stakeholders. These users might access the system periodically to ensure that the overall system focus and information align with the business direction.

### 9.2.2 System Administrators

System Administrators are individuals that administer to the functionality and operation of the website. These users will coordinate with developer stakeholders as well as occasionally access certain front and back end operations of the website.

### 9.2.3 Programmers/Development Team

Programmers or a Development Team are individuals that directly modify, update, re-engineer, and maintain both front and back end processes of the website.



# 9.3 Indirect (Influential) Viewpoint Stakeholders

The Indirect Viewpoint Stakeholders are those individuals that indirectly influence the functionality of the Garden State Apartments website. These users are divided into the following categories:

### 9.3.1 Finance Administrators

Finance Administrators are individuals that administrate to the overall financial decision making of the Garden State Apartments website. These users will coordinate with marketing administrators as well as with other domain viewpoint stakeholders.

### 9.3.2 Marketing Administrators

Marketing Administrators are individuals that administrate to keeping the Garden State Apartments website a competitor in the online apartment listing market. These users will obtain feedback from interactive viewpoint stakeholders and coordinate findings with finance administrators and domain viewpoint stakeholders.



# 9.4 Stakeholders Hierarchy





# **10 Requirements Gathering Techniques**

# **10.1 Traditional Methods**

### 10.1.1 Interview

Members of the project group interviewed several random Internet users to get a feel of what is generally expected of a website. Some questions were directly based on real estate matters to provide a more specific answer of what to implement in a real estate-based website. The answers were combined into one general "Typical Response" for each question and proved to the team that the website-to-be will be one that is most useful and worth designing.

The interview distributed appears in the following pages.



# Interview: Use of a General and Realty-Based Website

1. Would you use the Internet as a primary resource for searching for an apartment?

Typical Response: Yes, it is always available and has lots of choices.

2. Have you ever visited a real-estate or real-estate related website?

Typical Response: Yes, to price houses.

3. Would you be familiar with real-estate terms if they appeared on a website without explanation (i.e. - "sublet")?

Typical Response: No, I would probably have to look it up in the dictionary.

4. While researching a school, how important are university-related statistics (i.e.-

Female to Male Student Ratio)?

Typical Response: Moderate; it is interesting to learn, but not a first priority.

5. While visiting a university's website, what pages other than the home page do you usually visit?

Typical Response: Sports, Student Clubs, School Store

### Ease of use/Navigation

6. How important is speed to you when a website loads up its content?

**Typical Response**: Extremely, because if I use a computer other than my own, it may have a different type of Internet connection and load a website slower or faster.



7. What would be the optimal number of mouse-clicks to navigate to a page in a website?

Typical Response: Probably two or three.

8. What would be the most number of mouse-clicks performed before you lose interest of navigating to a webpage?

**Typical Response**: Maybe four. Absolutely starting at five or more clicks, I guarantee to leave the website and look for another one that can help me.

9. Would you rather have all the content of a page on one scrollable page or broken up into numerous pages?

**Typical Response**: It depends on what the website offers. If it shows all the important information within a small area, I wouldn't mind. If the information seems scattered, I would rather click through different pages.

10. While using a search function, would you rather have an instantaneous but broad search or would you rather take more time to customize a specific search?

**Typical Response**: I would rather start off with a broad search and see what comes up. I would only use the custom search if I know exactly what I am looking for.

### User-friendliness

11. How important are user-customized websites to you?

Typical Response: Fairly important if it makes navigation that much quicker.



12. How would you feel about member-only privileges and benefits on a website?Typical Response: I would like that very much.

13. If you are interested in a webpage, do you bookmark it or record its URL?Typical Response: Yes, I bookmark it.

14. If you are searching for variously-priced items, would you rather they appear in a defined price range?

Typical Response: Yes, it makes it quicker to choose, based on my price limits.

### Security

15. How important is security and posting secure personal information on a website?

Typical Response: Extremely important, especially in these days of identity theft.

16. Would you ever choose a roommate strictly through e-mail contact?

**Typical Response**: Under most circumstances, no, but if I were able to communicate back and forth and get an idea of who the person is, maybe.



### 10.1.2 Questionnaires

Based on the output of the interviews that the project team conducted, questionnaires were

written up to finalize the important features of a realty-based website.

#### Variables Measured

| #  | General   | Specific  |
|----|-----------|---|
| 1  | Audience  | Does the user fit the student/faculty audience of the project?                              |
| 2  | Usability | Will the user be able to access the Internet to access the Garden State Apartments website? |
| 3  | Usability | Does the user use the Internet often enough to access the website?                          |
| 4  | Usability | What is the range of Internet connection speeds that will access the website?               |
| 5  | Design    | How much time has to go into designing a fast loading website?                              |
| 6  | Design    | How direct should pages that link to others link?   |
| 7  | Design    | How direct should pages that link to others link?   |
| 8  | Content   | Should the content on each page be as minimal as possible?                                  |
| 9  | Design    | How much time should be dedicated towards redesigning the Advanced Search?                  |
| 10 | Design    | What would be the most effective way to display search results?                             |
|    |           | (Variable #s correspond to each question in the questionnaire)                              |

(Variable #s correspond to each question in the questionnaire)



### Variables Measured (Cont.)

| #  | General                   | Specific   |
|----|---------------------------|--|
| 11 | Design /<br>Customization | How much time should be going into encoding a customized website for the user? |
| 12 | Design /<br>Customization | How much time should be going into encoding a customized website for the user? |
| 13 | Design /<br>Security      | What extent of user information should be made available to the public?        |
| 14 | Design                    | How much time should be dedicated designing a University Research section?     |
| 15 | Audience                  | How familiar will the user be using a realty-based website?                    |
| 16 | Audience                  | How familiar will the user be using a realty-based website?                    |
| 17 | Content                   | Should realty-based terms be defined on the website?                           |
| 18 | Audience                  | What is the likelihood of a user using this site to perform specific actions?  |
| 19 | Audience                  | What is the likelihood of a user using this site to perform specific actions?  |
| 20 | Design                    | What is the  |

(Variable #s correspond to each question in the questionnaire)

The questionnaire was distributed to random Internet users, different from those who were interviewed, and appear in the following pages.



# **Questionnaire: Use of a General and Realty-Based Website**

1. Please choose your position from the listing. Faculty Member Student Other 2. Do you have access to the internet? Yes No 3. Estimated hours of Internet use per day. 3 - 6 Hours Less than 1 Hour 1 - 3 Hours More than 6 Hours 4. What type of modem speed do you have? Dial-Up Cable DSL Other 5. How would you rate the importance of speed while a website loads up its content? Poor Fair Good Great No Best Preference 6. What would be the optimal number of mouse-clicks to navigate to a page in a website? One Two Three Five Four



|                |                     |                    | -                | •            |                     |
|----------------|---------------------|--------------------|------------------|--------------|---------------------|
| navigating a v | vebsite?            |                    |                  |              |                     |
| Two            | Three               | Four               | Five             |              | Six or More         |
|                |                     |                    |                  |              |                     |
| 8. How would   | d you rather have   | excessive conten   | t displayed on a | website?     |                     |
| One S          | crollable Page      | Broken Up I        | Into Sections    | (            | Other               |
|                |                     |                    |                  |              |                     |
| 9. How would   | d you like a searcl | ning function to s | earch content or | n a website? |                     |
| ]              | Instantaneous, but  | broad              | Timely, bu       | t customized | and specific        |
|                |                     |                    |                  |              |                     |
| 10. How do y   | ou like search res  | ults to return?    |                  |              |                     |
| Alphabe        | etical Chronol      | ogical Ran         | dom G            | rouped       | No Preference       |
| Ĩ              |                     | C                  |                  | Ĩ            |                     |
| 11. How wou    | ld you rate the im  | portance of a use  | r-customized w   | ebsites?     |                     |
| Poor           | Fair                | Good               | Great            | Best         | No                  |
| 1001           | 1 an                | 0000               | Great            | Dest         | Preference          |
|                |                     |                    |                  |              | Ficicicic           |
| 10 11          | 11 / 11             | í í                | 1 1              | 11           |                     |
|                |                     |                    |                  |              | efits on a website? |
| Poor           | Fair                | Good               | Great            | Best         | No                  |
|                |                     |                    |                  |              | Preference          |

7. What would be the most number of mouse-clicks performed before you lose interest of



13. How would you rate the importance of security and posting secure personal information on a website?

Good Poor Fair Great Best No Preference 14. While researching a school, how would you rate the importance of university-related statistics (i.e.- Female to Male Student Ratio, Race Minority/Majority)? Poor Fair Good No Great Best Preference 15. How would you rate your knowledge in real estate? Poor Fair Good Great Not Best Applicable 16. Have you ever visited a real-estate or real-estate related website? Yes No 17. If you answered yes to (16), would you be familiar with real-estate terms if they appeared on a website without explanation (i.e. - "sublet")?

Yes No



| 18. Would you use the Internet as a primary reso | 18. Would you use the Internet as a primary resource for searching for an apartment? |  |  |  |  |  |
|--|--|--|--|--|--|--|
| Yes  | No   |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 19. Would you use the Internet as a primary reso | ource for searching for a roommate to live with?                                     |  |  |  |  |  |
| Yes  | No   |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 20. Would you ever choose a roommate strictly t  | through e-mail contact?  |  |  |  |  |  |
| Yes  | No   |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

The results obtained from the questionnaires generally matched the combined results of the interviews, bringing the project team to a conclusion of exactly what needs to go into the Garden State Apartments website and what needs to be taken out.



# **10.2 VORD (Viewpoint-Oriented Requirements Definition) Methods**

# 10.2.1 Brainstorming



| Legend |                                |
|--------|--------------------------------|
|        | Stakeholders                   |
|        | <b>Functional Requirements</b> |
|        | Non-Functional Requirements    |



## **10.2.1.1 Brainstorming Categorization**

#### **General Content**

- Member Registration Page
- General Search Page
- School Bio Page
- Advanced Search Page
- School Statistics Display

### **Member-only Privileges**

- Log-in function
- Account type display
- Roommate Posting Page
- Bookmark Search Results
- Sublet Posting Page

### Security

- No Chat Feature
- No Confidential Information
- No Forum Page

### Convenience

- User-friendly
- Easy Navigation
- Loading Speed
- Minimal Page Scrolling
- Limited General Search

### Stakeholders

- Target University Crowd
- General User
- Website Admin
- Registered User



### **10.2.1.2 Brainstorming Prioritization**

The project team selected four random Internet users, different from those who were interviewed or given questionnaires, and distributed a table relating to the categories that applied to brainstorming. Each user was able to view each component listed underneath the three categories of "Member-only Privileges", "Security", and "Convenience". The users were given a total of thirty points to distribute over the three categories. Points correspond to level of importance associated by the user. The results of the tables were compiled into one table, as follows.

| User                   | Member-only Privileges<br>(Out of 30) | Security<br>(Out of 30) | Convenience<br>(Out of 30) |
|------------------------|---------------------------------------|-------------------------|----------------------------|
| Carl                   | 8                                     | 7                       | 15                         |
| (System Administrator) |                                       |                         |                            |
| Jill                   | 13                                    | 8                       | 9                          |
| (Academic User)        |                                       |                         |                            |
| Karen                  | 10                                    | 12                      | 8                          |
| (Small Business User)  |                                       |                         |                            |
| Robert                 | 18                                    | 7                       | 5                          |
| (Academic User)        |                                       |                         |                            |
| Totals:                | 49                                    | 34                      | 37                         |

#### **Brainstorming Prioritization Table**

### **Ranking of Categories (Results):**

- 1. Member-only Privileges
- 2. Convenience
- 3. Security



### 10.2.2 Quantitative Method (\$100 Test)

After brainstorming had taken place and the team conducted the Prioritization Table distribution, the project team selected four more random Internet users, different from those who were interviewed, given questionnaires, or given Brainstorming Prioritization tables to fill in. The additional random Internet users were given a \$100 test, similar to the prioritization tables, where each user would assign points to different categories with a "budget" of \$100 (100 points).

The one-hundred dollars were to be distributed between the six categories of "Customization", "Content", "Efficiency", "Security", "Convenience", and "Interactivity". Each category applies Points correspond to level of importance associated by the user. The results of the tables were compiled into one table, as follows.

| User             | Customization | Content | Efficiency | Security | Convenience | Interactivity |     |
|------------------|---------------|---------|------------|----------|-------------|---------------|-----|
| Susana           | 25            | 5       | 18         | 7        | 15          | 30            | 100 |
| (30 yr old user) |               |         |            |          |             |               |     |
| Daniel           | 18            | 16      | 19         | 16       | 17          | 14            | 100 |
| (19 yr old user) |               |         |            |          |             |               |     |
| John             | 30            | 14      | 11         | 26       | 6           | 13            | 100 |
| (24 yr old user) |               |         |            |          |             |               |     |
| Sonia            | 5             | 16      | 23         | 19       | 22          | 15            | 100 |
| (55 yr old user) |               |         |            |          |             |               |     |
| Totals:          | 78            | 51      | 71         | 68       | 60          | 72            |     |

### **Ranking of Categories (Results):**

- 1. Customization
- 2. Interactivity
- 3. Efficiency
- 4. Security
- 5. Convenience
- 6. Content



### 10.2.3 JAD

The project team met up in meetings known as Joint Application Design (JAD) sessions. Each meeting was an effective learning experience because everyone came independently with ideas and left with compiled solutions. JAD sessions were also helpful because as one person spoke their idea, another may have branched off of that idea and thought of something entirely different for another component of the project.

When the sponsor was present at certain JAD sessions, the project team was able to adapt requirements for the project directly from the source. With only about one hour's worth of meeting during the first JAD session with the sponsor, the team was able to work off of the ideas gathered for several weeks. Weekly sessions without the sponsor consisted of brainstorming and prototyping, yet adhering to the requirements given to the team.

By the second JAD session with the sponsor, the project team was deemed as one that is on the right track and has effective, creative results. The work done by the team was a direct result of adhering to the requirements that were initially assigned by the sponsor at the first JAD session and all of the insight that branched from it afterwards.

### Facilitator: Mahmoud Hasan

Executive Member: Sunny Kancherla

**Development Members**:

Cesar Cheng-Robles Michael Linderman Ibrahim Mohammed Joshua Gorospe Moises Cordero



Topics brought up at the JAD sessions:

- Target user audience
- Loading speeds
- Few-click navigation
- Interface design
- Search functions
- Page-scrolling reduction
- Page space efficiency
- Posting pages
- Member registration
- Restricted access
- Customizability for user-friendliness
- Member profiles
- School biography pages
- Security/Liability
- Programming languages
- Marketing techniques
- Potential ideas, based on market analysis

### 10.2.4 Prototyping

Following each JAD session, the project team was able to compile different design requirements

for the system. At first, the requirements were documented, but in order to get a true idea of how the project will become, the team decided to create prototypes of the existing Garden State Apartments website, based on their understanding of the sponsor's requirements. Different members worked independently, creating a working prototype to present to fellow teammates.

When two different prototypes were presented face-to-face, the project team members were able to discuss the pros and cons of each. Following the discussion of the each, an agreement was met and the most effective features of the two prototypes were compiled for future use towards yet another prototype.

The prototypes were designed to reflect the existing Garden State Apartments website. Approved components of each prototype have been given the opportunity to appear in the near future in a new University section of the existing website. The final prototype appears in the following pages.

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### Main landing page:



A: Displays reasons why users should register. For example, users whom register can post listings and modify their listings.

- B: Shows the link that allows users to get vital statistics of all NJ colleges and universities
- C: Apartment search link which takes you to apartment landing page.
- D: Sublet search link which takes you to sublet landing page.
- E: Roommate search link which takes you to roommate landing page.
- F: My accounts link which take you my accounts landing page.

G: Quick Search also allows user to enter city, state for the apartment they are searching for.

H: This area highlights all the navigation links associated with the main landing page. The navigation links are register, login, research, testimonials, main site, and about us.

I: This shows testimonials of registered users who like this site.



**Apartment landing page:** 



- A: Shows the heading for the apartment search landing page.
- B: There is also a quick apartment search for the apartment landing page.

C: Here is the navigation services associated apartment landing page. For example, there is register link, advanced search link, my favorite's link, college research link, and a login link.

D: Also, there is a testimonial located on the landing page catered to apartment search. For example, the user Jennifer comments on her wonderful experience of apartment searching.



Sublet landing page:



- A: Shows the heading for the sublet search landing page.
- B: There is also a quick sublet search for the sublet landing page.

C: Here is the navigation services associated apartment landing page. For example, there is register link, advanced search link, my favorite's link, post a sublet, college research link, and a login link.

D: Also, there is a testimonial located on the landing page catered to sublet search. For example, the user Will S. comments on her wonderful experience of sublet searching.



### **Roommate landing page:**



A: Shows the heading for the Roommate search landing page.

B: There is also a quick roommate search for the roommate landing page.

C: Here is the navigation services associated apartment landing page. For example, there is register link, advanced search link, my favorite's link, post a sublet, college research link, and a login link.

D: Also, there is a testimonial located on the landing page catered to roommate search. For example, the user Alan K. comments on her wonderful experience of roommate searching.



My accounts landing page:



- A: Shows the heading for my account landing page.
- B: There is also a quick apartment search for the my accounts landing page.

C: Here is the navigation services associated with my accounts landing page. For example, there is a login link, profile link, and my favorite's link.



**College research page:** 

| Net Net Net Net     Search for an Agastine of Society of  | Garden State Apartments - Microsoft Internet Explorer                             |                                       |                        |  |   |
|--|---|---------------------------------------|------------------------|--|---|
| Search for an Apartment Search for a Boommale And B <b>Received for a Apartment</b> New Jersey's Onling   Colleges and universities you wish to see   adding mone wery day Don't with data   Bedrooms   Owner Bedrooms <tr< th=""><th>ile Edit View Favorites Tools Help</th><th></th><th></th><th></th><th></th></tr<>   | ile Edit View Favorites Tools Help  |                                       |                        |  |   |
| Search for an Apartment Search for a Boommale And B <b>Received for a Apartment</b> New Jersey's Onling   Colleges and universities you wish to see   adding mone wery day Don't with data   Bedrooms   Owner Bedrooms <tr< th=""><th></th><th>mant Fublate</th><th>Description</th><th>Ibe Assault</th><th></th></tr<>   |   | mant Fublate                          | Description            | Ibe Assault  |   |
| New Jersey's Online   Subject Renial Network   Subject Renial Ne  |   |                                       |                        |  |   |
| database of available college   adding move wery day Dont wait, start   searching row!   LIMITED TIME OFFER: Register now   and try our premium sendeas for free!   Town, City, or Zip Code:   Max Rent:   sime   Bedrooms   O   MEMBER LOGIN   Usemanne   Password:   Begister   Friget Password   Bedrooms   Bedrooms <th>New Jersey's Online<br/>College Rental Network<br/>For a limited time, try it free!</th> <th>RE</th> <th>SEAR</th> <th>CH</th> <th>A</th>  | New Jersey's Online<br>College Rental Network<br>For a limited time, try it free! | RE                                    | SEAR                   | CH   | A |
| apattments in New Jorsey and we're<br>adding more wery day Don't weit, star<br>searching now!<br>LIMITED TIME OFFER: Register now<br>and try our premium services for free!<br>Town. City, or Zip Code:<br>max Rent sing<br>Bedrooms cook<br>NEMBER LOGIN<br>Usemanne:<br>Password Register   Fregel Password<br>Register   Fregel Password<br>Berkeley College<br>Benkeley College<br>Berkeley College<br>Benkeley College<br>Benkeley College<br>Benkeley College<br>Benkeley College<br>Benkeley College<br>Benkeley College  |   | Select which index colleges an        | d universities you wis | sh to see  |   |
| searching movi   LINITED TIME OFFER: Register now and try our premium services for fried     Town, City, or Zip Code:   Max Rent:   \$ 1 \wode:   Bedrooms:   O   MEMBER LOGIN   Usamame:   Password:   Register   Farget Passwoid       Colleges  Colleges Colleges  Colleges  Colleges  Colleges  Colleges  Colleges  Colleges  Colleges  Colleges  Colleges  Colleges Colleges  |   | ABCDEEGHIJKL                          | MNQPQRSI               | $\underline{U} \hspace{0.1cm} \underline{\vee} \hspace{0.1cm} \underline{W} \hspace{0.1cm} \underline{X} \hspace{0.1cm} \underline{Y} \hspace{0.1cm} \underline{Z} \hspace{0.1cm} \underline{\text{List All}}$ | R |
| Colleges and Universities: Colleges Colleges Colleges Colleges College College Colleges College Colleges Colleg |   |                                       |                        |  |   |
| Image: Construction of the output in the output            | searching now!  | Coll                                  | eges and Universities: |  |   |
| Town, City, or Zip Code:         Max Rent:         Simplified Colleges and Universities (alphabetical listing)         Assumption College for Sisters         Attantic Cape Community College         Berginter [Forget Password]         Register [Forget Password]         Berginter [Forget Password]         Bergen Community College         Bergen Commu  |   |                                       |                        | ×  |   |
| Max Rent       S         Bedrooms       S         OO       - Assumption College for Sisters         Attantic Cape Community College       - Attantic Cape Community College         Despret       - Bergen Community College         Persoword       - Berkeley College         Berkeley College       - Berkeley College         Ber  | and try our premium services for free!  |                                       | Research               |  |   |
| MEMBER LOGIN     . Bergen Community College       Username     . Bergen Community College       Postsword     . Berkeley College       Beditter   Forget Parsword     . Beth Medrach Gwoha       Bebindlek College     . Bebindlek College   | Max Rent \$ Bedrooms  | <u>Assumption College for Sisters</u> |                        |  |   |
| Usemane     Bergen Community College       Password     Berkeley College       Register   Forget Password     Beth Midrach Gevoln       Bleonfile & College     Bleonfile & College  | USU250 LOON   | Atlantic Cape Community College       |                        |  |   |
| Pagsword O Berkeley College Register   Forget Pagsword Bitter   Forget Pagsword Bitter   College Bitter   Co |   | Bergen Community College              |                        |  |   |
| Beth Medrash Goveha     Biloontifeld College   |   | Berkeley College                      |                        |  |   |
| Bleomfield College   | Register   Forgot Password  | a Both Madwah Cambo                   |                        |  |   |
|  |   |                                       |                        |  |   |
| Brooklale Community College  |   | Bloomfield College                    |                        |  |   |
|  |   | Brookdale Community College           |                        |  |   |
| Burdington County College  |   | Burlington County College             |                        |  |   |

A: Shows the heading of the college research information.

B: Here, we provide two methods of searching. This method allows users to search college or university by its letter. The other method is through drop down link.

C. This area shows the results when someone clicks on the letter, the list of all schools displayed. For example, user chooses all B schools. So, a list of all B schools is displayed.



## College research page (continued):



D: This screen shot shows how users can search colleges and universities via drop down menu.



### **Roommate page- listing results**



A: Show the results listing of roommate search.

# **Roommate listing page**

| Garden State Apartments - Micro |   |                 |  |   |           |   | - |
|---------------------------------|---|-----------------|--|---|-----------|---|---|
| File Edit View Favorites Tools  | Help  |                 |  |   |           |   |   |
|                                 | Carden State<br>APARTMENTS<br>University H  | ousing          |  |   |           | ome back, Will Smith<br>stitute of Technology |   |
|                                 |   | Apartment       | Sublets  | Roommate  | 6         | My Account                                    |   |
|                                 | Register  | Advanced Search | Post a Roommate  | My Favorites  | Research  | Logout  |   |
|                                 | SEARCH TOOL KIT<br>Search Results<br>Join Ernal List<br>View My Pavorites<br>MODIFY SEARCH<br>City<br>Zap<br>Rent<br>Min \$<br>Max \$<br>Bedrooms<br>Any humber<br>Studio<br>One Any Cone<br>One and 1/2<br>Two | ROOMMATES LIST  | Tell Ihem you sew<br>Name Kathy<br>Location:<br>12 Cental Rail<br>Network, NJ 07103<br>Contact Information:<br>Phone: 975-234-2465<br>Immit Lengyand.edu<br>ROOM/WATE PRE<br>Age<br>Range:<br>Sox<br>M Sex1<br>Orientation:<br>F Sex1<br>Orientation:<br>F Sex1<br>Orientation:<br>Smoking:<br>Party Habits: | 18-99<br>Female<br>Doesn't care<br>Outside OK<br>Occasionally<br>ofessional (9-5)<br>Doesn't care<br>Don't mind |           | Readity   Modify Search                       | 3 |
|                                 | Three or more   |                 | Gender:<br>Work  | Straight Fe   |           |   |   |
|                                 |   |                 | A DECEMBER OF  | Profession  | nal (9-5) |   |   |

B: This is a view detail roommate listing.



| File Edit View Favorites Tools | Help            |  |   |     |
|--------------------------------|-----------------|--|---|-----|
|                                | C Three or more | a roommate.You have your<br>closet. YOu have a wall of<br>own full bethroom downsta  | ewark, New Jersey. My husband and I just separated and I need<br>own room with closet and built in shelves on each side of the<br>windows that overlook the lake in the community. You have you<br>its by the kitchen (a liftle weird, I know). Ther are 2 living rooms | r l |
|                                |                 | one by your room, one dow<br>dryer, distrivaster but the t<br>Looking for<br>A female professional or st<br>do NOT LOVE bids, don't re | instairs with a fireplace. There is cable hookup, a washer and  |     |

C: This is a continued feature view detail roommate listing.

# Roommate –post roommate page

| arden State Apartments -<br>Edit View Favorites T |   |  |   |                                |  |                      |   |
|---|---|--|---|--------------------------------|--|----------------------|---|
|   | Garden State<br>APARTMENTS<br>Universit   | Carter Sale Sale Sale Sale Sale Sale Sale Sale |   |                                | Welcome back, Will Smith<br>New Jerzey Institute of Technology |                      |   |
|   | Register  | Apartment<br>Advanced Search                   | Sublets<br>Post a Roommate  | Roommat<br>My Favorites        | es<br>Research   | My Account<br>Logout |   |
|   | College Re<br>Por a limited<br>Start looking at o<br>listings by clickin<br>map, or narrow yi<br>tools on the right<br>search is FREEI<br>FOR A LIMITED T<br>now to save your | g on a region of the<br>our search using the   | Account Info  First Name Last Name Country Zip Code Firmail Address Primary Phone Other Phone                                     |                                | ]  |                      | A |
|   | Town, City<br>Max Rent<br>Bedrooms  | X SEARCH<br>Λατ Zip Code:<br>s 1 ₩<br>000      | About the Place *Rent Security Deposits Cost of Utilities *Minimum Stay *Date of Available *Bedrooms Building Type Room Furnished | \$\$<br>\$<br>1<br>Pieco<br>No | se Select One 🔽  | M                    |   |

A: This is the post roommate feature. The feature is only allowed to registered users.



#### - 0 🗙 File Edit View Favorites Tools Help 2 About the Place QUICK SEARCH Town, City, or Zip Code: \*Rent \$ Security Deposits \$ Max Rent Α \$ Cost of Utilities \$ per month 1 🛩 Bedrooms \*Minimum Stay months GO \*Date of Available × × × \*Bedrooms 1 🕶 MEMBER LOGIN 1 ~ \*Bathrooms Username: Building Type Please Select One 💌 GO Password: No 🚩 Room Furnished Register | Forgot Password Parking No 🛩 Your Personal \* Total # of Occupants Just Me 💌 \* Gender Male 🚩 Straight 💌 Sexual \* Age 18 🛩 Smoker No 💌 Cleanliness Average 🛩 No 💌 Children Pet? No 👻 **Roommate Preference** Sex Either 💌 Age Range 18 🛩 to 99 🛩 Male Sexual Orientation Do not care 🛩 Cleanliness Don't care 💌 Female Sexual Orientation Do not care Smoking Habits Non-smoking 💌

A: Post roommate continued.

### **Roommate – post roommate page (continued)**

| ile Edit. View Favorites Tools Help |  |                               |          |
|-------------------------------------|--|-------------------------------|----------|
| Register   Forgot Password          | Parking                                    | No 🛩                          |          |
|                                     | Your Personal                              |                               |          |
|                                     | * Total # of Occupants                     | Just Me 💌                     |          |
|                                     | * Gender                                   | Male 💌                        | Α        |
|                                     | Sexual                                     | Straight ¥                    |          |
|                                     | * Age                                      | 18 💌                          |          |
|                                     | Smoker                                     | No 🛩                          |          |
|                                     | Cleanliness                                | Average 🕶                     |          |
|                                     | Children                                   | No 💌                          |          |
|                                     | Pet?                                       | No M                          |          |
|                                     |  |                               |          |
|                                     | Roommate Preference                        |                               |          |
|                                     | Sex Either 💌                               | Age Range 18 🕶 to 99 🛩        |          |
|                                     | Male Sexual<br>Orientation Do not care     | Cleanliness Don't care 💌      |          |
|                                     | Female Sexual<br>Orientation Do not care 🛩 | Smoking<br>Habits Non-smoking |          |
|                                     |  | Work                          |          |
|                                     | Party Habits Don't care 💌                  | Schedule Professional (9-5)   |          |
|                                     | Pets Don't mind 💌                          | Children No M                 |          |
|                                     |  |                               |          |
|                                     | Comments                                   |                               |          |
|                                     |  |                               | <u>A</u> |
|                                     |  |                               |          |
|                                     |  |                               |          |
|                                     |  |                               | ×        |
|                                     |  |                               |          |
|                                     | S  | ubmit                         |          |
|                                     |  |                               |          |

A: Post roommate continued.




A: This shows that registered users can manage their photos by replacing photos or deleting photos.

### **Roommate – photo manager page (continued)**

| 🐔 Garden State Apartments - Micros | oft Internet Explorer                        |                     |  |   |   |   | -       | e 🔀 |
|------------------------------------|--|---------------------|--|---|---|---|---------|-----|
| File Edit View Favorites Tools H   | lelp   |                     |  |   |   |   |         | 1   |
|                                    | Garden State<br>APARTMENTS<br>University Ho  | pusing              |  |   |   | me baok, Will Smith<br>titute of Technology |         | ^   |
|                                    |  | Apartment           | Sublets  | Ro  | ommates   | My Account                                  |         |     |
|                                    | Register                                     | Advanced Search     | Post a Roommate  | My Favorites  | Research  | Logout                                      |         |     |
|                                    | Using Garden State A<br>Click on an icon bel |                     | Return to listing  |   |   |   | <u></u> |     |
|                                    |  | ion to ger storiout | Photo Manager  |   |   | A   |         |     |
|                                    | $\bigcirc$                                   | $\bigcirc$          |  | pdate if you change the<br>0 characters and Capte           | e Name or Caption!<br>on is limited to 50 characte                              |   |         |     |
|                                    | Post Roommate                                | Manage<br>Account   | Add Photo  |   |   |   |         |     |
|                                    | Will Smith 's Account                        |                     | Photo Name:<br>Photo Caption:<br>File:                           | Upload Photo  | Browse  |   |         |     |
|                                    |  |                     | <ol><li>Type a short cap</li></ol>                               | otion for your image, it w<br>nd select the image on<br>oto | : This is for you reference.<br>Will be displayed below the<br>your Hard Drive. | image.                                      |         |     |
|                                    |  |                     | <ul> <li>Max File Size: 4h</li> <li>Do not click relo</li> </ul> |   | ir image, depending on you  | ir connection                               |         | ~   |

A: Here is the add photo page.

©2005 Garden State Apartments



#### Boommate – photo manager page (continued) © Garden State Apartments - Microsoft Internet Explorer File Edit View Favorites Tools Help Welcome back, Will Smith APARTMENTS Iniversity Housin New Jersey Institute of Technology Sublets Roommates Register Advanced Search Post a Roomm My Favorites Research Using Garden State Apartments is easy Return to listing Click on an icon below to get started! Photo Manager A Name. Update Delete $(\uparrow)$ (c) Move Up Move Down Manage Account Caption: Post Roommate Remember to click update if you change the Name or Caption! Will Smith 's Account \* Name is limited to 50 characters and Caption is limited to 50 characters. LOGOUT Add Photo Photo Name Photo Caption File: Browse... Upload Photo nstructions Type a name for your image into Name:. This is for you reference 2. Type a short caption for your image, it will be displayed below the image 3. Click Browse and select the image on your Hard Drive.

A: This shows the image uploaded. The feature also allows you to enter the person name and creates a label for the image.

# Boots Continued E Garden State Apartments - Microsoft Internet Explorer



A: Here is the final uploaded picture after user enters required information.



#### Apartment page



A: Shows a popup box that gives region information such as shopping areas, population, residence type and more importantly there are links for colleges in the specific region.

# Apartment page



A: This box shows that users can search apartments via the radius surrounding the university.



# **Apartment page**

| File Edit View Favorites Tools Help  |   |  |   | 4 |
|--|---|--|---|---|
| Sparra Unive   | PATTS Apartment   | Sublets Roommer  | My Account  | 7 |
| Regi   | ster Advanced Search  | My Favorites Research  | n Login   |   |
|  |   | Printer Friendly View   Results per Page   | Results 1 - 10 of 25  |   |
| New J<br>Colleg  | e Renta Network   | 10 🛩   | Page: 1 <u>2 3 &gt; &gt;&gt;</u>  |   |
| Porta in<br>You justfo<br>unversity<br>available s<br>New Jerse<br>every dayti<br>nowi | nited time try is free?<br>and the feats at growing<br>louising data lase of<br>ublets and avartments in<br>yand we've (dding more<br>Don't wait, at it searching | Tell them you saw it on Garden State Apert<br>HJT APARTMENT<br>12 Averade Rd<br>Newar, NUC7103<br>Phone: 973-275-1987<br>End bans/Revisers/science.com | Hents<br>Listing II: AUAP2015<br>Rent: 31000<br>Betti come: 31000<br>Bathrooms: 0<br>Updaled: 11/1/05 |   |
|  | lef? List it here and reach<br>udent and fs ulty renters<br>eforel TOO NEW  | test email<br>12 Avondale Rd.<br>Newark, NJ 07103  | Listing ID: NJAP2014<br>Rent: \$1000<br>Bedrooms: Studio<br>Bathrooms: 0                              |   |
|  | ME OFFER: Register now FOR PHOTO  |  | Updated: 11/1/05  |   |
|  | m, City, or Z p Code:<br>YOU AREN'T REGI  | STERED! REGISTER NOW AND BEGIN E   |   |   |
| Max Rent<br>Bedrooms   |   | 4 Lorraine Terrace<br>Newark, NJ 07103   | Listing ID: NJAP2011<br>Rent: \$1000<br>Bedrooms: Studio<br>Bathrooms: 0                              |   |
|  | FOR PHOTO   | Phone: 973-854-8547<br>Email: john@ocode.com   | Updated: 10/9/05  |   |
| MEMBER   | LOGIN   | Nice   |   |   |
| Username   |   | IOVE THE DOG   | Listing ID: NJAP1983  |   |
| Password:<br>Register   For  |   | / 12 Avondate Rd.  | Rent: \$1000<br>Bedrooms: Studio  |   |

B: Shows the listing result page for apartment search.

# Advanced search page

Figure A. Searching can be done by location, county, or university.

| Garden State Apartments - Microsoft Internet Explorer |                       |  |                                    |                            |            |  |
|---|-----------------------|--|------------------------------------|----------------------------|------------|--|
| ile Edit View Favorites Tools Help                    |                       |  |                                    |                            |            |  |
|   | Apartme               | ent Sub  | lets Roomn                         | nates                      | My Account |  |
| Register  | Login                 | Research   | Testimonial                        | Main Site                  | About Us   |  |
|   |                       |  |                                    | Clear                      | Search )   |  |
|   | Advanced Searc        | h  |                                    | -                          |            |  |
|   | By Location:          |  |                                    |                            |            |  |
|   | City:                 |  |                                    |                            |            |  |
|   | State:                | New Jersey 💌   |                                    |                            |            |  |
|   | Zip:                  | *Please enter zip                                    | codes with 5 numerical digits.     |                            |            |  |
|   | Radius:               | 0 💌 miles  |                                    |                            |            |  |
|   |                       |  | By Location                        |                            |            |  |
|   | -                     |  |                                    |                            |            |  |
|   | By County:<br>County: | ~  |                                    |                            |            |  |
|   | County.               |  | By County                          |                            |            |  |
|   | -                     |  | By County                          |                            |            |  |
|   | By University:        |  |                                    |                            |            |  |
|   | University:           |  |                                    | M                          |            |  |
|   |                       |  | By University                      |                            |            |  |
|   |                       |  |                                    |                            |            |  |
|   |                       | se Search Filters<br>arch ontions allow you to filte | r your search results. After sele  | cting filter criteria, rea | member     |  |
|   | to go back to the     | top of the page to click your t                      | ype of search (Location, County    | , or University). If you   |            |  |
|   | an option(s), only    | / apartments that contain tha                        | t option will be returned on the r | rext page.                 |            |  |
|   | Apartment Detai       | le.  |                                    |                            |            |  |
|   | Min Rent              | c  | Min Square Feet                    |                            |            |  |
|   | MaxRent               |  | Max Square Feet                    |                            |            |  |
|   | AND TWEE              | Φ  | max edealer eer                    |                            |            |  |



1 - 1 -

| <ul> <li>Garden State Apartments - Microsoft Inte</li> </ul> | rnet Explorer        | ·····                 |                      | _ 0  |
|--|----------------------|-----------------------|----------------------|------|
| File Edit View Favorites Tools Help                          |                      |                       |                      | <br> |
|  | Apartment Details:   |                       |                      | 6    |
|  | Min Rent \$          | Min Square            | Feet                 |      |
|  | Max Rent \$          | Max Squar             | e Feet               |      |
|  |                      |                       |                      |      |
|  | Bedrooms: Any        | ×                     |                      |      |
|  | Bathrooms: Any       | ~                     |                      |      |
|  |                      |                       |                      |      |
|  | Complex Features     |                       |                      |      |
|  | General              | Neighborhood          | Recreation           |      |
|  | Gated                | 🔲 Close to Shopping   | 🔲 Sauna              |      |
|  | Fenced               | 🔲 Close to University | 🔲 Golf/Putting Green |      |
|  | Private Patrol       | 🔲 Close to Schools    | 🔲 Basketball Court   |      |
|  | Water / Beach        | 🔲 Close to Hospital   | Playground           |      |
|  | Lawn / Park          |                       | 🗖 Tennis             |      |
|  | Assisted Living      |                       | 🔲 Health Club / Gym  |      |
|  | Section 8            |                       | Pool                 |      |
|  |                      |                       | Billiards            |      |
|  |                      |                       | Dther                |      |
|  | Transportation       | Laundry               |                      |      |
|  | Subway               | Laundry Facilities    |                      |      |
|  | D Bus                | Laundry Close-by      |                      |      |
|  | Shuttle Service      |                       |                      |      |
|  | Close to Highway     |                       |                      |      |
|  |                      |                       |                      |      |
|  | Building Features    |                       |                      |      |
|  | Security             | Туре                  | Services             |      |
|  | Concierge/Doorperson |                       | Health Club/Gym      |      |
|  | Key Card             | Single Family         | Business Center      |      |
|  | Cameras              | 🔲 Multi Family        | Grocery              |      |
|  | Intercom             | GmsII (7.5   Inite)   | DruCleaning          |      |

Figure B. Searching can be done by complex features or apartment details.

Figure C. Shows accessibility features, security, and extras.

| Carden State Apartments - Microsoft Internet Explo | rei                                  |                        |                         |          |
|--|--------------------------------------|------------------------|-------------------------|----------|
| File Edit View Favorites Tools Help                |                                      |                        |                         | <b>A</b> |
|  | Building Features                    |                        |                         |          |
|  | Security                             | Type                   | Services                |          |
|  | Concierge/Doorperson                 | Condo/Townhouse        | Health Club/Gym         |          |
|  | Key Card                             | Single Family          | Business Center         | 8        |
|  | Cameras                              | Multi Family           | Grocery                 |          |
|  | Intercom                             | Small (2-5 Units)      | Dny-Cleaning            |          |
|  | L mercon                             | Medium (6-20 Units)    | Convenience Store       | 1        |
|  |                                      | Large (20+ Units)      | Other Retail            |          |
|  |                                      | Basement               | Uner Retail             |          |
|  |                                      | Loft                   |                         |          |
|  |                                      | Attic                  |                         |          |
|  |                                      |                        |                         |          |
|  |                                      | 🔲 Carriage House       |                         |          |
|  | Accessibility<br>Handicap Accessible |                        |                         |          |
|  | Elevator                             |                        |                         |          |
|  | VValk-up                             |                        |                         |          |
|  |                                      |                        |                         |          |
|  | Fire Escape                          |                        |                         |          |
|  |                                      |                        |                         |          |
|  | Apartment Features                   |                        |                         |          |
|  | Floors                               | Heating / Air          | Extras                  |          |
|  | Hardwood Floors                      | Thermostat             | Whirlpool/Jacuzzi       |          |
|  | VVall-to-VVall                       | Multi-Zoned Thermostat | Hot Tub                 |          |
|  | Carpet in Bedroom Only               | Central Heat & A/C     | Maid/Housekeeping       |          |
|  | Linoleum                             | 🔲 Central A/C          | 🔲 Fireplace             |          |
|  | C Other                              | 🔲 Central Heat         | Other (See Description) |          |
|  |                                      | 🔲 Baseboard Heat       |                         |          |
|  |                                      | Window A/C             |                         |          |
|  |                                      | 🔲 Other                |                         |          |
|  | Security                             | Kitchen                | Beds                    |          |
|  | Concierge / Doorperson               | 🔲 Eat-in Kitchen       | Walk-in Closet          |          |



#### University Housing Interface

| 🔄 Garden State Apartments - Microsoft Internet Explorer |  | ,   | 01  |           |
|---|--|---|---|-----------|
| File Edit View Favorites Tools Help                     |  |   |   | <u>Ar</u> |
|   | Skylight Skylight Views Salellite Ok Cable Ready High Speed Internet Yant Porch/Balcony Roof Deck Patio Laundry In-unit Washer / Dryer Hook Pets All None Small Dogs Large Dogs Cats Lease Details | ☐ Parking Lot   | Water Fumiture OK   |           |
|   | Lease  | Utilities   | Leasing Requirements  |           |
|   | Long Term     One (1) Year     Month-to-Month     Short-term places     Sublet   | Gas Included<br>Oil Included<br>Electric Included<br>Water Included<br>Sever Included<br>Internet Included<br>Cable Included<br>None Included | Section 8 / Covt Voucher  Oce-signer  Credit Check  Interview  Security Deposit  Income Verification / Restrictions |           |
|   |  | <u>Finish My</u>  | Search  |           |

#### Figure D. Shows pets, lease options, and leasing requirements

#### **Registration page** Figure A.

| 🕘 Garden State Apartments - Microsoft Internet Explore |  | _ 7 🗙 |
|--|--|-------|
| File Edit View Favorites Tools Help                    | University Information:  |       |
|  | University Name:   |       |
|  | Address:   |       |
|  | Address:   |       |
|  | City State. Alabama.   |       |
|  | Email  |       |
|  | Verify Email.  |       |
|  | Day Phone:   |       |
|  | Fax  | =     |
|  | For Our Records:   |       |
|  | For our Records:   |       |
|  | <ul> <li>Friend / Associate</li> <li>News / Print Article</li> </ul> |       |
|  | Advertisement Organization / Association Other:                      |       |

A: Shows that the user needs to include the university or school they attend to be part of their profile. This is an added value feature for customization when users are logged in.



#### University Housing Interface

#### Figure B.

| 🐔 Garden State Apartments - Microsoft Internet Explorer |  | _ 8 🔀    |
|---|--|----------|
| File Edit View Favorites Tools Help                     |  |          |
|   | Email  | <b>^</b> |
|   | Verity Email:  |          |
|   |  |          |
|   | Day Phone:   |          |
|   | Evening Phone:   |          |
|   | Fax  |          |
|   |  |          |
|   |  |          |
|   |  |          |
|   | For Our Records:   |          |
|   |  |          |
|   | How did you hear about us? 🔲 Search Engine:  |          |
|   | Friend / Associate   |          |
|   | News / Print Article   |          |
|   | Organization / Association   |          |
|   | Other:   |          |
|   |  |          |
|   | Do you want us to tell you about special promotions, renting & marketing information and breaking  |          |
|   | real estate news?  |          |
|   | Register   |          |
|   | register   |          |
|   |  |          |
|   |  |          |
|   |  |          |
|   |  |          |
|   |  |          |
| Priwacy P.  | olicy   Terms Of Use   Contact Us   Professional Association Memberships   Equal Housing Opportunity   Site Map   Help<br>© 2005 Oarden State Apartments, All Rights Reserved. |          |
|   | A STATE OF A  | ~        |

# **Registration page**

| Garden State Apartments - Mic  | crosoft Internet Explorer                |  | _ C 🖄     |
|--------------------------------|--|--|-----------|
| File Edit View Favorites Tools | Help                                     |  | AT        |
|                                | Garden State<br>APARTMENTS<br>University | lousing  |           |
|                                |  |  | y Account |
|                                | Register                                 | Auvanced Search Post Sublet My Pavorites Research  | Login     |
|                                |  | Thank you for registering!   |           |
|                                |  | You should be receiving a confirmation email from us shortly.  |           |
|                                |  | Please remember to click on the link to verify your account.   | A         |
|                                |  | If you do not recieve an email, please contact our support staff at  |           |
|                                |  | 973-954-APTS(2787) or email us at support@GardenStateApartments.com.   |           |
|                                |  |  |           |
|                                |  |  |           |
|                                |  |  |           |
|                                |  |  |           |
|                                |  |  |           |
|                                |  |  |           |
|                                |  |  |           |
|                                |  |  |           |
|                                |  |  |           |
|                                |  |  |           |
|                                | Privacy                                  | Policy   Terms Of Use   Contact Us   Professional Association Memberships   Equal Housing Opportunity   Site Map   Help<br>@ 2005 9 arden State Apartments. All Rights Reserved. |           |
|                                |  | o 2000 Verden Valle Agartinents, All Rights Reserved,  |           |
|                                |  |  |           |
|                                |  |  | 9         |
|                                |  |  |           |

A: This page displays a thank you message for registering. It directs the user to check email for account and password information.



# My account page

| 2] Garden State Apartments - Micro | Canden Sale<br>APARIMENTS<br>University Housing   | ment Subjets  | koommates  | My ccount  | 4 |
|------------------------------------|---|---|--|------------|---|
|                                    | Profile New Jersey's Onlin College Rential Netword For a limited time, try in tree Start looking at our NJ apartment listings by clicking on a region of the map, or narowyour search using th tools on the right. Either way, your search is FREEI FOR A LIMITED TIME ONLY: Register now to save your favorile apartments and get our premium services AT NO COSTI OUICK SEARCH Town, City, or Zip Code: Max Rent Bedrooms | Ny Favorite<br>MEMBER LOGIN<br>Usemame:<br>Password:<br>Register   Forget Password            | Research   | A          |   |
|                                    | Privacy, Policy   Terms Of Us   | e <u>Contact Uc   Professional Association Membe</u><br>© 2005 Garden State Apartments. All F | nhins   Equal Houring Opportunity   Site<br>lights Reserved. | Man   Heln |   |

A: Shows the login page. Here the user needs to enter his credentials to log on.

| 🕙 Garden State Apartments - Mi | crosoft Internet Explorer  |   |                     |              | _ 0 2 |
|--------------------------------|--|---|---------------------|--------------|-------|
| File Edit View Favorites Tools | ; Help   |   |                     |              |       |
|                                | Carden State<br>APARTMENTS<br>University Housing   | tment Sublets                                   | Roommates           | My Account   |       |
|                                | Profile  | My Favorites                                    | Research            | Login        |       |
|                                | New Jorsey's Onlin<br>College Rental Networ<br>For a limited time, try it fre<br>Stat looking at our NJ apartment<br>listings telcking on a region of the<br>map, or narrow your search using the<br>tools on the right. Either way, your<br>search is FREE!<br>FOR A LIMITED TIME ONLY: Register<br>now to save your tavorito apartments<br>and get our premium services AT NO<br>COSTI | MEMBER LOGIN<br>Usemame capstone<br>Password:   |                     |              |       |
|                                | OUICK SEARCH<br>Town, City, or Zip Code:<br>Max Rent 8<br>Bedrooms 1 v<br>Goo  |   |                     |              |       |
|                                | Privacy Policy   Terms Of U  | se   Contact Us   Professional Association Merr |                     | e Map   Help |       |
|                                |  | @ 2005 Garden State Apartments. A               | ll Hights Heserved. |              |       |
|                                |  |   |                     |              |       |
|                                |  |   |                     |              |       |

# My account page

A: Shows the login page in my account page. Here the user enters his or her username as well as the password.



# My account page

| 🖞 Garden State Apartments - M | •  |           |  |                               |   | LU |
|-------------------------------|--|-----------|--|-------------------------------|---|----|
| File Edit View Favorites Tool | ls Help  |           |  |                               |   |    |
|                               | Carden State<br>Deartiments<br>University Housing  |           |  | Wei                           | oome back, Will Smith<br>Rutgers University |    |
|                               | Profile  | Favorites | Research   | FAQHelp                       | Logout                                      |    |
|                               | New Jersey's Online<br>College Rental Network<br>For a limited time, try try to<br>database of available college<br>apartments in New Jersey and wire<br>adding more every day Don't war start<br>searching now! |           | Rent Location Bedrooms<br>Ites   | Available Modified            | Action<br>Action                            |    |
|                               | Town, City, or Zip Code:<br>Max Rent \$<br>Bedrooms 1  |           |  |                               | YEW   EDIT                                  |    |
|                               | MEMBER LOGIN<br>Username<br>Password<br>Register   Forgot Password   |           |  |                               |   |    |
|                               | Privacy Policy   Terms Of Use  |           | al Association Memberships   Equal H<br>State Apartments, All Rights Reserved. | ousing Opportunity   Site Map | Help  |    |
|                               |  |           |  |                               |   |    |

A: This screenshot shows that once the user is logged in, my account page with profile link will display.

# My account page

| 🕙 Garden State Apartments - Mic | rosoft Internet Explore   | r .  |   |   |  |   |   | - 0 |
|---------------------------------|---|--|---|---|--|---|---|-----|
| File Edit View Favorites Tools  | Help  |  |   |   |  |   |   |     |
|                                 | APARIMENTS<br>University  | / Housing  |   |   |  | ome back, Will Smith<br>stitute of Technology |   |     |
|                                 | Profile   | Apartment  | Sublets   | Roomm   | ates<br>About Us                         | My Account<br>Logout                          |   |     |
|                                 | SEARCH TOOL NIT<br>Search Results<br>Join Email List<br>View My Favorites | F  | AVO   | RIT   | ES                                       |   | A |     |
|                                 | MODIFY SEARCH<br>City   | Favorites:<br>None                                 |   |   |  |   |   |     |
|                                 | Zip<br>Rent<br>Max ş  |  |   |   |  |   |   |     |
|                                 | Bedrooms 1 ¥  |  |   |   |  |   |   |     |
|                                 | <u>New Search</u>   |  |   |   |  |   |   |     |
|                                 | <u>Privaov</u>  | Police   <u>Terms Of Use</u>   <u>Contact</u><br>@ | Us   Professional Association Merr<br>2005 Garden State Apartments. A | berships   Equal Housing Op<br>  Rights Reserved. | portunity   <u>Site Map</u>   <u>H</u> e | <u>elo</u>                                    |   |     |

A: Shows favorites displayed in my account page.



#### University Housing Interface

# My account page

| 🖲 Garden State Apartments - M | licrosoft Internet Explorer                          |               |                 |                   |           |                          |   | _ 0 |
|-------------------------------|--|---------------|-----------------|-------------------|-----------|--------------------------|---|-----|
| File Edit View Favorites Tool | ls Help  |               |                 |                   |           |                          |   | 4   |
|                               |  |               |                 |                   |           | Welcome back, Will Smith |   |     |
|                               | APARTMENTS   | TT.           |                 |                   |           | Rutgers University       |   |     |
|                               | niversity Ho   | using         |                 |                   |           |                          |   |     |
|                               | e mu   |               |                 |                   |           |                          |   |     |
|                               |  | Apartment     |                 | ublets            | Roommates | My Account               |   |     |
|                               | Profile  | Advanced      | -               | My Favorites      | Research  | Logout                   |   |     |
|                               | Prome  | Advanced      | rsearch         | my ravornes       | Research  |                          |   |     |
|                               | New Jersey's   | Online        |                 |                   |           | O Update Profile)        |   |     |
|                               | New Jersey's<br>College Rental                       | Network       | View Profile fo | r IBe             |           |                          |   |     |
|                               | For a limited time.                                  | try it free!  | Login Informa   |                   |           |                          | A |     |
|                               | Start looking at our NJ a                            |               | User name:      | Capstone          |           |                          |   |     |
|                               | listings by clicking on a<br>map, or narrow your sea |               | User Id:        | NJST96            |           |                          |   |     |
|                               | tools on the right. Either                           |               |                 |                   |           |                          |   |     |
|                               | search is FREE!                                      |               | Personal Infor  | mation:           |           |                          |   |     |
|                               | FOR A LIMITED TIME ON                                | II Y Ponister | First Name:     | Will              |           |                          |   |     |
|                               | now to save your favorite                            |               | Middle:         |                   |           |                          |   |     |
|                               | and get our premium se                               | rvices AT NO  | Last Name:      | Smith             |           |                          |   |     |
|                               | COSTI  |               | Preferred Nam   | ie:               |           |                          |   |     |
|                               | OUICK SEAR   | CH.           | University:     | RUTGERS UNIVERSIT | Y         |                          |   |     |
|                               | Town, City, or Zip                                   |               |                 |                   |           |                          |   |     |
|                               |  |               | Contact Inform  |                   |           |                          |   |     |
|                               | Max Rent \$  |               | Address:        | 120 Central Ave   |           |                          |   |     |
|                               | Bedrooms 1   | <u>×</u>      | City:           | Newark            |           |                          |   |     |
|                               | GO   |               | State:          | New Jersey        |           |                          |   |     |
|                               |  |               | Z(p)            | 07103             |           |                          |   |     |
|                               |  |               | Email:          | capstone.njit.edu |           |                          |   |     |
|                               |  |               | Day Phone:      |                   |           |                          |   |     |
|                               | Will Smith's Account                                 |               | Evening Phone   | 9:                |           |                          |   |     |
|                               | LOGOUT   |               | Fax:            |                   |           |                          |   |     |
|                               |  |               | -               |                   |           |                          |   |     |

A: Here once logged in the page, members can view their profile and their account information. **My account page** 

I

| 🕙 Garden State Apartments - Microsoft Internet Exp | lorer  |                              |                    |           |                          | _ 0 🔀   |
|--|--|------------------------------|--------------------|-----------|--------------------------|---------|
| File Edit View Favorites Tools Help                |  |                              |                    |           |                          | <b></b> |
|  | <  |                              |                    | Y         | Veloome back, Will Smith | A       |
| Garden Sate<br>APARTMEN<br>Universi                | ity Housing  |                              |                    |           | norde e ou i ve eitô     |         |
|  | Aprilment  | s                            | ublets             | Roommates | My Account               |         |
| Profile  | A wanced Sea   | rch                          | My Favorites       | Research  | Logout                   |         |
| College R  | sey's Onlin<br>Rental Networ   | Edit Profile for V           |                    |           |                          |         |
|  | ed time, try it free!  | Login Informatio             | Capstone           |           |                          |         |
|  | our NJ apartment<br>ing on a region of the                             | User Name:<br>User ID:       | NUST96             |           |                          |         |
| map, or narrow                                     | ryour search using the<br>ht. Either way, your                         | Change                       |                    |           |                          |         |
| search is FREE                                     | 31   | Password:<br>Verify Password |                    |           |                          |         |
| now to save yo                                     | ) TIME ONLY: Register<br>ur favorite apartments<br>mium services AT NC | Personal Inform              | ation:             |           |                          |         |
| COSTI  |  | First Name:                  | VMIII              |           |                          |         |
| 010  | CK SEARCH  | Middle:                      |                    |           |                          |         |
|  | ity, or Zip Code:  | Last Name:                   | Smith              | •         |                          |         |
| Max Rent   | 8  | Preferred Name               |                    |           |                          |         |
| Max Rent<br>Bedrooms                               | \$<br>1 ¥  | University:                  | RUTGERS UNIVERSITY | Y         |                          |         |
|  | 60   | Choose<br>Different          |                    |           | ~                        |         |
|  | GO   | University:                  | 1                  |           |                          |         |
|  |  | Contact Informa              | tion:              |           |                          |         |
| IBe Mo's Acc                                       | ount   | Address:                     | 120 Central Ave    | *         |                          |         |
| LOGOUT   | oom  |                              |                    |           |                          |         |
|  |  | City                         | Newrark            | *         |                          | ~       |

B: This is the profile page. Here users can make changes to their username, password, or other information.



# My account page

| Garden State Apartments - Microsoft Internet Explorer |   | _ 2 |
|---|---|-----|
| File Edit View Favorites Tools Help                   |   | 4   |
| FOR A LIMITED TIME ONLY: Register                     | Verify Password:                                    |     |
| now to save your favorite apartments                  | Personal Information:                               |     |
| and get our premium services AT NO<br>COSTI           | First Name: Will -                                  |     |
|   | Middle:   |     |
| QUICK SEARCH  | Last Name: Smith                                    |     |
| Town, City, or Zip Code:                              |   |     |
| Max Rent \$   | University: RUTGERS UNIVERSITY                      |     |
| Bedrooms 1 💌  | Choose A  |     |
|   | DiliBIBITI INEW JBISEY CITY ONIVERSITY "JBISEY CITY |     |
|   | University:   |     |
|   | Contact Information:                                |     |
|   | Address: 120 Central Ave                            |     |
| IBe Mo's Account                                      |   |     |
| 200001  | City: Newark =                                      |     |
|   | State: New Jersey                                   |     |
|   | Zip: 07103 -  |     |
|   | Email: capstone.njit.edu =                          |     |
|   | Email Check: capstone njit.edu =                    |     |
|   | Day Phone:  |     |
|   | Evening Phone:                                      |     |
|   |   |     |
|   | Fax   |     |
|   |   |     |
|   | Submit  |     |
|   |   |     |
|   |   |     |

B: This is a continuance of the profile page. This shows the university link can also be modified in case of user transferring to another college or university.

| Bit       Bit       Weile         Weiner bit in the stands         Register         NOUPY SER(NOL MI         Register         Register         Register         Register         Register         Register         Regiter   | n State Apartments - Mic<br>It View Favorites Tools |   | er                    | _                              | _  | _                             | _                        |     | - |
|---|---|---|-----------------------|--------------------------------|--|-------------------------------|--------------------------|-----|---|
| Register       Research       Testimonial       Favorites       About Us       Logout         SEARCH TOOL AT<br>Search Result:<br>Join Rmail Ist<br>Were My Rea ontes       Favorites Subjet:       Favorites Subjet: | . <u>Jou 1840 1940</u>                              | Garden State                            | y Housin              |                                |  |                               |                          |     |   |
| Search Reput:       Join YE MAY Parontes         MODIFY SEAR H       Favorites Sublet:         Name       Location       Bedrooms         Price       Mk Sublet         View View Right       Newark, NJ       2         Favorites Roommate:       Favorites Roommate:         Rent       Name       Location         Max §       Bedrooms       Price         Max §       Newark, NJ       2         Bedrooms       Price         Advanced Se ech       Kathy  |   | Register                                |                       |                                |  |                               |                          |     |   |
| MODIFY SEAR       Favorities Sublet:         City       Name       Location       Bedrooms       Price         Zip       My Sublet       Newark, NJ       2       \$1200       Ramove         Zip       Favorities Rommate:   |   | <u>Search Results</u><br>Join Email Lis | 8                     | FA                             | VO   | RIT                           | ES                       |     |   |
| Zip     Image: New Valk, NJ     2     \$1200     Features       Zip     Image: New Valk, NJ     Features     Image: New Valk, NJ     Features       Rent     Name     Location     Sex     Age       Max si     Educornes     Y     Female     23       Bedroome     Y     Newark, NJ     Female     23       Advanced Se tob     Female     Sex     Sex  |   |   |                       |                                | Bedrooms   | Price                         |                          |     |   |
| Rent     Name     Location     Sex     Age       Max \$     Kathy     Newark, NJ     Female     2.3     Eamone       Bedroome     I       Advanced Se erch  |   |   | <u>Mv Sublet</u>      | Newark, NJ                     | 2  | \$1200                        | Remove                   |     |   |
| Kathy     Newark, NJ     Female     23     Eemone       Bedrooms     1     2     1     1       Advanced Se troh     2     2     1     1   |   |   |                       |                                |  |                               |                          |     |   |
| Advanced Search   |   |   |                       |                                |  |                               | Remove                   |     |   |
|   |   | GO<br>Advanced Search                   |                       |                                |  |                               |                          |     |   |
| Pérson Poline   Terris Of Use   Contact Us   Perfessional Association Memberships   Equal Housing Opportunity   Site Man   Help<br>9 2006 Gorden Site Apadro note. All Flight Reserved.   |   | Privao                                  | v Policy   Terms Of U | se   <u>Contact Us</u>   Prote | ssional Association Members:<br>Ian State Anastmante All Pic | ips   <u>Equal Housing Op</u> | portunity   Site Map   H | eia |   |

# My accounts page - favorites

A: This displays all roommates and sublets that were added to the favorite's folder. This feature is also only allowed for users that are registered.



My accounts page - favorites

| Garden State Apartr | ments - Mici | rosoft Internet Explore   | ər           |                        |                            |                  |          |  | _ |
|---------------------|--------------|---|--------------|------------------------|----------------------------|------------------|----------|--|---|
| File Edit View Favo | orites Tools | Help  |              |                        |                            |                  |          |  |   |
|                     |              | University  | / Housii     | TU I                   |                            |                  |          | come back, Will Smith<br>Institute of Technology |   |
|                     |              |   |              | artment                | Sublets                    | Room             |          | My Account                                       |   |
|                     |              | Register  | Resea        | rch Ť                  | estimonial                 | Favorites        | About Us | Logout   |   |
|                     |              | SEARCH TOOL KIT<br>Search Results<br>Join Email List<br>View My Favorites |              |                        | VO                         | RIT              | ES       | A  |   |
|                     |              | MODIFY SEARCH   | Favorites F  |                        |                            |                  |          |  |   |
|                     |              | MODIFY SEARCH   | Name         | Location<br>Newark, NJ | Sex<br>Female              | Age<br>23        | Remove   |  |   |
|                     |              | City  | <u>Kathy</u> | INEWARK, NJ            | remaie                     | 23               | Remove   |  |   |
|                     |              | Zip   |              |                        |                            |                  |          |  |   |
|                     |              |   |              |                        |                            |                  |          |  |   |
|                     |              | Rent  |              |                        |                            |                  |          |  |   |
|                     |              | Max §   |              |                        |                            |                  |          |  |   |
|                     |              | Bedrooms 1 💌  |              |                        |                            |                  |          |  |   |
|                     |              | GO  |              |                        |                            |                  |          |  |   |
|                     |              | Advanced Search   |              |                        |                            |                  |          |  |   |
|                     |              | <u>New Search</u>   |              |                        |                            |                  |          |  |   |
|                     |              |   |              |                        |                            |                  |          |  |   |
|                     |              |   |              |                        |                            |                  |          |  |   |
|                     |              | Priva   |              | @ 2005 Gard            | en State Apartments. All F | Rights Reserved. |          | 10.12  |   |
|                     |              |   |              |                        |                            |                  |          |  |   |

A: This displays all roommates that were added to the favorite's folder. This feature is only allowed for users that are registered.

| Garden State Apartments - M   | icrosoft Internet Explorer   |                       |                   |                 |   |  |   |
|-------------------------------|--|-----------------------|-------------------|-----------------|---|--|---|
| File Edit View Favorites Tool | ls Help  |                       |                   |                 |   |  | 1 |
|                               | APARTMENTS<br>University Housing   |                       |                   |                 | Welcome back, Will 1 New Jersey Institute of Techno | ACCESSION AND A REAL PROPERTY OF |   |
|                               | Apar   | Iment                 | Sublets           | Roommates       | My Accoun   |  |   |
|                               | Profile  |                       | Research          | FA              | 0/Help Logo   | ut   |   |
|                               | New Jersey's On<br>College Rental Network<br>For a limited time, try it reel<br>You just found the fastest growing | - A<br>Manage Sublets | IVIY .            | ÁCC             | OUNT.   |  |   |
|                               | database of available college  | Listing Title         |                   | edrooms Availab |   |  |   |
|                               | apartments in New Jersey and verre<br>adding more every day! Don't wait, sta                                       |                       | \$1100 Newark, NJ | 1 😹             | 12/05/05 VIEW   EDIT                                |  |   |
|                               | searching now!   | τ                     |                   |                 |   |  |   |
|                               |  |                       |                   |                 |   |  |   |
|                               | LIMITED TIME OFFER: Register how<br>and try our premium services for free!   | Manage Roomm          | ates              |                 |   |  |   |
|                               |  | Name Rent             | Location Bedroom  | n Available     | Modified Action                                     |  |   |
|                               | Town, City, or Zip Code:   |                       |                   |                 | VIEW   EDIT   |  |   |
|                               |  |                       |                   |                 |   |  |   |
|                               | Max Rent \$  |                       |                   |                 |   |  |   |
|                               | Bedrooms 1   |                       |                   |                 |   |  |   |
|                               | GO   |                       |                   |                 |   |  |   |
|                               |  |                       |                   |                 |   |  |   |
|                               | MEMBER LOGIN   |                       |                   |                 |   |  |   |
|                               | Username:  |                       |                   |                 |   |  |   |
|                               | Password: 😶  |                       |                   |                 |   |  |   |
|                               | Register   Forgot Password   |                       |                   |                 |   |  |   |

A: My account page showing manage roommate and sublet post. Here the user has the ability to make changes to any post they add.



#### Garden State Apartments - Microsoft Internet Explorer File Edit View Favorites Tools Help come back, Will Sn APARTMENTS University Hou sing New Jersey Institute of Technology Sublets Registe Advanced S Post a Sublet My Favorite View Sublet Listing Title : My Sublet A Listing ID NJSU1025 You just found the fastest growing Search Result Snapshot: database of available college My Sublet ng ID: NJSU1025 Rent: \$1200 apartments in New Jersey and we 12 Martin Luther King Ave. Newark, NJ 07103 TOO NEW adding more every day! Don't wait, s searching now! 716-234-2478 will@capstone.com FOR PHOTO LIMITED TIME OFFER: Register no and try our premium services for fre Town, City, or Zip Code: Listing Details: TOO NEW Max Rent \$ Bedrooms 1 🛩 ٩. FOR PHOTO GO Add Images Sublet Overview MEMBER LOGIN Location: Newark, New Jersey 07103 Usemame Sublet Size: One Bedroom Password: \$1100/month Dec 05, 2005 Monthly Rent: Register | Forgot Password Date Available

My account page -manage sublet (view sublet)

A: Users allowed to view their sublets under the "manage sublets" table under my accounts page.

#### My account page -manage sublet (view sublet)

A: Here is view sublet page continued. Additional information included is the sublet overview, sublet information, and lease information.



10 10 11

# My account page -manage sublet (edit sublet)

| Garden State Apartments - Mic<br>le Edit View Favortes Tools |   |                              |  |              |            |                          | - |
|--|---|------------------------------|--|--------------|------------|--------------------------|---|
|  |   |                              | u                                      |              | ,          | Veloome baok, Will Smith |   |
|  | Carden State<br>APARIMENTS<br>University Hous                   | Apartm                       | 16rt Subjets                           | Boomm        | Have been  | My Account               |   |
|  | Register Adv  | and ed Searc                 |  | My Favorites | Research   | Logout                   |   |
|  | Num Innunte O   |                              | Rent and Availability                  |              |            |                          |   |
|  | New Jersey's O<br>College Rental Ne                             | twork                        | Rent per Month:                        |              | \$ 1100    | .00                      |   |
|  | For a limited time, try   | it free!                     | Rent per Week                          |              | \$ 0       | .00                      |   |
|  | You just found the fastest gro<br>database of available college |                              | Rent per Day:                          | 1            | \$ 0       | .00                      |   |
|  | apartments in New Jersey and                                    |                              | Listing Date:                          |              | December   | 5,2005                   |   |
|  | adding more every day! Don'                                     | t wa <mark>i</mark> t, start | <sup>*</sup> Date Sublet is Available: |              | 12/05/2005 | MM/DD/YY                 |   |
|  | searching now!  |                              | End Date:                              | ~            |            | MM/DD/YY                 |   |
|  | LIMITED TIME OFFER: Regis                                       |                              | Sublet Information                     |              |            |                          |   |
|  | and try our premium services                                    | s tol free!                  | Listing Title: (60 characters maximum  | ) New Sul    | olet       |                          |   |
|  |   |                              | Address:                               |              |            |                          |   |
|  | Town, City, or Zip Co   | de:                          | City:                                  | Newar        |            |                          |   |
|  | Max Rent \$   |                              | State:                                 | New Je       | ersey      |                          |   |
|  | Bedrooms 1 💌  |                              | <sup>*</sup> Zip:                      | 07103        |            |                          |   |
|  | 60  |                              | Building/Property Type:                | Apartme      |            | ~                        |   |
|  |   |                              | Total Rooms in Building/Prop           |              | ~          |                          |   |
|  | MEMBER LOGIN  |                              | Rooms in Sublet:                       | One Be       |            |                          |   |
|  | Username:   |                              | Total Bathrooms in Building/F          |              | ~          |                          |   |
|  | r dooword.  | 60                           | Total Bathrooms Available<br>Sublet:   | for One Ba   | throom 💌   |                          |   |
|  | Register   Forgot Password                                      |                              | Vill the Sublet be Private or S        | Shared?      | ~          |                          |   |

A: This page shows how users can update their sublets. They would enter edit sublet page.

### My account page -manage sublet (edit sublet continued)

| File Edit View Favorites Too | ls Help<br>osemane;        |                            | _         |                  |              |              |   |   | 4 |
|------------------------------|----------------------------|----------------------------|-----------|------------------|--------------|--------------|---|---|---|
|                              | Password: 🤤 😔              | Total Bathrooms<br>Sublet: | Availa    | able for         | )ne Bathroor | n 💙          |   |   |   |
|                              | Register   Forgot Password | Will the Sublet be F       | Private   | or Shared?       | ~            |              |   |   |   |
|                              |                            | Maximum People a           | allowed   | l in Sublet:     |              | ~            |   |   |   |
|                              |                            | Approximate Squa           | ire Fee   | t of Sublet 0    |              | Square Feet  |   | Α |   |
|                              |                            | *Are the Utilities In      | nclude    | d in Rent?       | Not included | ~            |   |   |   |
|                              |                            | Cost of Utilities, if r    | not inclu | uded in Rent: \$ | 0            | .007 Month   |   | T |   |
|                              |                            | Is a Security Dep          | osit R    | equired?         | 'es 💙        |              |   |   |   |
|                              |                            | Security Deposit A         | mount,    | if Required: \$  | 0            | .00          |   |   |   |
|                              |                            | Lease Informat             | ion       |                  |              |              |   |   |   |
|                              |                            | * Minimum Lease            | Stay:     |                  | 6 Months     | Minimum 💌    |   |   |   |
|                              |                            | *Lease Term:               |           |                  | Monthly      | ~            |   |   |   |
|                              |                            | Is there an Option         | to Ren-   | ew the Lease?    |              | ~            |   |   |   |
|                              |                            | Sublet Specific            | s         |                  |              |              |   |   |   |
|                              |                            | Gender Preference          | e:        |                  |              | ~            |   |   |   |
|                              |                            | Is the Sublet Furnis       | shed?     |                  |              | ~            |   |   |   |
|                              |                            | Are Smokers Allow          | ved?      |                  |              | ~            |   |   |   |
|                              |                            | Are Pets Allowed?          |           |                  |              |              | - |   |   |
|                              |                            | Parking Availabitlit       | y.        |                  |              | <b>~</b>     |   |   |   |
|                              |                            | Is there Close-by P        | ublic T   | ransportation?   | <b>v</b>     |              |   |   |   |
|                              |                            | Sublet Features            | 5         |                  |              |              |   |   |   |
|                              |                            | Ammenities                 |           |                  |              |              |   |   |   |
|                              |                            | Air Conditioning:          |           | Balcony:         |              | Dining Room: |   |   |   |
|                              |                            | Bright Sunlight:           |           | Fireplace:       |              | Garden/lawn: |   |   |   |
|                              |                            | High Speed Internet:       |           | High Ceilings:   |              | Roof Deck:   |   |   |   |
|                              |                            | Jacuzzi:                   |           | Washer/Dryen:    |              | Telephone:   |   |   |   |
|                              |                            | Walk-In Closets:           |           | Hardwood Floors  |              | Marble bath: |   |   |   |
|                              |                            | Culture disperal           | -         | Wall to Wall     |              | Dia East     |   |   |   |

A: This a continued page showing how users can update their sublets.



| View Favorites Tools Help |                    |         |                            |       |                              |   |  |
|---------------------------|--------------------|---------|----------------------------|-------|------------------------------|---|--|
|                           | Walk-In Closets:   |         | Hardwood Floors:           |       | Marble bath:                 |   |  |
|                           | Garbage disposal:  |         | Wall to Wall<br>Carpeting: |       | Private Entrance:            |   |  |
|                           | Kitchen            |         |                            |       |                              |   |  |
|                           | Dishwasher.        |         | Coffee Maker:              |       | Refridgerator:               |   |  |
|                           | Freezer:           |         | Stove/Oven:                |       | Microwave:                   |   |  |
|                           | Dishes:            |         | Pots/Pans:                 |       |                              |   |  |
|                           | Entertainment      |         |                            |       |                              |   |  |
|                           | Cable TV:          |         | Cable TV Installable:      |       | Satellite TV:                |   |  |
|                           | DVD Player         |         | VCR Player:                |       | Satellite TV<br>Installable: |   |  |
|                           | Music System:      |         | Library of Movies:         |       | Pool Table:                  |   |  |
|                           | Game Room:         |         | Foosball Table:            |       | Air Hockey:                  |   |  |
|                           | Building/Prope     | rty Fea | atures                     |       |                              |   |  |
|                           | Health Club:       |         | Security:                  |       | Valet Parking:               |   |  |
|                           | Sundeck:           |         | Roof Deck:                 |       | Laundry Facilities:          |   |  |
|                           | Swimming Pool:     |         | Jacuzzi:                   |       | Exercise Room:               |   |  |
|                           | Concierge:         |         | Storage Space:             |       | Conference Room:             |   |  |
|                           | Doorman:           |         | Elevator:                  |       | Maid Service:                |   |  |
|                           | Copier Services:   |         | Fax Services:              |       | Computer Services:           |   |  |
|                           | Printer            |         | Scanner:                   |       | High Speed Internet:         |   |  |
|                           | Party Room         |         | Wheelchair Access:         |       | Controlled Access<br>Entry:  |   |  |
|                           | Comments           |         |                            |       |                              |   |  |
|                           | Note: Please do no | exceed  | more than 240 charact      | ters. |                              |   |  |
|                           |                    |         |                            |       |                              |   |  |
|                           |                    |         |                            |       |                              |   |  |
|                           |                    |         |                            |       |                              | Α |  |
|                           |                    |         |                            |       |                              |   |  |

#### My account page -manage sublet (edit sublet continued)

A: This a continued page showing how users can update their sublets.

#### \_ 0 🛛 File Edit View Favorites Tools Help Welcome back, Will Smith APARTMENTS University Housing New Jersey Institute of Technology Sublets Regist Advanced Sea Post a Sublet My Favorit View Sublet You just found the fastest growing My Sublet Listing Title : A database of available college Listing ID : NJSU1025 apartments in New Jersey and we're adding more every day! Don't wait, star Search Result Snapshot: searching now! Listing ID: NJSU1025 Rent: \$1200 Bedrooms:2 Bathrooms:2 Updated: 12/5/05 My Sublet LIMITED TIME OFFER: Register now and try our premium services for free! 12 Martin Luther King Ave Newark, NJ 07103 TOO NEW FOR PHOTO 716-234-2478 will@capstone.com Town, City, or Zip Code: Max Rent \$ 1 Listing Details: Bedrooms TOO NEW GO -FOR PHOTO MEMBER LOGIN Add Images Usemame Sublet Overview 60 Password: ocation: Jewark, New Jersey 07103 Register | Forget uhlet Size One Bedmon

# My account page –manage sublet (view updated sublet)

A: This shows a view of the updated sublet made by the user.



# Sublet Page – listing result page



A: This is a view detail sublet listing.

#### Sublet results page

| 🗐 Garden State Apartments - Microsof | ft Internet Explorer  |                        |   |   | _ 2 |
|--------------------------------------|---|------------------------|---|---|-----|
| File Edit View Favorites Tools Help  | ,   |                        |   |   |     |
|                                      |   | ctment Suble           | ts Room   | mmates My Account   |     |
|                                      | Register  | idvanced Search        | My Favorites  | Research Login  |     |
|                                      | New Jersey s Onlin<br>College Rental Network  | RESULTS 10 V           | riendly View   Results per Page   | Results 1 - 10 of 25<br>Page: 1 <u>2 3 × &gt;&gt;</u><br>State Apartments!                                  |     |
|                                      | You just found the fast set growing<br>university housing dat base of<br>available sublets and i partments in<br>New Jersey and we're adding more<br>every day/ Don't walt, clart searching<br>now! |                        | My Sublet<br>12 Martin Luther King Ave.<br>Netwark, NJ 07103<br>Phone: 201-765-2761<br>Email: <u>Jon@xdesians.com</u> | Listing ID: NJAP2915<br>Rent: \$1200<br>Bedroome: Studio<br>Bathroome:2<br><i>Updated</i> : 1 <i>M V0</i> 5 | A   |
|                                      | Have a sublet? List if here and reach<br>more NJ student and houlty renters<br>than ever before!<br>LIMITED TIME OFFER Register now<br>and try our premium strices for free                         |                        | test email<br>12 Avandale Rd.<br>Newark, NJ 07103<br>Phone: 201-558-7929<br>Email: hans@cyberxdesigns.co              | Listing ID: NJAP2014<br>Rent \$1000<br>Bedrooms: Studio<br>Bathrooms: 0<br><i>Updated: 11/1/05</i>          |     |
|                                      | Town, City, or Jip Code:  | YOU AREN'T REGISTERED! | REGISTER NOW  | AND BEGIN ENJOYING YOUR BENEFITS!   |     |
|                                      | Max Rent \$   |                        | New<br>4 Lorraine Terrace<br>Newark, NJ 07103<br>Phone: 973-854-8547<br>Email: johnstagoode.com                       | Listing ID: NUAP2014<br>Rent: 31000<br>Bedrooms: Studie<br>Bathrooms: 0<br><i>Updated</i> : 109/05          |     |
|                                      | MEMBER LOGIN  |                        | Nice  |   |     |
|                                      | Username:<br>Password: 000<br>Register   Forget Password  | TOO NEW                | IOVE THE DOG<br>12 Avondale Rd.<br>Newark, NJ 07103   | Listing ID: NJAP1983<br>Rent: \$1000<br>Bedrooms: Studio<br>Bathrooms: 0<br>Square Feet: 111                |     |
|                                      |   | FOR PHOTO              | Phone: 201-555-7928<br>Email: <u>hans@cyberxdesigns.cs</u><br>xxxxxxxxxxxxxxxxxx                                      | Fee: 1 gizilion dollars   |     |
|                                      |   |                        |   |   |     |

A: Shows the results listing of sublet search.



#### University Housing Interface

10-10-10-01

#### Sublet Page- post sublet feature

| 🕘 Garden State | Apartments - M | licrosoft Internet Explor             | rer  |   |              |                      |   |   | _ | . 🖻 🛛     |
|----------------|----------------|---------------------------------------|--|---|--------------|----------------------|---|---|---|-----------|
| File Edit View | Favorites Too  | ls Help                               |  |   |              |                      |   |   |   | <b>//</b> |
|                |                | APARIMENTS<br>University              | y Housing                                    |   |              |                      | ne baok, Will Smith<br>tute of Technology |   |   | ^         |
|                |                | Register                              | Apr rime                                     |   | Roomma       | Research             | My Account                                |   |   |           |
|                |                | Kegister                              | Advanced Sharch                              | Rent and Availability                           | My Favorites | Research             | Logout                                    |   |   |           |
|                |                | College Re                            | ey's Onlin<br>ntal Networ                    | Rent per Month:                                 | \$           | .00                  |   |   |   |           |
|                |                | Start looking at ou                   |  | *Date Sublet is Available:                      |              |                      | איי/ספ                                    | Α |   |           |
|                |                |                                       | g on a region of the<br>our search using the | End Date:                                       | ×            | MH/I                 | DD/YY                                     |   |   |           |
|                |                | tools on the right<br>search is FREE! | Either way, your                             | Sublet Information                              |              |                      |   |   |   |           |
|                |                |                                       |  | Listing Title: (60 characters maxin             | num)         |                      |   |   |   |           |
|                |                |                                       | IME ONLY: Register<br>favorite apartments    | Address:  |              |                      |   |   |   |           |
|                |                | and get our premi<br>COST!            | ium services AT NC                           | *City:<br>*State:                               |              | Click here to select | a different                               |   |   |           |
|                |                |                                       | SEARCH                                       | Zip:  | State        |                      |   |   |   |           |
|                |                | Town, City                            | /, or Zip Code:                              | *Building/Property Type:                        |              | ~                    |   |   |   |           |
|                |                |                                       | \$   | *Rooms in Sublet:                               |              | ~                    |   |   |   |           |
|                |                | Bedrooms                              |  | *Total Bathrooms Availabl<br>for Sublet:        | le           | ¥                    |   |   |   |           |
|                |                |                                       | ~  | *Are the Utilities Included<br>Rent?            | in           | ~                    |   |   |   |           |
|                |                | MEMBER LOGI                           | N  | <sup>*</sup> Is a Security Deposit<br>Required? | M            |                      |   |   |   |           |
|                |                | Password:                             |  | Lease Information                               |              |                      |   |   |   |           |
|                |                | Register   Forgot Pas                 | annord                                       | -   |              |                      |   |   |   | ~         |

A: This focal point shows the post sublet feature. Here, the user is asked to input all relative information regarding posting sublet. For example, lease terms are required for this page and other required fields.

#### Sublet Page- post sublet feature (continued)

| Sarden State Aparanents - Microsoft internet | . aufras as                      |  |   |     |
|--|----------------------------------|--|---|-----|
| File Edit View Favorites Tools Help          |                                  |  |   | 1 🦧 |
|  |                                  | *Building/Property Type:       *Rooms in Sublet:       *Total Bathrooms Available<br>for Sublet:       *Are the Utilities Included in<br>Rent?       *Is a Security Deposit<br>Required? | A |     |
| Password:                                    |                                  | Lease Information  |   |     |
| Register   Fo                                | orgot Password                   | * Minimum Lease Stay:<br>* Lease Term:   |   |     |
|  |                                  | Sublet Specifics   |   |     |
|  |                                  | Gender Preference:   |   |     |
|  |                                  | Is the Sublet Furnished?   |   |     |
|  |                                  | Are Smokers Allowed?   |   |     |
|  |                                  | Are Pets Allowed?  |   |     |
|  |                                  | Comments   |   |     |
|  |                                  |  |   |     |
|  |                                  | Submit   |   |     |
|  | Privacy Policy Terms Of Use   Co | ntact Ur   Professional Association Membesthios   Equal Housing Opportunity   Site Map   Help<br>© 2005 Garden State Apartments. All Rights Reserved.                                    |   |     |

A: This is a continued form for post sublet.



# Testimonial page



A: Shows heading for testimonial page.

#### **About Us page**

| t View Favorites Tools H | ~**       |  |   |  |                             |  |
|--------------------------|-----------|--|---|--|-----------------------------|--|
|                          |           | Apartment  | Sublets   | Roommates  | My Account                  |  |
|                          | Main Site | About Us   | Register  | Research   | Login                       |  |
|                          |           | About Garden State Apa   | rtments   |  |                             |  |
|                          |           |  | entire apartment rental and su<br>Iutionized the sublet and apa | blet community together throug<br>tment renting industry to make   | h relationships             |  |
|                          |           | We've had so many discussion<br>estate professionals, that we o<br>renting and sublet services you | ledicated years of research to                                  | create a way to bring you the ap   |                             |  |
|                          |           | We worked closely with New J<br>real estate brokers, to revolution                                 |   |  | mplexes, and                |  |
|                          |           | At GardenStateApartments, we<br>owners, apartment renters, stu                                     |   |  | apartment                   |  |
|                          |           | WHO WE ARE   |   |  |                             |  |
|                          |           |  | state agents, and investmen<br>gents, and property manager      |  | lives as                    |  |
|                          |           | Turnpike, jogging in Branch Br   | ach from your Wildwood sum<br>ook Park, camping with the fa     | ate. From riding the PATH on yo<br>merrental. Whether its driving d<br>mily at Bear Mountain, beating t<br>ain Street for a bagel and coffee | own the NJ<br>he traffic to |  |
|                          |           | We are experts in what we do   | and we are all about New Jer                                    | sey  |                             |  |



### 10.2.5 Use-Case Diagrams

#### 10.2.5.1 High Level Use-Case Diagram





#### 10.2.5.2 Lower Level Use-Case Diagram





# **11 Documenting Requirements**

# **11.1 Requirements Definition**

After applying different methods of gathering requirements, the bases of the project have been

divided, as follows, into those of functional and non-functional.

### **11.1.1 Functional Requirements**

- The website must include a *Search Page* which requires users to enter: *school*, *city and state*, or *zip-code*.
- The website must include an *Advanced Search Page* which gives the options for users to make a more specific search with determinants such as *price range*.
- The website must include a *Roommate Posting Page*.
- The website must include a *Sublet Posting Page*.
- The website must include a *School Bio Page* for each school listed on a search profile.
- The website must include a *Member Registration Page*.
- The website must include a *Log-in* for registered members.
- The website must display what *type of account(s)* a registered member has registered.
- The website must include a *Member Bio Page*, for a registered member, which will display information on that member and all postings he/she are linked to.
- The website must include an *Add-to-Favorites* feature for search profiles registered users would like to refer back to.
- During the registration process, users are required to enter *contact information*.
- The registered member's *user name* and *password* must contain *alphanumeric characters*.
- Only a registered member may post or delete listings on the *Sublet Posting Page* and *Roommate Posting Page*.
- The *Advanced Search* must include a *Time Frame* to choose from, which is listed in lease terms.
- The *School Bio Page* shall feature *vital statistics* and a *url link* to important websites of the school.



# **11.1.2 Non-Functional Requirements**

- The website must have a *quick loading speed*, no different to a 14.4 modem than to a T3.
- The website should be easily to navigate and use as little clicks possible to get to a desired page.
- The website must be use a little scrolling as possible.
- The website must be *user-friendly*, even down to greeting a logged-in user.
- The website will be programmed in the following: *HTML*, *PHP*, *MYSQL*, and *Java*.
- The website will *appeal to a younger demographic* while still maintaining a professional realty base.
- The website must not contain any forum or chatting features.
- For security purposes, the website *must not contain any confidential information* on Listings and Member Bios.
- The Search Page should use limited options to reduce confusion.

# **11.2 Requirements Specifications**

The following specifications outline the functional and non-functional components of the

system.

### **11.2.1 Functional Requirements**

System Content Requirement: The following specifications list the necessary

components of the interface.

- Must contain a General and Advanced Search The option of a generic or specific search will be up to the registered or non-registered user.
- Search functions must contain basic searching elements Each search function must have the option to search by zip code, city or town, and university.
- Must contain a Registration Form A registration form will allow a general user to log-in as a member and take advantage of member-only privileges.
- Must contain a Sublet Posting page The sublet posting page will allow registered users to post the availability of the transfer of their apartment lease to another person and also allow users to view it.
- Must contain a Roommate Posting page The roommate posting page will allow registered users to post the request of a roommate and allow users to respond to the request via e-mail.



- Must contain an Add-to-Favorites feature The user should have the choice to bookmark listings he or she is interested in.
- Must contain School Bio pages School biography pages will enable users to learn about the universities they are interested in by use of general information, a listing of statistics, and links to each school's home page and related web pages.

#### Logging-in to Garden State Apartments: The following outlines the bases and

advantages of logging-in to the website.

- User must completely fill out and submit a registration form.
- Once registration is verified, the user may log in
- User must log in with a user name and a password, both of which can only be made up of alphanumeric characters.
- Logged-in member may access member-only features, such as posting on the Sublet or Roommate Posting pages
- Logged-in member account type will display next to the user's user name.

Posting on Garden State Apartments: The following are the criteria in order to post

any type of listing in either of the posting pages.

- User must initially log-in as a registered member to post anything on Garden State Apartments.
- User must be aware that contact information will be displayed in order for prospective post replies wish to communicate.
- Only registered users may delete a post, which is why they are required to log-in at first.

#### **11.2.2 Non-Functional Requirements**

Usability: The following is an outline of elements that promote ease of use and user-

friendliness towards the user of the website.

- Must have a Quick Loading speed Because users' connection speeds to the website may vary, the website should load no differently for someone on dial-up than someone with a broadband connection.
- Must have Clear Navigation The website must be clear to the user and cause no confusion as to where to go to find content, log in, or perform a search.
- Must Require Minimal Mouse-Clicks The website must use as little clicks as
  possible to route to a desired webpage or it may lose the interest of the user or
  lose the user completely.

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- Must have Minimal Page Scrolling The website must minimally use scroll bars to keep the user focused and interested.
- General Search Function must be limited To reduce the initial possibility of confusion caused from multiple options to choose from in an advanced search, the general search function must only consist of three criteria to choose from, being city or town, zip code, or desired university.

*User-friendliness*: The following is an outline of elements that promote ease of use and user-friendliness towards the user of the website.

- Must have a Quick Loading speed Because users' connection speeds to the website may vary, the website should load no differently for someone on dial-up than someone with a broadband connection.
- Must Appeal to its Audience The website must recognize that its predominate audience is made up of students and should accommodate to their tech-savvy technical skills, while maintaining a professional atmosphere for faculty the faculty members using the website.
- Must be Customizable to a Registered User When a user logs-in to the website as a member, the user should be greeted and given the options to post a listing availability, based on his or her account type.

Security: Security issues are discussed as follows:

- Submission of minimal secure information Registered users are required to fill
  out specific personal information the registration form, but due to countless risks,
  including identity theft, only limited personal information will be displayed on a
  member's profile or Roommate or Sublet post.
- Must not contain a Forum or Chat Feature Due to liability issues, the website may not have posting on its pages where users can publicly communicate to each other.



# 12 Data Dictionary (BNF Form)

| Name   | BNF   |
|--|---|
| Tenant Account Management by Registered<br>Tenants                                     |   |
| View existing profile of tenant  | UserID  |
| Edit existing profile of tenant  | UserID  |
| Access apartment listing favorites of tenant   | {ApartmentPhoto + ApartmentText +<br>ApartmentsFavoritesID + UserID } |
| Access roommate listing favorites of tenant  | {RoommatePhoto + RoommateText +<br>RoommatesFavoritesID + UserID }    |
| Access sublet listing favorites of tenant  | {SubletPhoto + SubletText + SubletFavoritesID<br>+ UserID }           |
| Remove apartment listing favorites of tenant   | UserID + {ApartmentsFavoritesID -<br>ApartmentID}                     |
| Remove sublet listing favorites of tenant  | UserID + {SubletFavoritesID - SubletID}                               |
| Remove roommate listing favorites of tenant  | UserID + {RoommatesFavoritesID -<br>RoommateID}                       |
| Add a single sublet listing to Registered Tenant's Account                             | NewSubletListing + UserID   |
| Edit singular sublet listing associated with Registered Tenant                         | UserID  |
| Update availability of singular sublet listing associated<br>with Registered<br>Tenant | UserID  |
| Remove singular sublet listing associated with Registered Tenant                       | UserID + {SubletPage - CurrentSubletListing}                          |
| Add a single roommate listing to Registered Tenant's Account                           | NewRoommateListing + UserID   |
| Edit singular roommate listing associated with Registered Tenant                       | UserID  |
| Update availability of singular roommate listing associated with Registered Tenant     | UserID  |
| Delete singular roommate listing associated with Registered Tenant                     | UserID + {RoommatePage -<br>CurrentRoommateListing}                   |
| Ability to view Registered Tenant Manage Account<br>Page                               | UserID  |
| Ability to view Registered Tenant Customized Account<br>and University                 | UserID  |



| Page  |   |
|---|---|
| Ability to view Registered Tenant View Favorites Page                     | UserID  |
| Ability to view Registered Tenant Sublet Posting Page                     | UserID  |
| Ability to view Registered Tenant Roommate Posting<br>Page                | UserID  |
| Apartment Search  |   |
| Perform apartment search by a specific town                               | {ApartmentID + Town}  |
| Perform apartment search by a specific city                               | {ApartmentID + City}  |
| Perform apartment search by a specific zip code                           | {ApartmentID + Zipcode}                                     |
| Perform apartment search by a specific complete address                   | {ApartmentID + CompleteAddress}                             |
| Perform apartment search by a specific county                             | {ApartmentID + SpecificCountry}                             |
| Perform apartment search by a specific university location                | {ApartmentID + University}                                  |
| Filter apartment search by specific apartment details                     | {ApartmentID + ApartmentAttributes[152]}                    |
| Filter apartment search by specific complex features                      | {ApartmentID + ApartmentAttributes[152]}                    |
| Filter apartment search by specific building features                     | {ApartmentID + ApartmentAttributes[152]}                    |
| Filter apartment search by specific apartment features                    | {ApartmentID + ApartmentAttributes[152]}                    |
| Filter apartment search by specific lease details                         | {ApartmentID + ApartmentAttributes[152]}                    |
| Add apartment search result to favorite apartments of a registered tenant | {ApartmentSearchResult +<br>ApartmentsFavoritesID + UserID} |
| Print apartment search result listing                                     | UserID  |
| E-mail apartment search result to a specific recipient                    | UserID  |
| Ability to view Main GSA University Apartment<br>Search Landing Page      | Public  |
| Ability to view Advanced Apartment Search Page                            | Public  |
| Sublet Search   |   |
| Perform sublet search by maximum rent and bedrooms amount                 | {SubletID + MaxRent + Bedrooms}                             |
| Perform sublet search by specific town, city, or zip code radius          | {SubletID + Zipcode + Town + City}                          |
| Perform sublet search by specific university radius                       | {SubletID + University}                                     |
| Perform sublet search by a specific complete address                      | {SubletID + CompleteAddress}                                |
| Perform sublet search by a specific county radius                         | {SubletID + County}   |

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University Housing Interface

| Perform sublet search by a specific university location radius              | {SubletID + UniversityLocation}                      |
|---|--|
| Filter sublet search by specific apartment details                          | {SubletID + SubletAttributes[152]}                   |
| Filter sublet search by specific complex features                           | {SubletID + SubletAttributes[152]}                   |
| Filter sublet search by specific building features                          | {SubletID + SubletAttributes[152]}                   |
| Filter sublet search by specific apartment features                         | {SubletID + SubletAttributes[152]}                   |
| Filter sublet search by specific lease details                              | {SubletID + SubletAttributes[152]}                   |
| Add sublet search result to favorite sublet listings of a registered tenant | {SubletSearchResult + SubletFavoritesID +<br>UserID} |
| Print sublet search result listing  | UserID   |
| E-mail sublet search result to a specific recipient                         | UserID   |
| Ability to view Main GSA University Sublet Search<br>Landing Page           | Public   |
| Ability to view Advanced Sublet Search Page                                 | Public   |
| Roommate Search   |  |
| Perform roommate search by maximum rent and bedrooms amount                 | {RoommateID + MaxRent + Bedrooms}                    |
| Perform roommate search by specific town, city, or zip code radius          | {RoommateID + Zipcode + Town + City}                 |
| Perform roommate search by specific university radius                       | {RoommateID + University}                            |
| Perform roommate search by specific general search criteria                 | {RoommateID + GeneralCriteria}                       |
| Filter roommate search by age, gender, orientation, and smoking             | {SubletID + RoommateAttributes[151]}                 |
| Filter roommate search by rent + utilities cost and availability            | {SubletID + RoommateAttributes[151]}                 |
| Filter roommate search by building type, furnished type, and parking        | {SubletID + RoommateAttributes[151]}                 |
| Filter roommate search by work schedule, party habits, children,            | {SubletID + RoommateAttributes[151]}                 |
| Add roommate search result to favorite roommate                             | {RoommateSearchResult +                              |
| listings of a registered tenant   | RoommateFavoritesID + UserID}                        |
| Print roommate search result listing  | UserID   |
| E-mail roommate search result to a specific recipient                       | UserID   |
| Ability to view Main GSA University Roommate<br>Search Landing Page         | Public   |
| Ability to view Advanced Roommate Search Page                               | Public   |



| General User Options   |                                   |
|--|-----------------------------------|
| Add new college tenant account by general users whom recently registered   | Registration => UserID            |
| Perform a university/school search by name                                 | {UniversitySearchID + University} |
| Access vital statistics and relevant information by university/school name | {UniversityResearch + University} |
| Access relevant web links from a specific<br>university/school             | Public                            |
| Confirm college tenant account using new account confirmation e-mail       | UserID                            |
| Add new testimonial record for Apartment site functionality by any user    | Public                            |
| Add new testimonial record for Sublet functionality by any user            | Public                            |
| Add new testimonial record for Roommate functionality by any user          | UserID +RoommateTestimonial       |
| View all testimonials for Garden State Apartments<br>University Housing    | Public                            |
| Ability to view most Recently Added Apartments chronologically             | UserID + RecentApartmentListing   |
| Ability to view most Recently Added Sublets<br>chronologically             | UserID + RecentSubletListing      |
| Ability to view most Recently Added Roommates chronologically              | UserID + RoommateListing          |
| Ability to view Main Garden State Apartments<br>University Landing Page    | Public                            |
| Ability to view Register Page by Un-registered or Un-<br>logged in Users   | Public                            |



# 13 Design Strategies

# 13.1 Class Diagram

# 13.1.1 High-level Class Diagram





### 13.1.2 Lower-level Class Diagram





# **13.2 Sequence Diagrams**

### 13.2.1 Sequence Diagram- Post Sublet Instance





# 13.2.2 Sequence Diagram- Post Roommate Instance





# **13.2.3 Sequence Diagram- Search Sublet Instance**





# 13.2.4 Sequence Diagram- Search Roommate Instance





# 13.2.5 Sequence Diagram- Search Apartment Instance





# 13.3 Use-Case Diagrams

### 13.3.1 High Level Use-Case Diagram




### 13.3.2 Lower Level Use-Case Diagram





## **14 FDD Progress and Feature Sets**

## 14.1 Feature Sets Hierarchy (Updated: Dec 6, 2005 Sprint 5)

The following contains the updated complete hierarchy of major feature sets, sub-feature sets, and

individual features of the Garden State Apartments Fall 2005 capstone project. The current associated

progress of the project as of December 6, Sprint 5, is also outlined in the diagram below.

# 14.1.1 Major Feature Set: (TAM) Tenant Account Management by Registered Tenants

Feature Set: Updating Tenant Profile

Features:

- § View existing profile of tenant
- § Edit existing profile of tenant
- § Edit existing University of tenant

#### Feature Set: Modifying Favorite Listings

Features:

- § Access apartment listing favorites of tenant
- § Access roommate listing favorites of tenant
- § Access sublet listing favorites of tenant
- § Remove apartment listing favorites of tenant
- § Remove roommate listing favorites of tenant
- § Remove sublet listing favorites of tenant

#### Feature Set: Modifying Sublet Postings

- Add a single sublet listing to Registered Tenant's Account
- Edit singular sublet listing associated with Registered Tenant
- Update availability of singular sublet listing associated with Registered Tenant
- Remove singular sublet listing associated with Registered Tenant



#### Feature Set: Modifying Roommate Postings

Features:

- § Add a single roommate listing to Registered Tenant's Account
- § Edit singular roommate listing associated with Registered Tenant
- § Update availability of singular roommate listing associated with Registered Tenant
- § Delete singular roommate listing associated with Registered Tenant

#### \*Feature Set: Viewing College Tenant Account Front-end Pages

Features:

- § Ability to view Registered Tenant Manage Account Page
- § Ability to view Registered Tenant Customized Account and University Page
- § Ability to view Registered Tenant View Favorites Page
- § Ability to view Registered Tenant Sublet Posting Page
- § Ability to view Registered Tenant Roommate Posting Page

#### 14.1.2 Major Feature Set: (AS) Apartment Search

Feature Set: Performing General Search for Apartments

Features:

- Perform apartment search by a specific town radius
- Perform apartment search by a specific city radius
- Perform apartment search by a specific zip code radius

Feature Set: Performing Advanced Search for Apartments

Features:

- Perform apartment search by a specific complete address
- Perform apartment search by a specific county radius
- Perform apartment search by a specific university location radius
- Filter apartment search by specific apartment details
- Filter apartment search by specific complex features
- Filter apartment search by specific building features
- Filter apartment search by specific apartment features
- Filter apartment search by specific lease details

Feature Set: Performing Search Result Options

- § Add apartment search result to favorite apartments of a registered tenant
- § Print apartment search result listing
- § E-mail apartment search result to a specific recipient



## 14.1.3 Major Feature Set: (SS) Sublet Listings Search

Feature Set: Performing General Search for Sublets

Features:

- § Perform sublet search by maximum rent and bedrooms amount
- § Perform sublet search by specific town, city, or zip code radius
- § Perform sublet search by specific university radius

#### Feature Set: Performing Advanced Search for Sublets

Features:

- § Perform sublet search by a specific complete address
- § Perform sublet search by a specific county radius
- § Perform sublet search by a specific university location radius
- § Filter sublet search by specific apartment details
- § Filter sublet search by specific complex features
- § Filter sublet search by specific building features
- § Filter sublet search by specific apartment features
- § Filter sublet search by specific lease details

#### Feature Set: Performing Search Result Options

Features:

- § Add sublet search result to favorite sublet listings of a registered tenant
- § Print sublet search result listing
- § E-mail sublet search result to a specific recipient
- \* Feature Set: Viewing Sublet Search Front-end Pages

Features:

- § Ability to view Main GSA University Sublet Search Landing Page
- § Ability to view Advanced Sublet Search Page

#### 14.1.4 Major Feature Set: (RS) Roommate Listings Search

Feature Set: Performing General Search for Roommates

Features:

- § Perform roommate search by maximum rent and bedrooms amount
- § Perform roommate search by specific town, city, or zip code radius
- § Perform roommate search by specific university radius

#### Feature Set: Performing Advanced Search for Roommates

- § Perform roommate search by specific general search criteria
- § Filter roommate search by age, gender, orientation, and smoking
- § Filter roommate search by rent + utilities cost and availability
- § Filter roommate search by building type, furnished type, and parking



§ Filter roommate search by work schedule, party habits, children, cleanliness, and pets

#### Feature Set: Performing Search Result Options

Features:

- § Add roommate search result to favorite roommate listings of a registered tenant
- § Print roommate search result listing
- § E-mail roommate search result to a specific recipient

\* Feature Set: Viewing Roommate Search Front-end Pages

#### Features:

- § Ability to view Main GSA University Roommate Search Landing Page
- § Ability to view Advanced Roommate Search Page

## 14.1.5 Major Feature Set: (GUO) General User Options

Features Set: Performing User Registration

Features:

- § Add new college tenant account by general users whom recently registered
- § Confirm college tenant account using new account confirmation email

#### Features Set: Obtaining School Resource Information

#### Features:

- § Perform a university/school search by name
- § Access vital statistics and relevant information by university/school name
- § Access relevant web links from a specific university/school

## \*Features Set: Adding and Obtaining General Current Site Testimonials

Features:

- § Add new testimonial record for Apartment site functionality by any user
- § Add new testimonial record for Sublet functionality by any user
- § Add new testimonial record for Roommate functionality by any user
- § View all testimonials for Garden State Apartments University Housing

\*Features Set: Viewing Recently Added Listings

- § Ability to view most Recently Added Apartments chronologically
- § Ability to view most Recently Added Sublets chronologically



§ Ability to view most Recently Added Roommates chronologically

\*Features Set: Viewing General Front-end Pages

Features:

- § Ability to view Main Garden State Apartments University Landing Page
- § Ability to view Register Page by Un-registered or Un-logged in Users

\* = (Updated for Sprint 5)

## 14.2 Feature Sets Diagram (Updated: Dec 6, 2005 Sprint 5)

The current progress as of October 25, Sprint 2, is also outlined in the diagram below.

**Project FDD Progress (as of October 25, 2005 – Sprint 2)** 





## 14.3 FDD Feature View



Below outlines the current updated major feature sets and individual feature sets (updated for Sprint 5) of the <u>Garden State Apartments</u> Fall 2005 capstone project. Along with the breakdown of feature sets, the diagram demonstrates which areas are assigned to specific individuals of the development team.

#### **FDD Feature Sets**

| ID               | Major Feature         | Feature Set                | Description  | Chief Developer    |
|------------------|-----------------------|----------------------------|--|--------------------|
| TAN (01          | Set                   |                            |  |                    |
| TAM01            | Tenant Account        | Updating Tenant<br>Profile | Set updated tenant profile information<br>or Retrieve for tenant to view | PHP Dev: TBD       |
|                  | Management<br>(TAM)   |                            |  |                    |
| TAM02            | Tenant Account        | Modifying Favorite         | Retrieve apartment or roommate or  | PHP Dev: TBD       |
|                  | Management            | Listings                   | sublet favorite listings for viewing or                                  |                    |
|                  | (TAM)                 |                            | removing   |                    |
| TAM03            | Tenant Account        | Modifying Sublet           | Adding, editing, updating availability,                                  | PHP Dev: TBD       |
|                  | Management<br>(TAM)   | Posting                    | or removing singular sublet posting                                      |                    |
| TAM04            | Tenant Account        | Modifying                  | Adding, editing, updating availability,                                  | PHP Dev: TBD       |
|                  | Management            | Roommate Posting           | or removing singular roommate  |                    |
|                  | (TAM)                 | _                          | posting  |                    |
| TAM05            | Tenant Account        | Viewing Student            | Viewing the College Tenant Manage  | HTML Dev: Ibrahim  |
|                  | Management            | Tenant Account             | Account Page, View Favorites Page,                                       |                    |
|                  | (TAM)                 | Front-end Pages            | and Sublet/Roommate Posting Pages  |                    |
| AS01             | Apartment Search      | General Search for         | Retrieve apartments by user defined                                      | PHP Dev: TBD       |
|                  | (AS)                  | Apartments                 | town, city, or zip code  |                    |
| AS02             | Apartment Search      | Advanced Search            | Retrieve apartments by complete  | PHP Dev: TBD       |
|                  | (AS)                  | for Apartments             | address, county, university and filter                                   |                    |
| AS03             | Anortmont Course      | Performing Search          | results by chosen criteria<br>Print, E-mail, or Add search result to     | HTML Dev: Ibrahim  |
| A303             | Apartment Search (AS) | Result Options             | favorite apartment listings  | HIML Dev. Ioranini |
| AS04             | Apartment Search      | Viewing Apartment          | Viewing the Main GSA University  | HTML Dev: Ibrahim  |
| A50 <del>4</del> | (AS)                  | Search Front-end           | Apartment Search Landing Page as   |                    |
|                  | (110)                 | Pages                      | well as the Advanced Apartment   |                    |
|                  |                       |                            | Search Page  |                    |
| SS01             | Sublet Listings       | General Search for         | Retrieve sublets by user defined town,                                   | PHP Dev: TBD       |
|                  | Search (SS)           | Sublets                    | city, or zip code  |                    |
| SS02             | Sublet Listings       | Advanced Search            | Retrieve sublets by complete address,                                    | PHP Dev: TBD       |
|                  | Search (SS)           | for Sublets                | county, university and filter results by                                 |                    |
|                  |                       |                            | chosen criteria  |                    |
| SS03             | Sublet Listings       | Performing Search          | Print, E-mail, or Add search result to                                   | HTML Dev: Ibrahim  |
|                  | Search (SS)           | Result Options             | favorite sublet listings   |                    |
| SS04             | Sublet Listings       | Viewing Sublet             | Viewing the Main GSA University  | HTML Dev: Ibrahim  |
|                  | Search (SS)           | Search Front-end           | Sublet Search Landing Page as well as                                    |                    |
|                  |                       | Pages                      | the Advanced Sublet Search Page  |                    |

#### FDD Feature Sets (Cont.)

| ID Major Feature Feature Set | Description | Chief Developer |
|------------------------------|-------------|-----------------|
|------------------------------|-------------|-----------------|



# University Housing Interface

|       | Set                                 |   |  |                   |
|-------|-------------------------------------|---|--|-------------------|
| RS01  | Roommate<br>Listings Search<br>(RS) | General Search for<br>Roommates               | Retrieve roommates by user defined town, city, or zip code   | PHP Dev: TBD      |
| RS02  | Roommate<br>Listings Search<br>(RS) | Advanced Search<br>for Roommates              | Retrieve roommates by general search<br>criteria and filter according to set<br>roommate criteria  | PHP Dev: TBD      |
| RS03  | Roommate<br>Listings Search<br>(RS) | Performing Search<br>Result Options           | Print, E-mail, or Add search result to favorite roommate listings  | HTML Dev: Ibrahim |
| RS04  | Roommate<br>Listings Search<br>(RS) | Viewing<br>Roommate Search<br>Front-end Pages | Viewing the Main GSA University<br>Roommate Search Landing Page as well<br>as the Advanced Roommate Search Page                                    | HTML Dev: Ibrahim |
| GUO01 | General User<br>Options (GUO)       | Performing User<br>Registration               | Add new college tenant account by<br>unregistered user and confirm account<br>creation with confirmation e-mail                                    | PHP Dev: TBD      |
| GUO02 | General User<br>Options (GUO)       | Obtaining School<br>Resource<br>Information   | Retrieve specific university information<br>according to user-defined New Jersey<br>based university   | PHP Dev: TBD      |
| GUO03 | General User<br>Options (GUO)       | Adding and<br>Obtaining Site<br>Testimonials  | Adding new general user testimonials for<br>apartment, sublet, and roommate<br>functionality. Ability to view current<br>testimonials list as well | PHP Dev: TBD      |
| GUO04 | General User<br>Options (GUO)       | Viewing Recently<br>Added Listings            | Retrieve and View most recently added<br>Apartments, Sublets, and Roommates in<br>chronological order.   | PHP Dev: TBD      |
| GUO05 | General User<br>Options (GUO)       | Viewing General<br>Front-End Pages            | Viewing the Main GSA University<br>Landing Page as well as the Register<br>Page for non-registered or un-logged in<br>users                        | PHP Dev: TBD      |





## 14.4 FDD Progress Overview

The current progress overview of the <u>Garden State Apartments</u> Fall 2005 capstone project as of December 6, 2005 is summarized below. As shown, the completed areas of the major features sets: TAM, AS, SS, RS, and GUO are outlined below. The remaining areas are designated as Inactive and will be addressed by continuing development teams of Garden State Apartments.

|                        |                   | <u>Te</u>      | nant Acc             | ount Man           | agement (' | TAM)     |                |                    |
|------------------------|-------------------|----------------|----------------------|--------------------|------------|----------|----------------|--------------------|
| Features<br>Set        | Total<br>Features | Not<br>Started | In<br>Progress       | Behind<br>Schedule | Completed  | Inactive | %<br>Completed | Completion<br>Date |
| Updating Tenent        | 3                 | 0              | $\overset{\circ}{0}$ | 0                  | 0          | 3        | 0              | TBD                |
| Tenant<br>Profile      |                   |                |                      |                    |            |          |                |                    |
| Modifying              | 6                 | 0              | 0                    | 0                  | 0          | 6        | 0              | TBD                |
| Favorite<br>Listings   |                   |                |                      |                    |            |          |                |                    |
| Modifying              | 4                 | 0              | 0                    | 0                  | 0          | 4        | 0              | TBD                |
| Sublet<br>Listings     |                   |                |                      |                    |            |          |                |                    |
| Modifying              | 4                 | 0              | 0                    | 0                  | 0          | 4        | 0              | TBD                |
| Roommate<br>Listings   |                   |                |                      |                    |            |          |                |                    |
| Viewing                | 5                 | 0              | 0                    | 0                  | 5          | 0        | 100            | 12/6/05            |
| Account<br>Pages       |                   |                |                      |                    |            |          |                |                    |
| Subject<br>Area Total: | 22                | 0              | 0                    | 0                  | 5          | 17       | 20%            |                    |



|  |                   |                | <u>Apar</u>    | <u>tment Sea</u>   | arch (AS) |          |                |                    |
|--|-------------------|----------------|----------------|--------------------|-----------|----------|----------------|--------------------|
| Features<br>Set                          | Total<br>Features | Not<br>Started | In<br>Progress | Behind<br>Schedule | Completed | Inactive | %<br>Completed | Completion<br>Date |
| General<br>Search for<br>Apartments      | 3                 | 0              | Ō              | 0                  | 3         | 0        | 100            | AS-IS              |
| Advanced<br>Search for<br>Apartments     | 8                 | 0              | 0              | 0                  | 8         | 0        | 100            | AS-IS              |
| Performing<br>Search<br>Result           | 3                 | 0              | 0              | 0                  | 3         | 0        | 100            | AS-IS              |
| Options<br>Viewing<br>Apartment<br>Pages | 2                 | 0              | 0              | 0                  | 2         | 0        | 100            | 12/6/05            |
| Subject<br>Area Total:                   | 16                | 0              | 0              | 0                  | 16        | 0        | 100%           |                    |

|   |                   |                | Sublet 1    | Listings S         | earch (SS) | <u>)</u> |                |                    |
|---|-------------------|----------------|-------------|--------------------|------------|----------|----------------|--------------------|
| Features<br>Set                           | Total<br>Features | Not<br>Started | In Progress | Behind<br>Schedule | Completed  | Inactive | %<br>Completed | Completion<br>Date |
| General<br>Search for<br>Sublets          | 3                 | 0              | 0           | 0                  | 0          | 3        | 0              | TBD                |
| Advanced<br>Search for<br>Sublets         | 8                 | 0              | 0           | 0                  | 0          | 8        | 0              | TBD                |
| Performing<br>Search<br>Result<br>Options | 3                 | 0              | 0           | 0                  | 0          | 3        | 0              | TBD                |
| Viewing<br>Sublet Pages                   | 2                 | 0              | 0           | 0                  | 2          | 0        | 100            | 12/6/05            |
| Subject<br>Area Total:                    | 16                | 0              | 0           | 0                  | 2          | 14       | 25%            |                    |



|                             |                   |                | <b>Roommat</b> | e Listings         | Search (H | <u>RS)</u> |                |                    |
|-----------------------------|-------------------|----------------|----------------|--------------------|-----------|------------|----------------|--------------------|
| Features<br>Set             | Total<br>Features | Not<br>Started | In Progress    | Behind<br>Schedule | Completed | Inactive   | %<br>Completed | Completion<br>Date |
| General                     | 3                 | 0              | 0              | 0                  | 0         | 3          | 0              | TBD                |
| Search for<br>Roommates     |                   |                |                |                    |           |            |                |                    |
| Advanced                    | 5                 | 0              | 0              | 0                  | 0         | 5          | 0              | TBD                |
| Search for<br>Roommates     |                   |                |                |                    |           |            |                |                    |
| Performing                  | 3                 | 0              | 0              | 0                  | 0         | 3          | 0              | TBD                |
| Search<br>Result<br>Options |                   |                |                |                    |           |            |                |                    |
| Viewing                     | 2                 | 0              | 0              | 0                  | 2         | 0          | 100            | 12/6/05            |
| Roommate<br>Pages           | 2                 | Ū              | 0              | Ū                  | 2         | Ū          | 100            | 12/0/03            |
| Subject<br>Area Total:      | 13                | 0              | 0              | 0                  | 2         | 11         | 25%            |                    |

# **<u>General User Options (GUO)</u>**

| Features     | Total    | Not     | In Progress | Behind   | Completed | Inactive | %         | Completion |
|--------------|----------|---------|-------------|----------|-----------|----------|-----------|------------|
| Set          | Features | Started |             | Schedule |           |          | Completed | Date       |
| Performing   | 2        | 0       | 0           | 0        | 0         | 2        | 0         | TBD        |
| User         |          |         |             |          |           |          |           |            |
| Registration |          |         |             |          |           |          |           |            |
| Obtaining    | 3        | 0       | 0           | 0        | 0         | 3        | 0         | TBD        |
| School       |          |         |             |          |           |          |           |            |
| Resource     |          |         |             |          |           |          |           |            |
| Information  |          |         |             |          |           |          |           |            |
| Adding and   | 4        | 0       | 0           | 0        | 1         | 3        | 25        | TBD        |
| Viewing      |          |         |             |          |           |          |           |            |
| Testimonials |          |         |             |          |           |          |           |            |
| Viewing      | 3        | 0       | 0           | 0        | 0         | 3        | 0         | TBD        |
| Recent       |          |         |             |          |           |          |           |            |
| Added        |          |         |             |          |           |          |           |            |
| Listings     |          |         |             |          |           |          |           |            |
| Viewing      | 2        | 0       | 0           | 0        | 2         | 0        | 100       | 12/6/05    |
| General      |          |         |             |          |           |          |           |            |
| Front-End    |          |         |             |          |           |          |           |            |
| Pages        |          |         |             |          |           |          |           |            |
| Subject      | 14       | 0       | 0           | 0        | 3         | 11       | 25%       |            |
| Area Total:  |          |         |             |          |           |          |           |            |



|                       |             | <b>Pro</b> g | gress Sumn         | nary      |          |             |
|-----------------------|-------------|--------------|--------------------|-----------|----------|-------------|
| <b>Total Features</b> | Not Started | In Progress  | Behind<br>Schedule | Completed | Inactive | % Completed |
| 81                    | 0           | 0            | 0                  | 28        | 53       | 35%         |



# **15 Testing**

## **15.1 Acceptance Test**

The purpose of this acceptance test is to verify whether the layout, content, and certain

functionality of the Garden State Apartments University Site meet the expectations of the

stakeholders. For the purposes of this test, the questionnaire outlined below will be delivered to

the immediate Garden State Apartments Sponsor: Sandeep (Sunny) Kancherla.

The major functional requirements as outlined by the sponsor have been compiled and associated with 5 levels of acceptability shown below.

| Key Symbol |                         |
|------------|-------------------------|
| EA         | Extremely Acceptable    |
| SA         | Strongly Acceptable     |
| Α          | Acceptable              |
| SUA        | Somewhat Un-Acceptable  |
| EUA        | Extremely Un-Acceptable |

| Statement  | EA | SA | Α | SUA | EUA |
|--|----|----|---|-----|-----|
| Main University Landing Page Criteria  |    |    |   |     |     |
| System provides an appropriate layout and content for the Main University Landing Page | Х  |    |   |     |     |
| System provides an appropriate layout for the Testimonials Main Page                   | Х  |    |   |     |     |
| My Accounts Page Criteria  | EA | SA | Α | SUA | EUA |
| System provides an appropriate layout and content for the My Accounts Page             | Х  |    |   |     |     |
| System provides an appropriate layout for the View Existing Profile Page               | Х  |    |   |     |     |
| System provides the accurate fields on the View<br>Existing Profile of Tenant Page     | Х  |    |   |     |     |
| System provides an appropriate layout for the Edit<br>Existing Profile Page            | Х  |    |   |     |     |
| System provides the accurate fields on the Edit Profile<br>Page                        | Х  |    |   |     |     |
| System provides an appropriate layout for the  | Х  |    |   |     |     |



# University Housing Interface

| Favorites Listing Page for Apartments, Sublets, and  |                        |    |   |     |     |
|--|------------------------|----|---|-----|-----|
| Roommates  |                        |    |   |     |     |
| System provides accurate fields on the Favorites   | Х                      |    |   |     |     |
| Listings for Apartments, Sublets, and Roommates  |                        |    |   |     |     |
| System provides an appropriate layout for the single   | Х                      |    |   |     |     |
| Sublet Posting Page  |                        |    |   |     |     |
| System provides accurate fields on the Sublet Posting  | Х                      |    |   |     |     |
| Page   |                        |    |   |     |     |
| System provides an appropriate layout for the Sublet   | Х                      |    |   |     |     |
| Edit Posting Page  |                        |    |   |     |     |
| System provides accurate fields on the Sublet Edit   | Х                      |    |   |     |     |
| Posting Page   |                        |    |   |     |     |
| System provides an appropriate layout for the single   | Х                      |    |   |     |     |
| Roommate Posting Page  |                        |    |   |     |     |
| System provides accurate fields on the Roommate  | Х                      |    |   |     |     |
| Posting Page   |                        |    |   |     |     |
| System provides an appropriate layout for the  | Х                      |    |   |     |     |
| Roommate Edit Posting Page   |                        |    |   |     |     |
| System provides accurate fields on the Roommate Edit   | Х                      |    |   |     |     |
| Posting Page   |                        |    |   |     |     |
| System provides an accurate layout of University   | Х                      |    |   |     |     |
| Customization for Registered and Logged In User  |                        |    |   |     |     |
| Apartment Search Page Criteria   | EA                     | SA | Α | SUA | EUA |
| System provides an appropriate layout for the  | Х                      |    |   |     |     |
| Apartment Search Page  |                        |    |   |     |     |
| System provides accurate fields on the Apartment   | Х                      |    |   |     |     |
| Search Page  |                        |    |   |     |     |
| System provides an appropriate layout for the  | Х                      |    |   |     |     |
| Apartment Advanced Search Page   |                        |    |   |     |     |
| System provides accurate fields on the Apartment   |                        |    |   |     |     |
| Advanced Search Page   | Х                      |    |   |     |     |
|  | Х                      |    |   |     |     |
| System provides an appropriate layout for the  | X<br>X                 |    |   |     |     |
| System provides an appropriate layout for the<br>Apartment Search Results Page   |                        |    |   |     |     |
| Apartment Search Results Page  |                        |    |   |     |     |
|  | X                      |    |   |     |     |
| Apartment Search Results PageSystem provides accurate fields on the ApartmentSearch Results Page   | X                      | SA | A | SUA | EUA |
| Apartment Search Results PageSystem provides accurate fields on the Apartment  | X<br>X                 | SA | A | SUA | EUA |
| Apartment Search Results Page   System provides accurate fields on the Apartment   Search Results Page   Sublet Search Page Criteria   | X<br>X<br>EA           | SA | A | SUA | EUA |
| Apartment Search Results PageSystem provides accurate fields on the ApartmentSearch Results PageSublet Search Page CriteriaSystem provides an appropriate layout for the SubletSearch Page   | X<br>X<br>EA           | SA | A | SUA | EUA |
| Apartment Search Results PageSystem provides accurate fields on the Apartment<br>Search Results PageSublet Search Page CriteriaSystem provides an appropriate layout for the Sublet  | X<br>X<br>EA<br>X      | SA | A | SUA | EUA |
| Apartment Search Results PageSystem provides accurate fields on the Apartment<br>Search Results PageSublet Search Page CriteriaSystem provides an appropriate layout for the Sublet<br>Search PageSystem provides accurate fields on the Sublet Search   | X<br>X<br>EA<br>X      | SA | A | SUA | EUA |
| Apartment Search Results PageSystem provides accurate fields on the Apartment<br>Search Results PageSublet Search Page CriteriaSystem provides an appropriate layout for the Sublet<br>Search PageSystem provides accurate fields on the Sublet Search<br>Page   | X<br>X<br>EA<br>X<br>X | SA | A | SUA | EUA |
| Apartment Search Results PageSystem provides accurate fields on the Apartment<br>Search Results PageSublet Search Page CriteriaSystem provides an appropriate layout for the Sublet<br>Search PageSystem provides accurate fields on the Sublet Search<br>PageSystem provides an appropriate layout for the Sublet<br>Search<br>PageSystem provides an appropriate layout for the Sublet<br>Search | X<br>X<br>EA<br>X<br>X | SA | A | SUA | EUA |



# University Housing Interface

| System provides an appropriate layout for the Sublet  | X           |    |   |     |     |
|---|-------------|----|---|-----|-----|
| Search Results Page   |             |    |   |     |     |
| System provides accurate fields on the Sublet Search  | X           |    |   |     |     |
| Results Page  |             |    |   |     |     |
| Roommate Search Page Criteria   | EA          | SA | Α | SUA | EUA |
| System provides an appropriate layout for the   | X           |    |   |     | -   |
| Roommate Search Page  |             |    |   |     |     |
| System provides accurate fields on the Roommate   | X           |    |   |     |     |
| Search Page   |             |    |   |     |     |
| System provides an appropriate layout for the   | Х           |    |   |     |     |
| Roommate Advanced Search Page   |             |    |   |     |     |
| System provides accurate fields on the Roommate   | Х           |    |   |     |     |
| Advanced Search Page  |             |    |   |     |     |
| System provides an appropriate layout for the   | X           |    |   |     |     |
| Roommate Search Results Page  |             |    |   |     |     |
| System provides accurate fields on the Roommate   | Х           |    |   |     |     |
| Search Results Page   |             |    |   |     |     |
| Register Page Criteria  | EA          | SA | Α | SUA | EUA |
| System provides an appropriate layout and content for   | X           |    |   |     |     |
| the Register Page   |             |    |   |     |     |
| System provides accurate fields on the Register Page  | X           |    |   |     |     |
| College/University Search Page Criteria   | EA          | SA | Α | SUA | EUA |
| System provides an appropriate layout for the   | Х           |    |   |     |     |
|   |             |    |   |     |     |
| College/University Search Page  |             |    |   |     |     |
|   | X           |    |   |     |     |
| College/University Search Page<br>System provides accurate fields on the<br>College/University Search Page  |             |    |   |     |     |
| College/University Search Page<br>System provides accurate fields on the  | X<br>X<br>X |    |   |     |     |
| College/University Search Page<br>System provides accurate fields on the<br>College/University Search Page  |             |    |   |     |     |
| College/University Search Page<br>System provides accurate fields on the<br>College/University Search Page<br>System provides an appropriate layout for the |             |    |   |     |     |