



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 e-commerce 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.

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

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**

- Features:

- § 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 own pull down menu listing schools.

- Likes: This website is simple, has a straight forward look and feel, and appears 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".
- Dislikes: 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,

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**

- Features:

- § 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,

- Likes: 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.

- Dislikes: 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**
 - Features:
 - § 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
 - Likes: 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

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.

- Dislikes: 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**

- Features:
 - § 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

- Likes: 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.
- Dislikes: 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**
 - Features:
 - § General: Navigation tabs (search listing, create listing, account manager)
 - § Home Page: Login link, login field, news letter link, in-depth quick search field
 - Likes: 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.

- Dislikes: 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.

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

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

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

API (Application Program Interface)- 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.

HTML (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.

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

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

Programmer- An individual who writes computer programs.

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

Query- A request for information from a database.

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

Rent- 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.

Roommate- A person with whom one shares a room or rooms.

SQL (Structured Query Language)- A standardized query language for requesting information from a database.

Sublet- 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.

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

User- An individual who uses a computer.

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

World Wide Web (WWW)- 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. Kancharla (Sunny) – President

- sunny@gardenstateapartments.com
- *Office:* 211 Warren Street (EDC III)
- *Tel:* 973-954-2787

Professor:

Osama Eljabiri

- oe2@njit.edu
- *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 <i>Mahmoud Hasan</i>	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 <i>Michael Linderman</i>	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 <i>Joshua Gorospe</i>	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 <i>Ibrahim Mohammed</i>	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 <i>Cesar Cheng-Robles</i>	Design tables for the database and constructing a metadata schema to the parser.
HTML Programmer/Graphics <i>Moises Cordero</i>	Graphics implementation of project utilizing PHP and HTML.

5.4 Staffing

Role	Staff Member	Start Date	End Date
Project Manager	Mahmoud Hasan	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
Ibrahim Mohammed	Compilation of final document and deliverables
	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
Joshua Gorospe	Background write-up for the mid-term (Oct 11, 2005)
	Assess the risks associated with the project (eg. schedule delays, insufficient resources, etc)
	Gather vital statistics for college university links for the website.

6.2 Work Break Down Structure – Timeline of Tasks

Work Breakdown Structure	Start Time	End Time	Allocated Person(s)
Project Initiation			
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
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	10/24/05	12/01/05	Ibrahim
Documentation	10/12/05	12/05/05	Michael
Graphics Design Logos and Pictures			
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 to 14 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

		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	
3		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		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		Finalize Team	1 day	Fri 9/30/05	Fri 9/30/05	1
10		Submit finalized team form	1 day	Fri 9/30/05	Fri 9/30/05	
11		Team meeting to introduce team members	1 day	Mon 9/26/05	Mon 9/26/05	
12		Assigning roles and responsibilities	1 day	Mon 10/3/05	Mon 10/3/05	10
13		Forward team names to sponsor	1 day	Fri 9/30/05	Fri 9/30/05	
14		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

		Task Name	Duration	Start	Finish	Predecessors
1		Sprint #1 Begins	11 days	Mon 9/26/05	Fri 10/7/05	
2		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		Requirements Gathering	10 days	Wed 9/28/05	Sun 10/9/05	
5		Analysis of Requirements	10 days	Wed 9/28/05	Sun 10/9/05	
6		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		Modeling High-level Class Diagrams	1 day	Tue 10/4/05	Tue 10/4/05	3
11		Modeling High-level Use-Case Diagrams	1 day	Sun 10/9/05	Sun 10/9/05	6
12		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

		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	
3		Continue building features list	9 days	Mon 10/10/05	Wed 10/19/05	
4		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		Modeling instances of Sequence Diagrams	1 day	Mon 10/17/05	Mon 10/17/05	2
7		Risk Assessment for system analysis and design	1 day	Wed 10/19/05	Wed 10/19/05	5
8		Website Content identification	3 days	Thu 10/20/05	Sat 10/22/05	
9		Sketching Website Interface	1 day	Sun 10/23/05	Sun 10/23/05	7
10		Prototype/Mockup Version #1 of TO-BE System	7 days	Wed 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		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

		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

		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		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	Wed 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

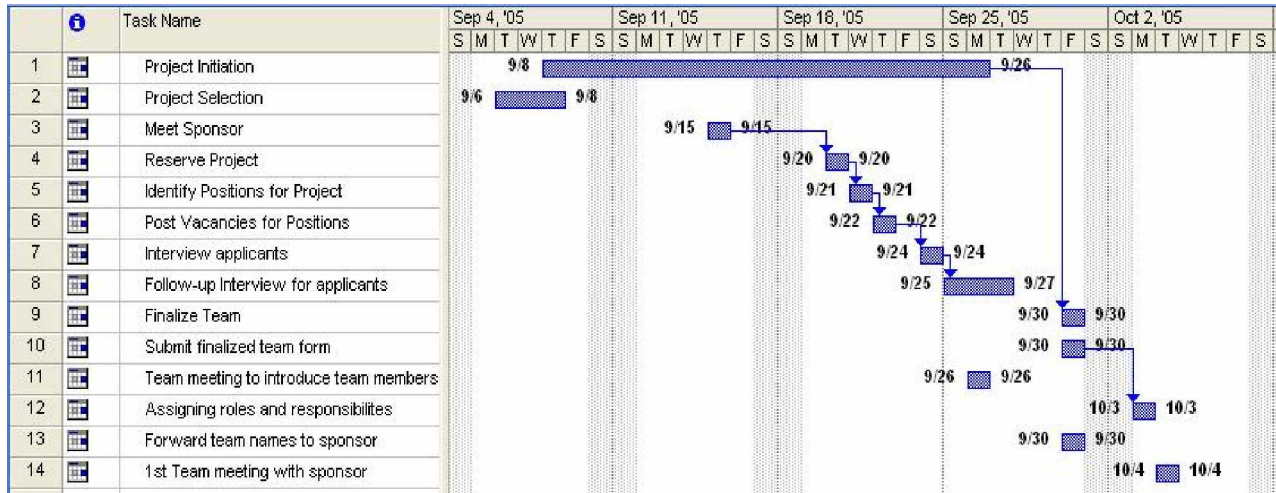
		Task Name	Duration	Start	Finish	Predecessors
1		Sprint #5 Begins	10 days	Thu 11/24/05	Mon 12/5/05	
2		Design favorites interface for my accounts page	4 days	Wed 11/23/05	Sat 11/26/05	
3		Design, code, and test advanced search page	4 days	Wed 11/23/05	Sat 11/26/05	
4		Design sublet search page	4 days	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 testimonial 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		Compile video presentation of system	2 days	Sun 12/4/05	Mon 12/5/05	
9		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		System presentation	1 day	Tue 12/6/05	Tue 12/6/05	8

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.

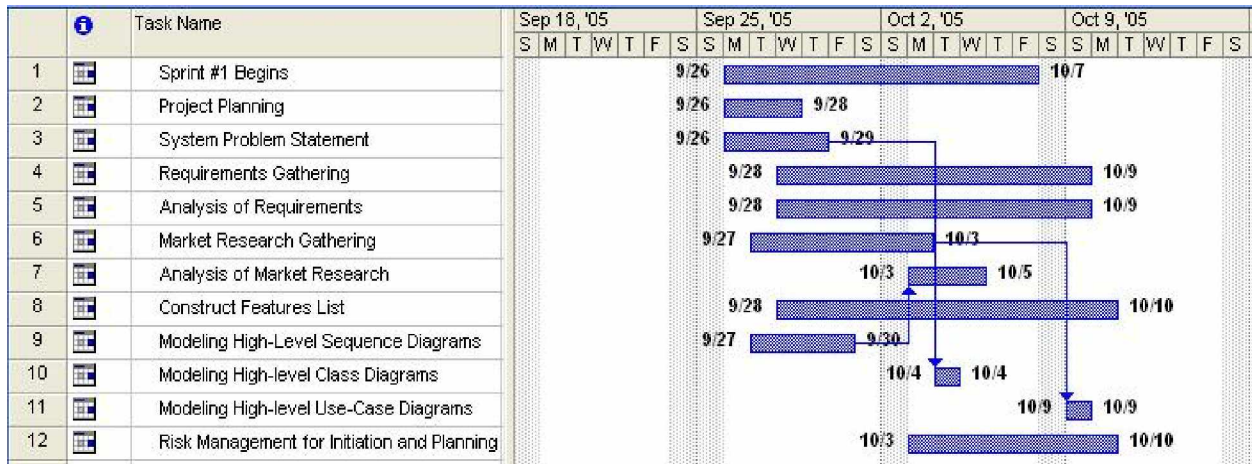
7.2 Gantt chart

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.

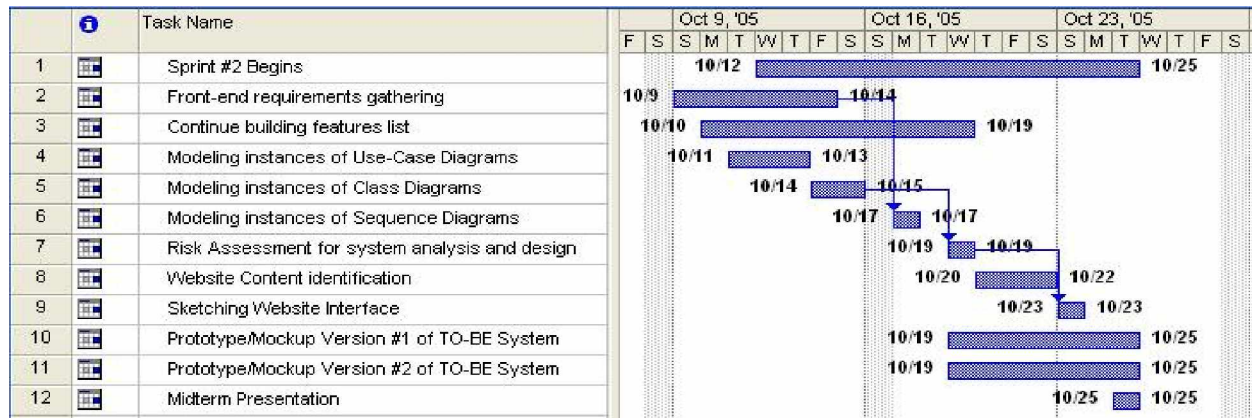
7.2.1 Initial Planning



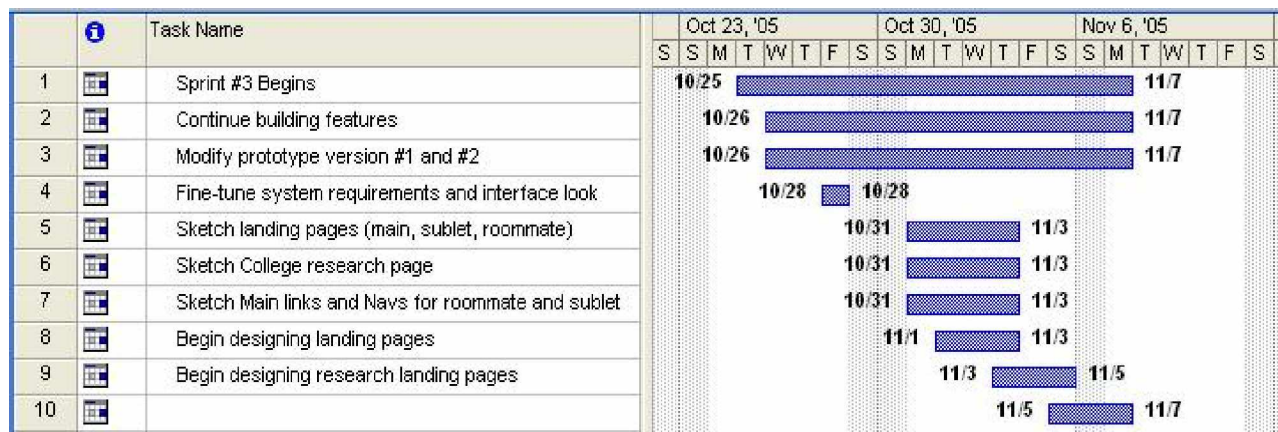
7.2.2 Sprint 1



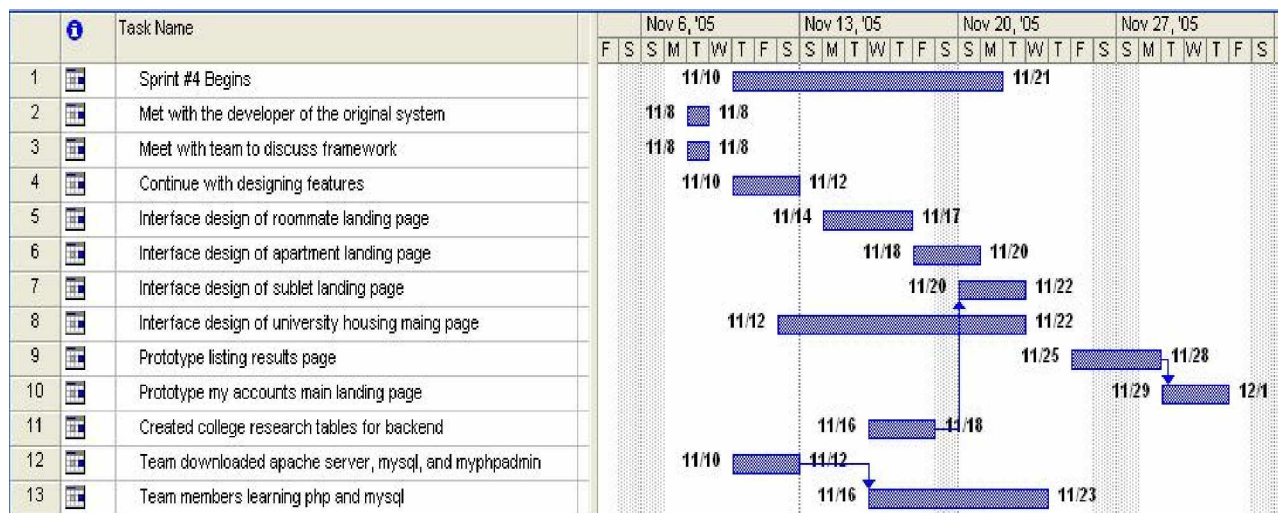
7.2.3 Sprint 2



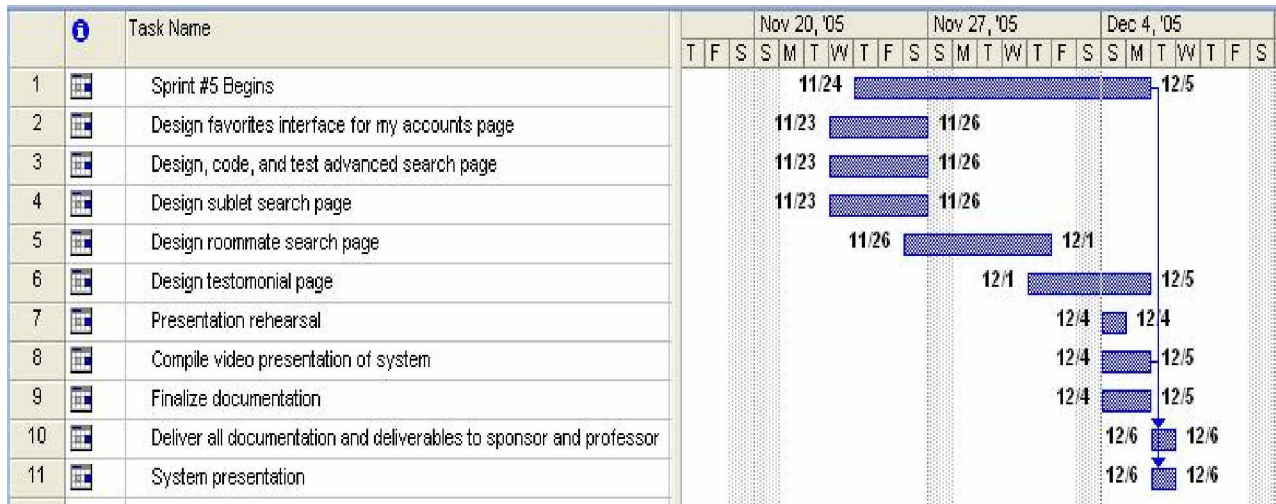
7.2.4 Sprint 3



7.2.5 Sprint 4



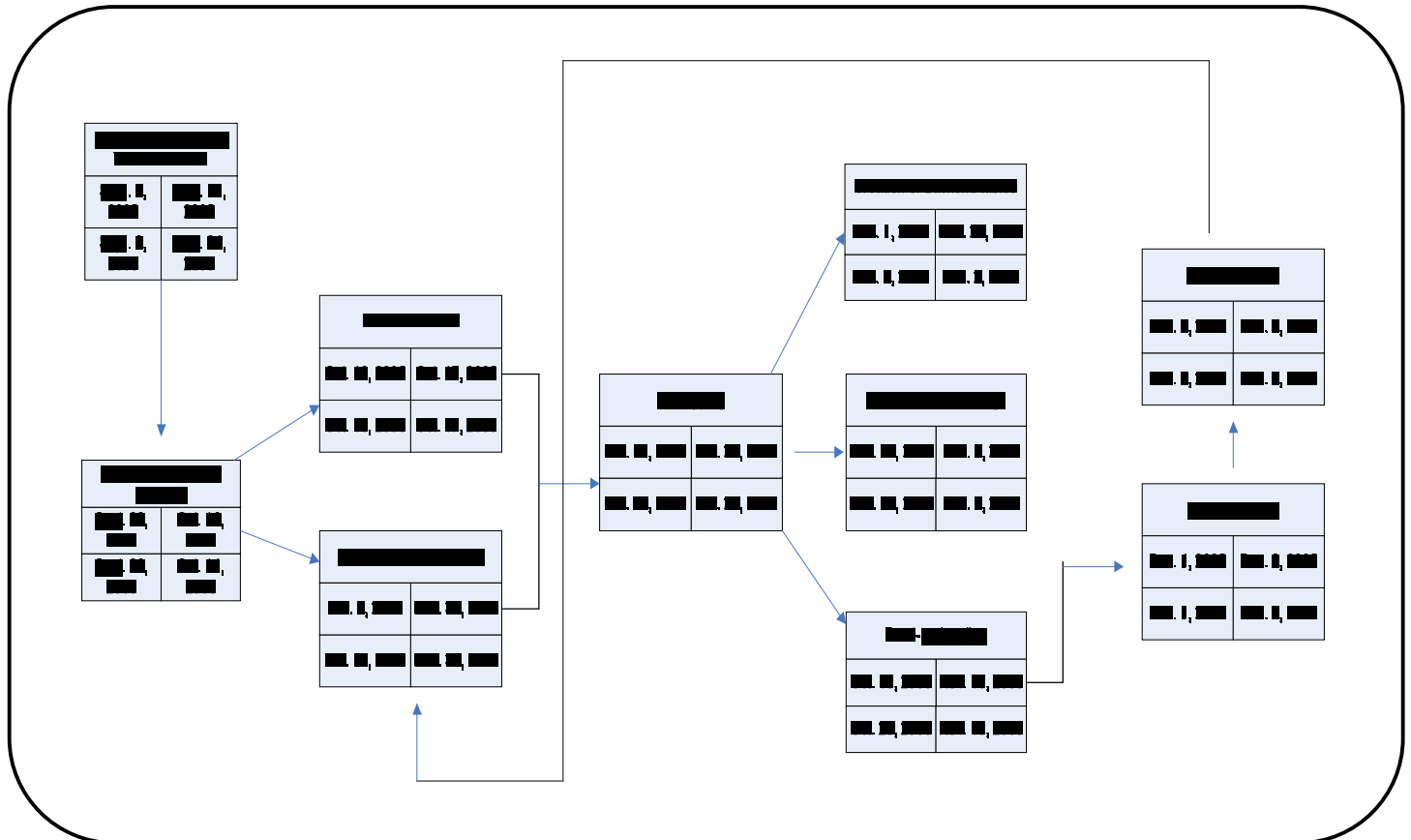
7.2.6 Sprint 5



7.3 PERT CHART:

Figure below represents another method for project management. The functionality 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 Occurred	Mitigation Plan	Risk Severity Scale (0 = insignificant risk, 10 = highest risk)
Poor definition of the project	Very low	A product that the sponsor does not want.	Frequent meetings and constant communication between the team and the sponsor	1
No feasibility study	Insignificant	Insignificant	Insignificant	0
Unclear of objectives	Very low	Time wasted on designs that are not related to the	Frequent meetings and constant communication between the team and the sponsor	1

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

		sponsor's wishes		
Poor role definition	Very Low	Poor quality of work in general for the entire project	Team members should have constant communication with the project manager. The project manager should reconsider every member's skill set	1
Inexperienced team	Low	Poor quality of work in general for the entire project	The entire team should seek help or training from an experienced professional	3
Sponsor unclear about specifications	Very Low	An unsatisfied sponsor	Frequent meetings and constant communication between the team and the 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 Occurred	Mitigation Plan	Risk Severity Scale (0 = insignificant risk, 10 = highest risk)
Personnel shortfalls	Low	Poor quality of work	The project manager should talk to any member about any shortfalls and	3

			make sure that members with unsatisfactory work performance are cut from the team immediately	
Unrealistic schedules	Very Low	Poor quality of work and lack of face-to-face communication	Every team member should tell the project manager their daily schedule and set the days where the entire team can meet face-to-face	1
Developing the wrong functions	Low	Poor design quality	The team members working on the actual project design should have as many meetings as necessary to fix the problem	3
Developing the wrong user interfaces	Low	Poor design quality and an unsatisfied sponsor	The team members working on the actual project design should have as many meetings as necessary to fix the problem	3
Continuing stream of requirements changes	Low	Poor design quality	The team members and the sponsor should come to a decision on a finalized list of requirements that will not change	3
Lack of defined development process	Low	Poor design quality	The team members should come to a decision on the development process they should use	3
Lack of considering alternative designs	Low	Time wasted if the original design fails and a final product that the sponsor will not be pleased with	The team members working on the actual project design should have as many meetings as necessary to fix the problem	3

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 Occurred	Mitigation Plan	Risk Severity Scale (0 = insignificant risk, 10 = highest risk)
The first meeting with the developer occurred during the beginning of sprint 4 (around November 9 th). 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	A large amount of time wasted on plans and designs that will not work. The team could have used that time learning the developer's framework	Frequent meetings and constant communication between the team, the developer and the sponsor. Ask specific questions about the system's framework	10
Team had late access to sponsor's database during the project's development	High Risk	A large amount of time wasted on plans and designs that will not work. The team could have used that time learning the developer's framework	Frequent meetings and constant communication between the team, the developer and the sponsor. Ask specific questions about the system's framework	8
Team had no access to the database systems	High Risk	The team has no method to check their work,	The sponsor should convince the developer to	8

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

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



University Housing Interface

			programming books or take programming classes	
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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:

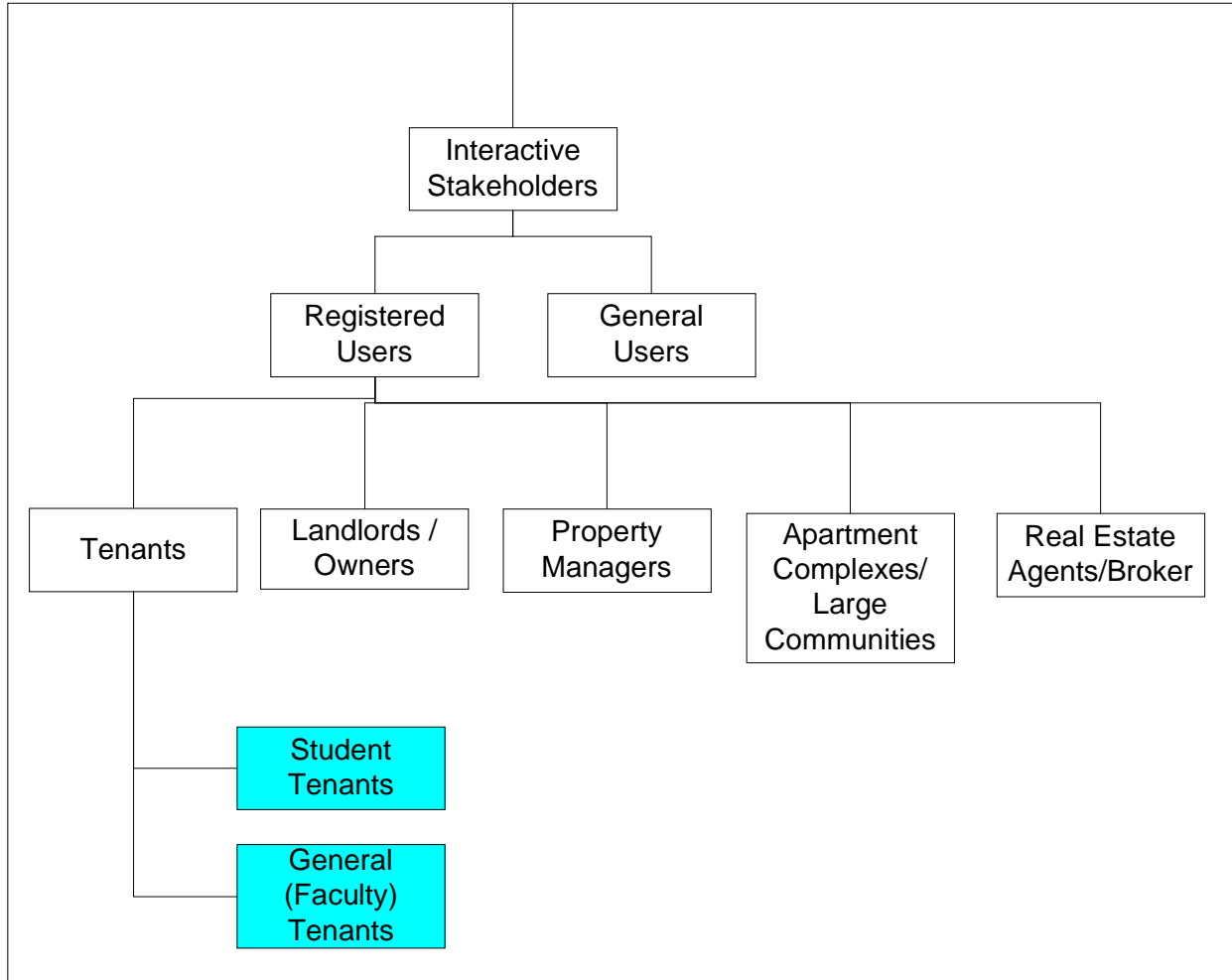
9.3.1 Finance Administrators

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)

Variables Measured (Cont.)

#	General	Specific
11	Design / Customization	How much time should be going into encoding a customized website for the user?
12	Design / Customization	How much time should be going into encoding a customized website for the user?
13	Design / 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.

Student

Faculty Member

Other

2. Do you have access to the internet?

Yes

No

3. Estimated hours of Internet use per day.

Less than 1 Hour

1 – 3 Hours

3 – 6 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

Best

No

Preference

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

One

Two

Three

Four

Five

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

Two Three Four Five Six or More

8. How would you rather have excessive content displayed on a website?

One Scrollable Page Broken Up Into Sections Other

9. How would you like a searching function to search content on a website?

Instantaneous, but broad Timely, but customized and specific

10. How do you like search results to return?

Alphabetical Chronological Random Grouped No Preference

11. How would you rate the importance of a user-customized websites?

Poor Fair Good Great Best No
Preference

12. How would you rate the importance of member-only privileges and benefits on a website?

Poor Fair Good Great Best No
Preference

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

Poor Fair Good 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 Great Best No
Preference

15. How would you rate your knowledge in real estate?

Poor Fair Good Great Best Not
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 resource for searching for an apartment?

Yes

No

19. Would you use the Internet as a primary resource for searching for a roommate to live with?

Yes

No

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

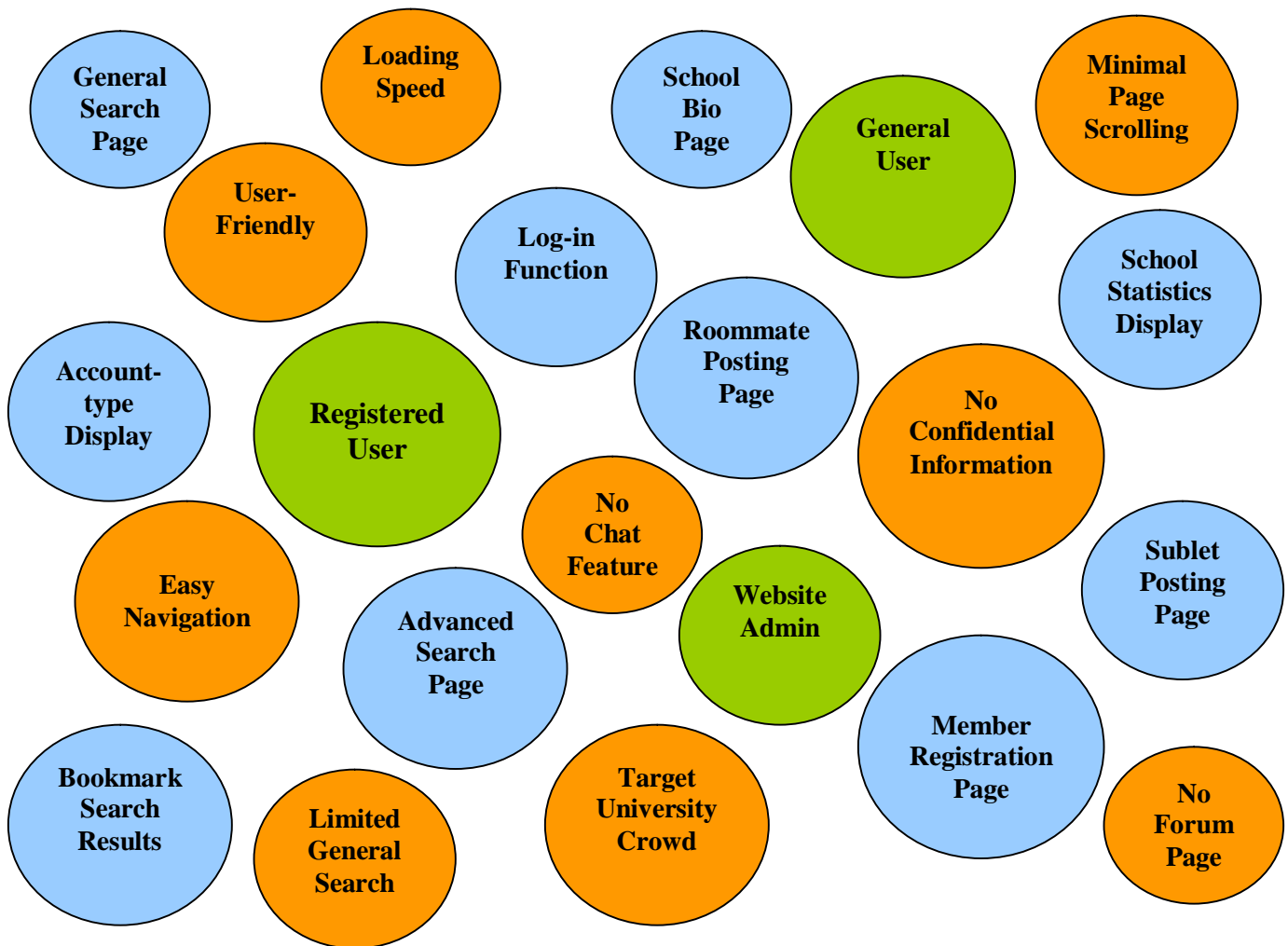
Yes

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
	Functional Requirements
	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.

Brainstorming Prioritization Table

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

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 (30 yr old user)	25	5	18	7	15	30	100
Daniel (19 yr old user)	18	16	19	16	17	14	100
John (24 yr old user)	30	14	11	26	6	13	100
Sonia (55 yr old user)	5	16	23	19	22	15	100
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

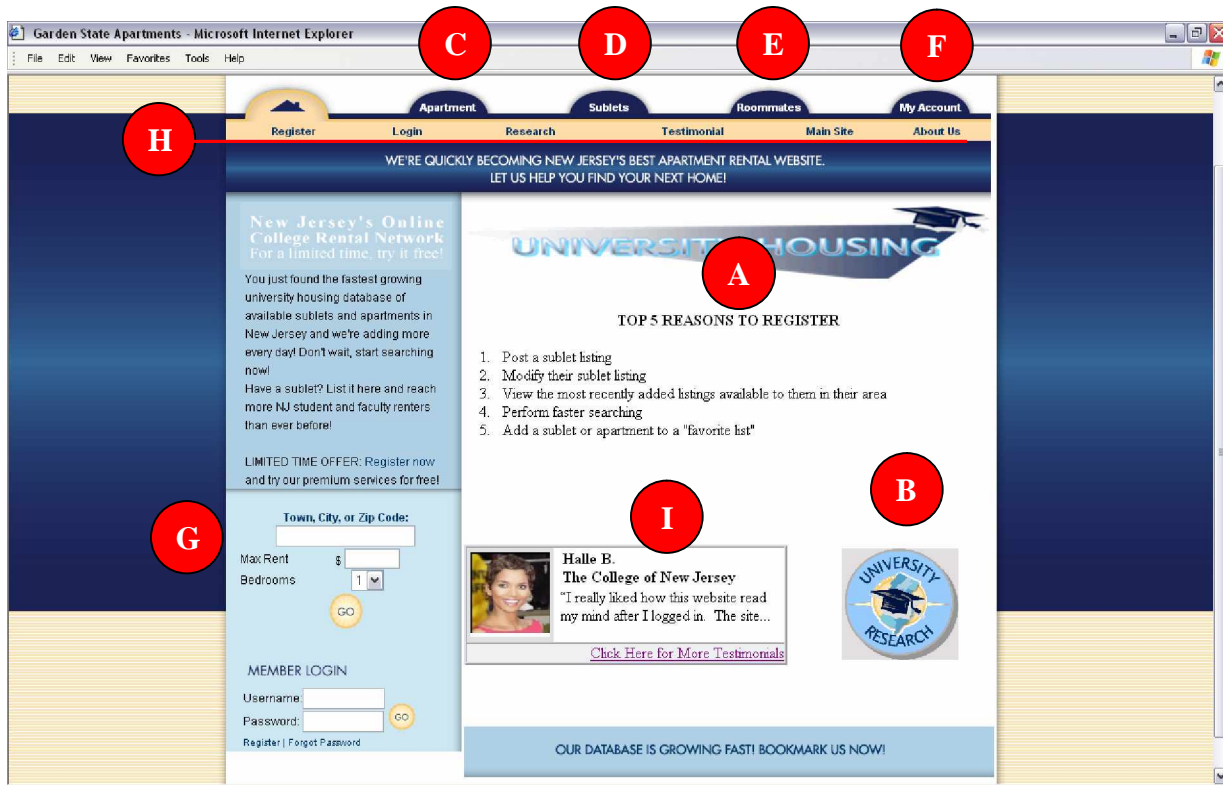
10.2.4 Prototyping

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.

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.

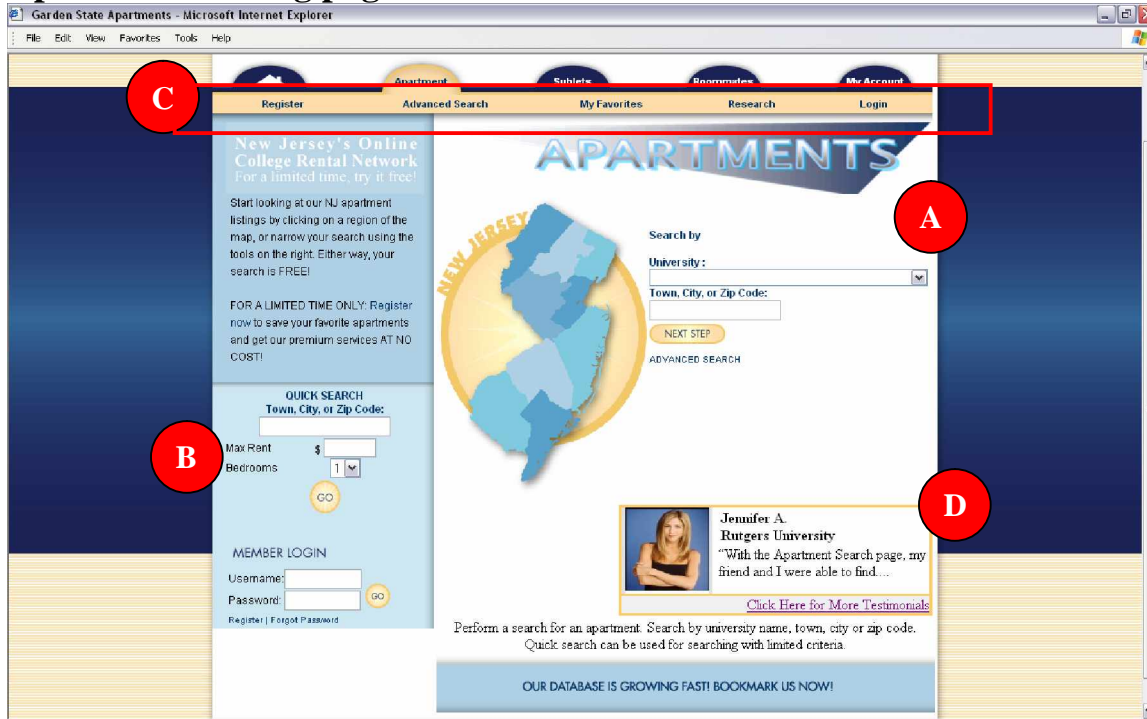
F: My accounts link which take you my accounts landing page.

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:



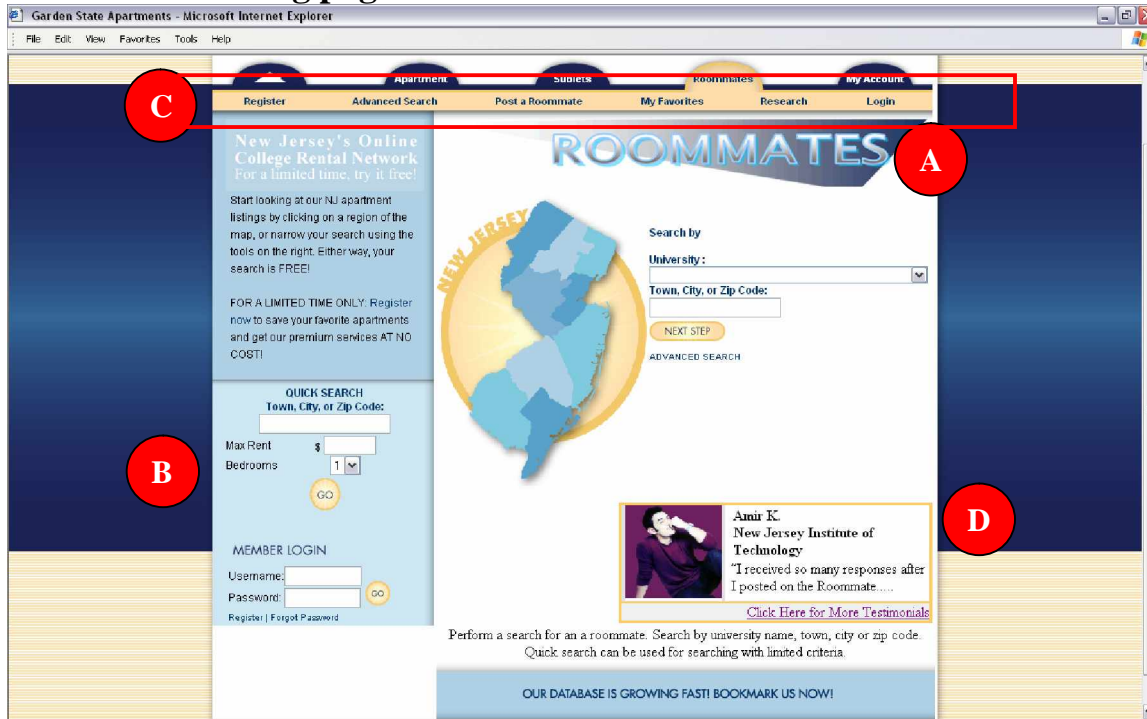
A: Shows the heading for the sublet search landing page.

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:



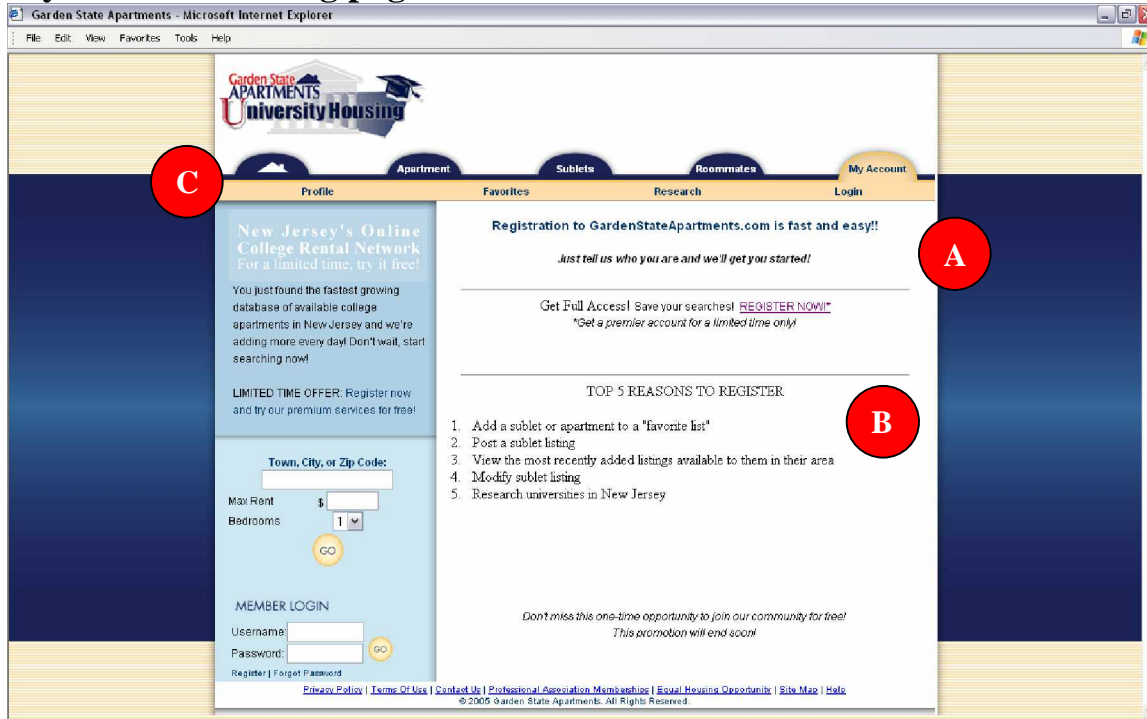
A: Shows the heading for the Roommate search landing page.

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:

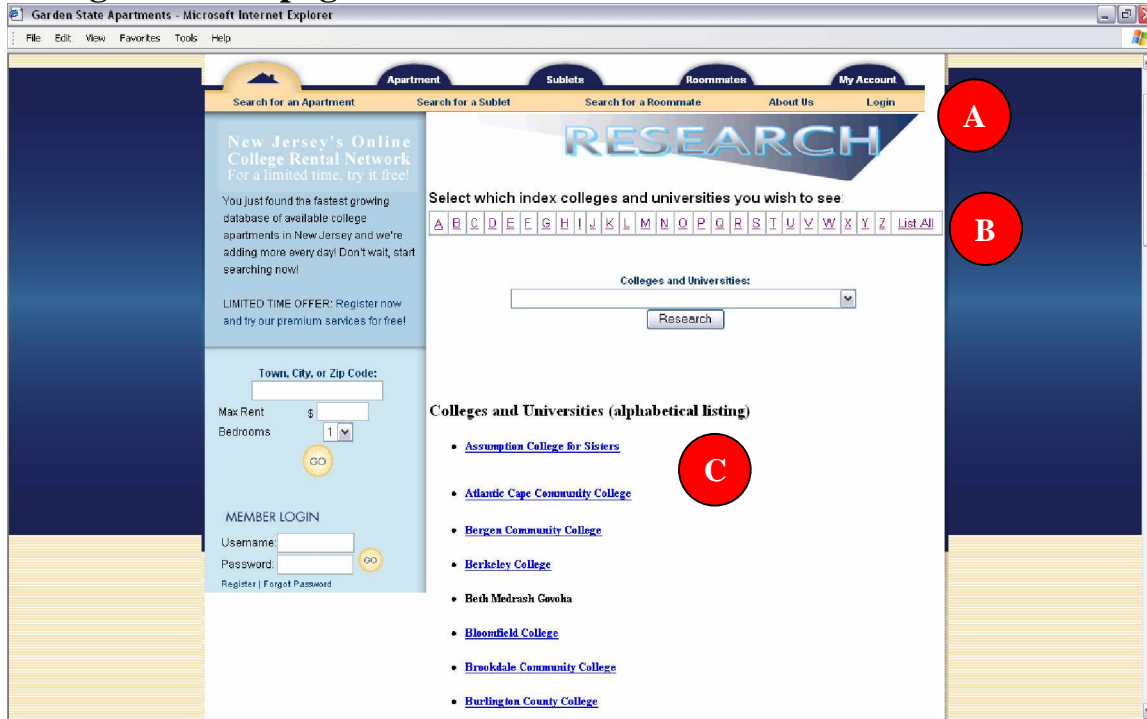


A: Shows the heading for my account landing page.

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:

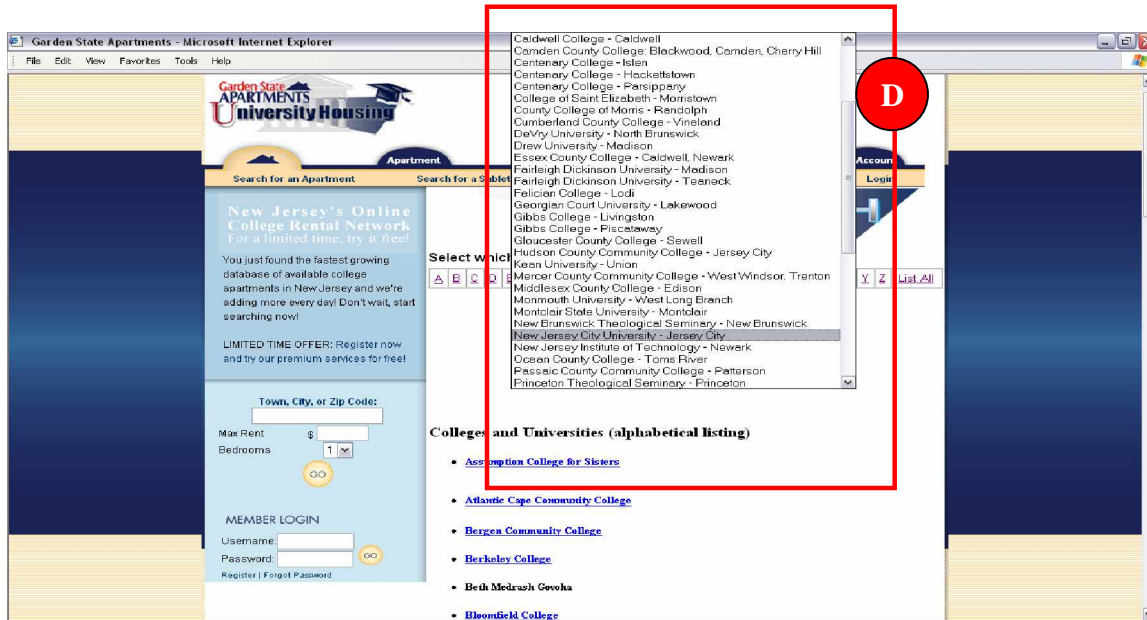


A: Shows the heading of the college research information.

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.

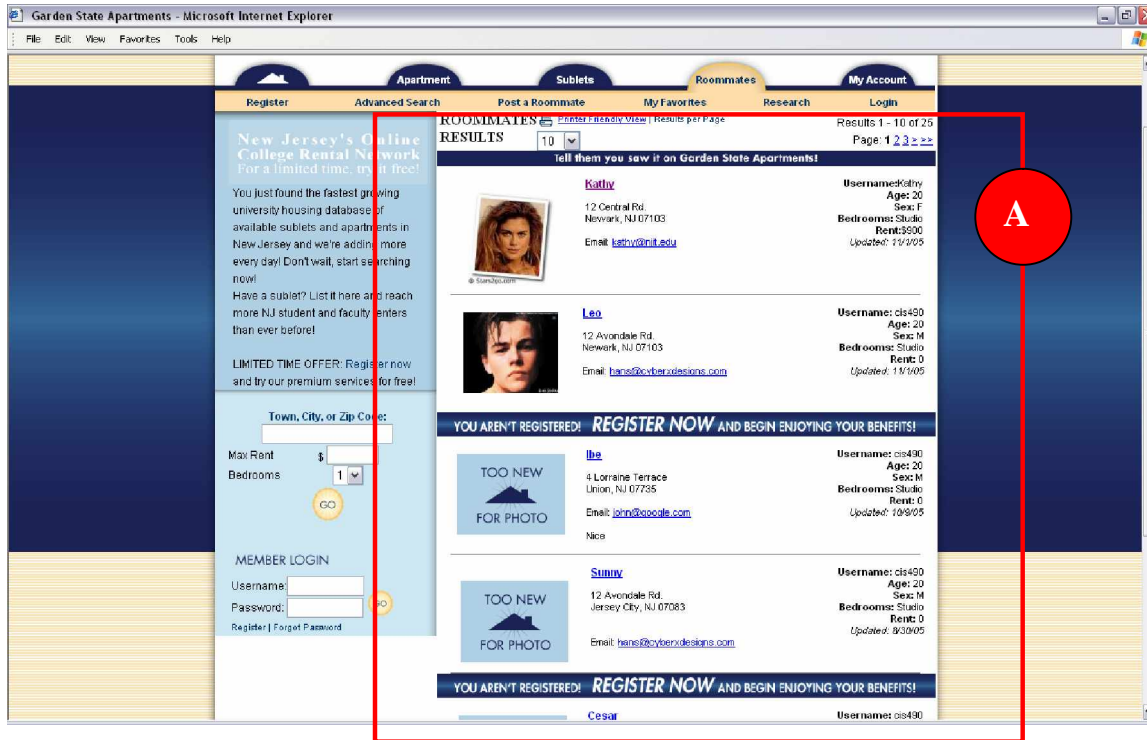
C. This area shows the results when someone clicks on the letter, the list of all schools displayed. For example, user chooses all B schools. So, a list of all B schools is displayed.

College research page (continued):



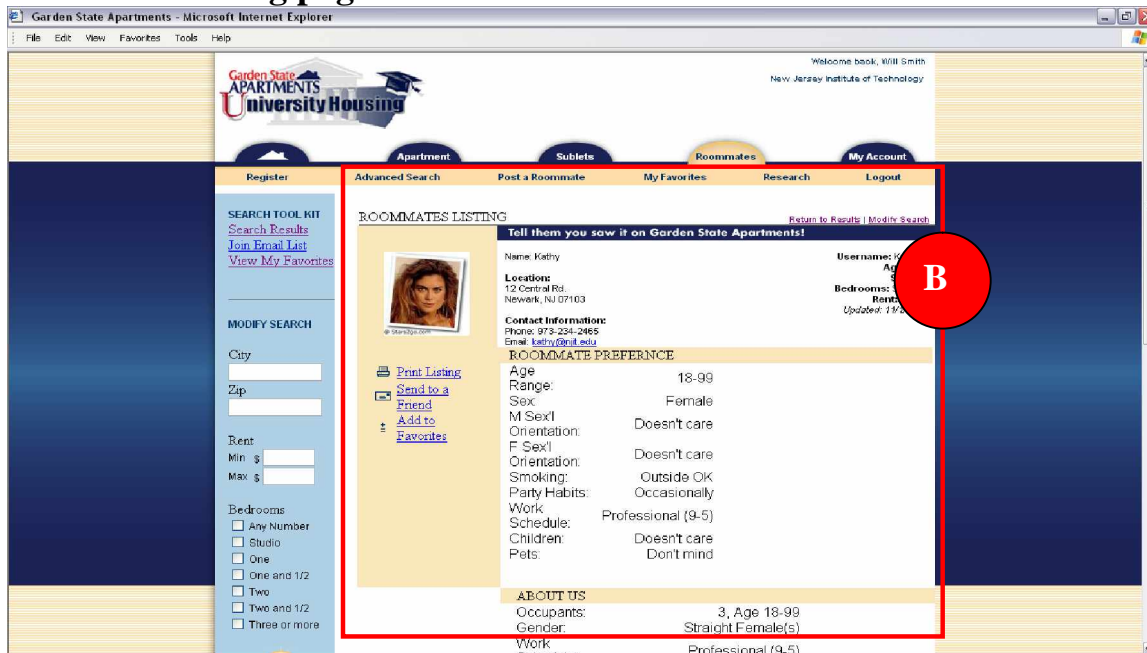
D: This screen shot shows how users can search colleges and universities via drop down menu.

Roommate page- listing results

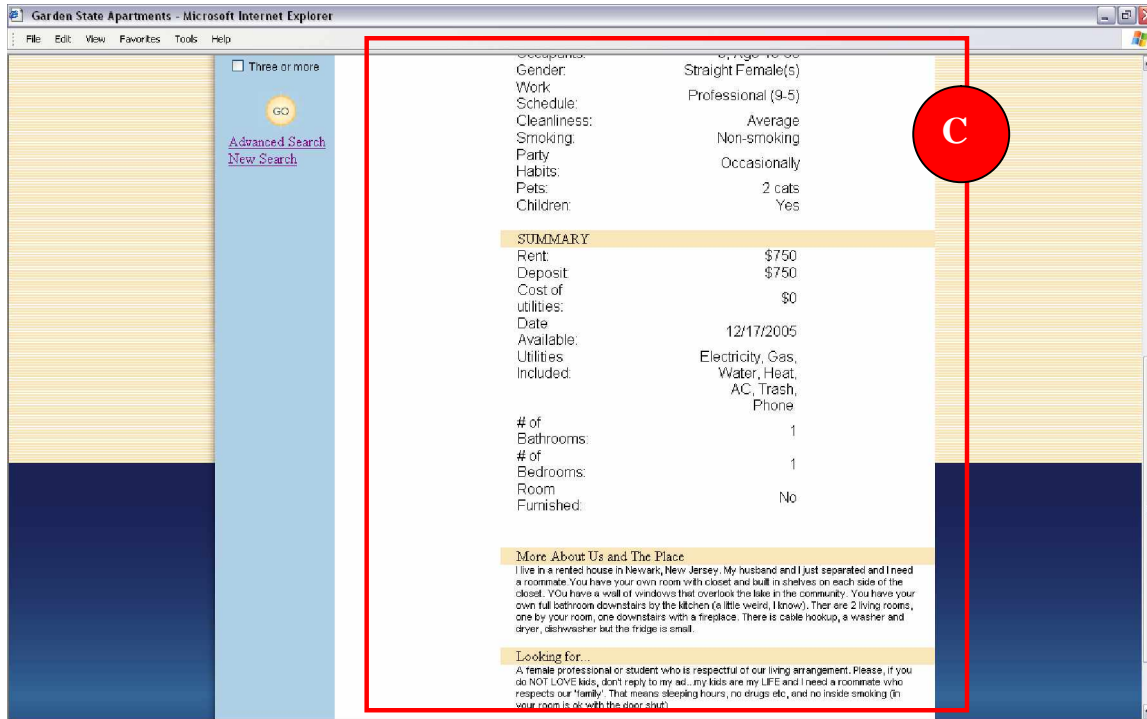


A: Show the results listing of roommate search.

Roommate listing page

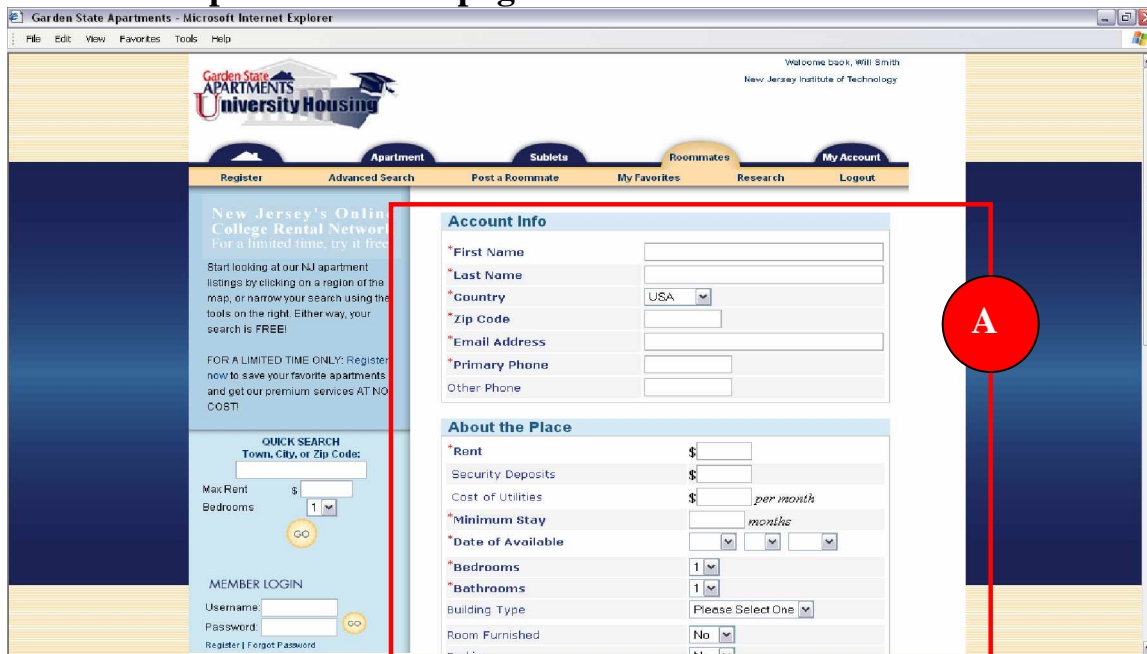


B: This is a view detail roommate listing.



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

Roommate –post roommate page



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

Roommate –post roommate page (continued)

About the Place

- *Rent: \$
- Security Deposits: \$
- Cost of Utilities: \$ per month
- *Minimum Stay: months
- *Date of Available:
- *Bedrooms:
- *Bathrooms:
- Building Type: Please Select One
- Room Furnished: No
- Parking: No

Your Personal

- *Total # of Occupants: Just Me
- *Gender: Male
- Sexual: Straight
- *Age: 18
- Smoker: No
- Cleanliness: Average
- Children: No
- 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)

Roommate Preference

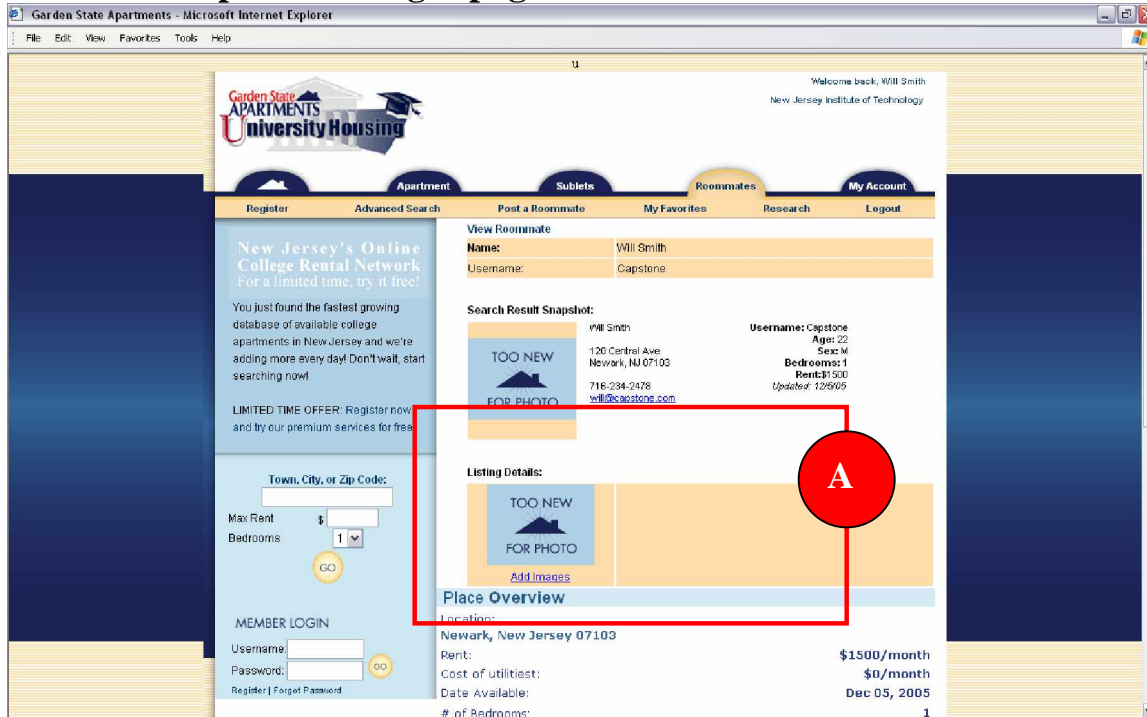
- Party Habits: Don't care
- Work Schedule: Professional (3-5)
- Pets: Don't mind
- Children: No

Comments

Submit

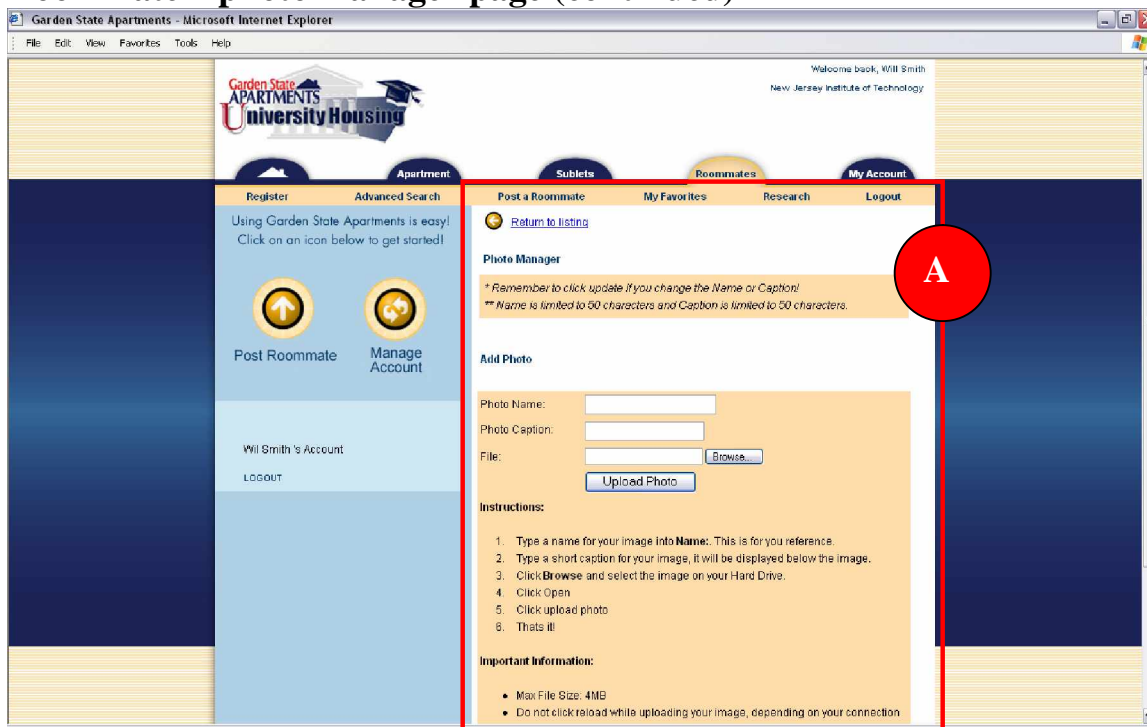
A: Post roommate continued.

Roommate – photo manager page



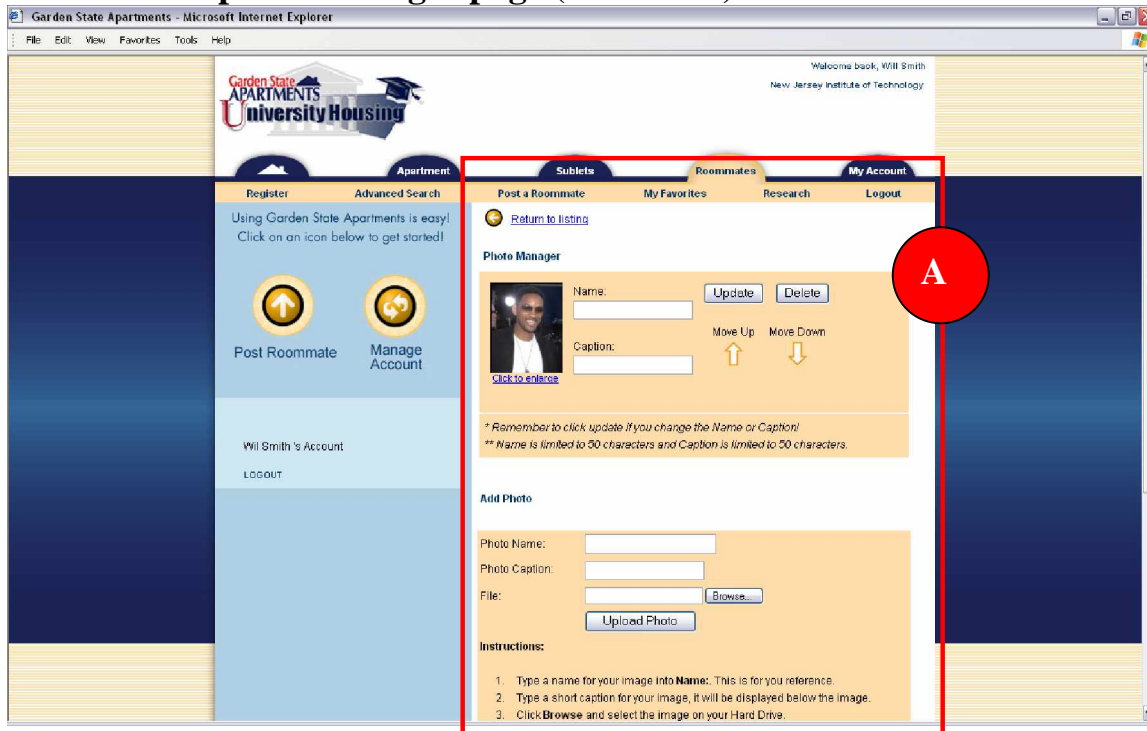
A: This shows that registered users can manage their photos by replacing photos or deleting photos.

Roommate – photo manager page (continued)



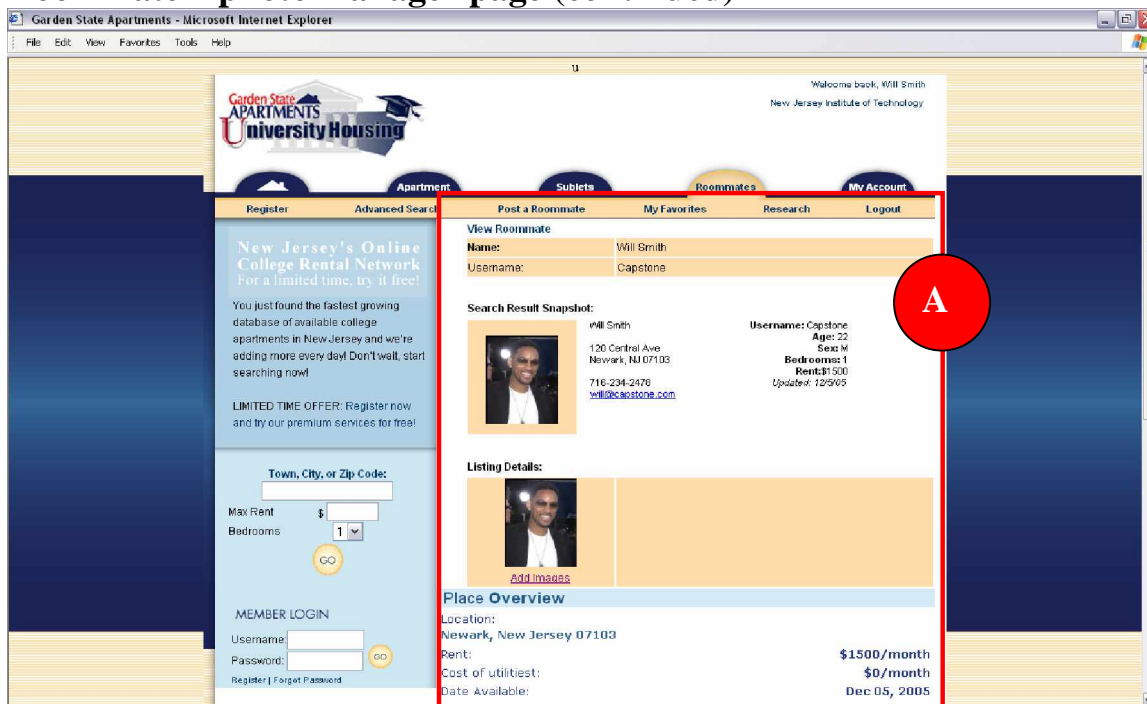
A: Here is the add photo page.

Roommate – photo manager page (continued)



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

Roommate – photo manager page (continued)



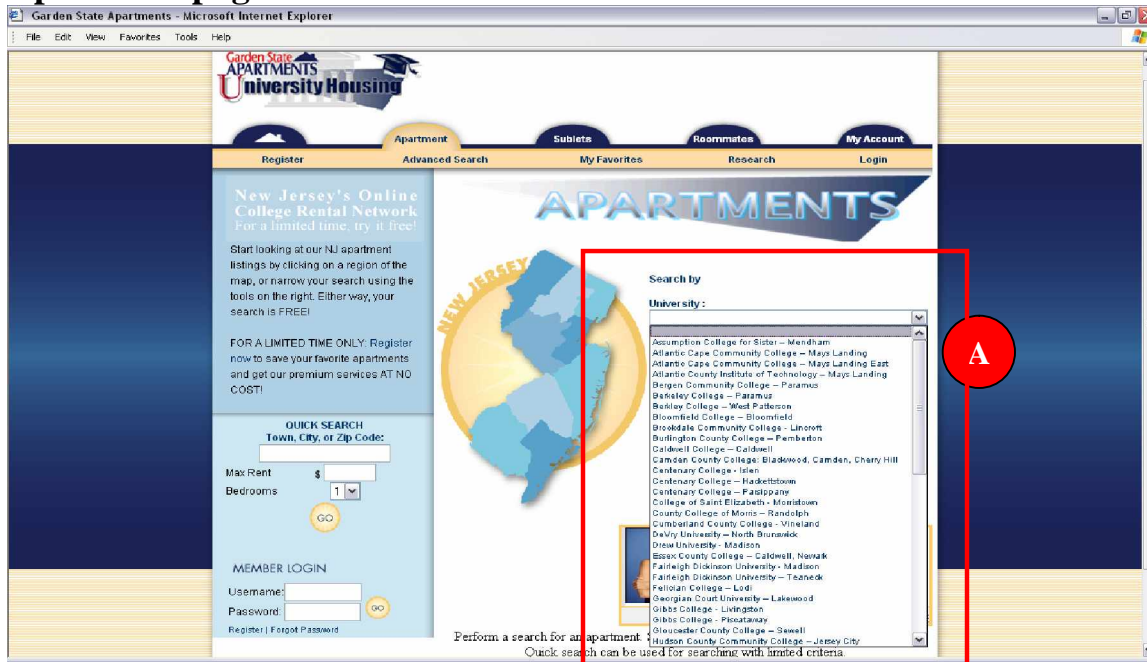
A: Here is the final uploaded picture after user enters required information.

Apartment page



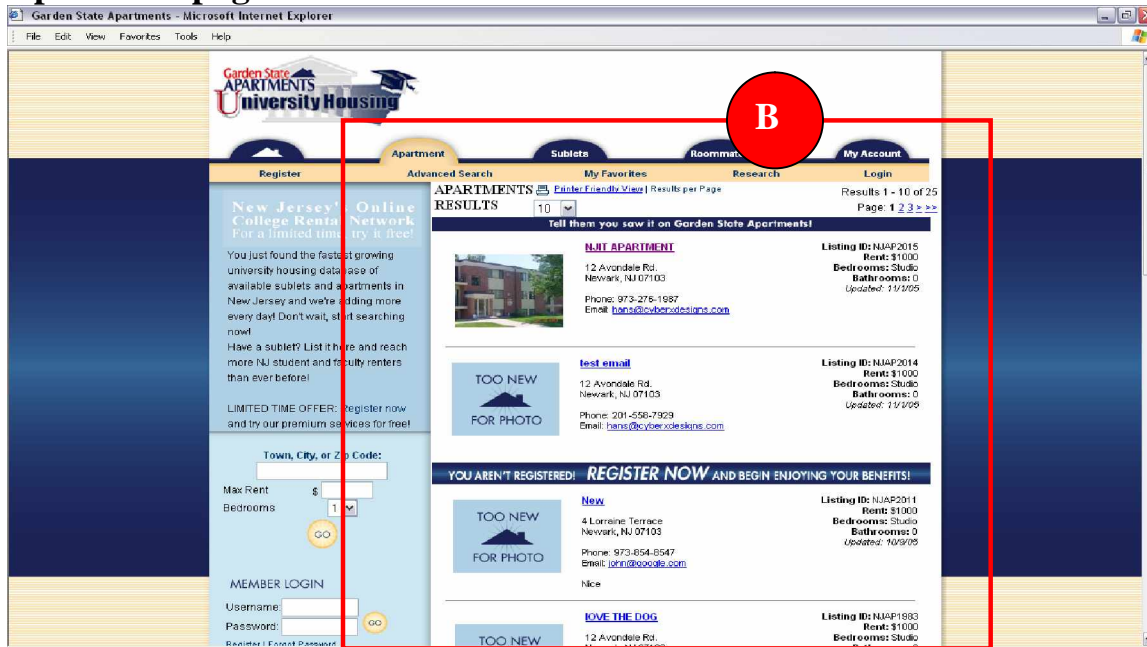
A: Shows a popup box that gives region information such as shopping areas, population, residence type and more importantly there are links for colleges in the specific region.

Apartment page



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

Apartment page



B: Shows the listing result page for apartment search.

Advanced search page

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

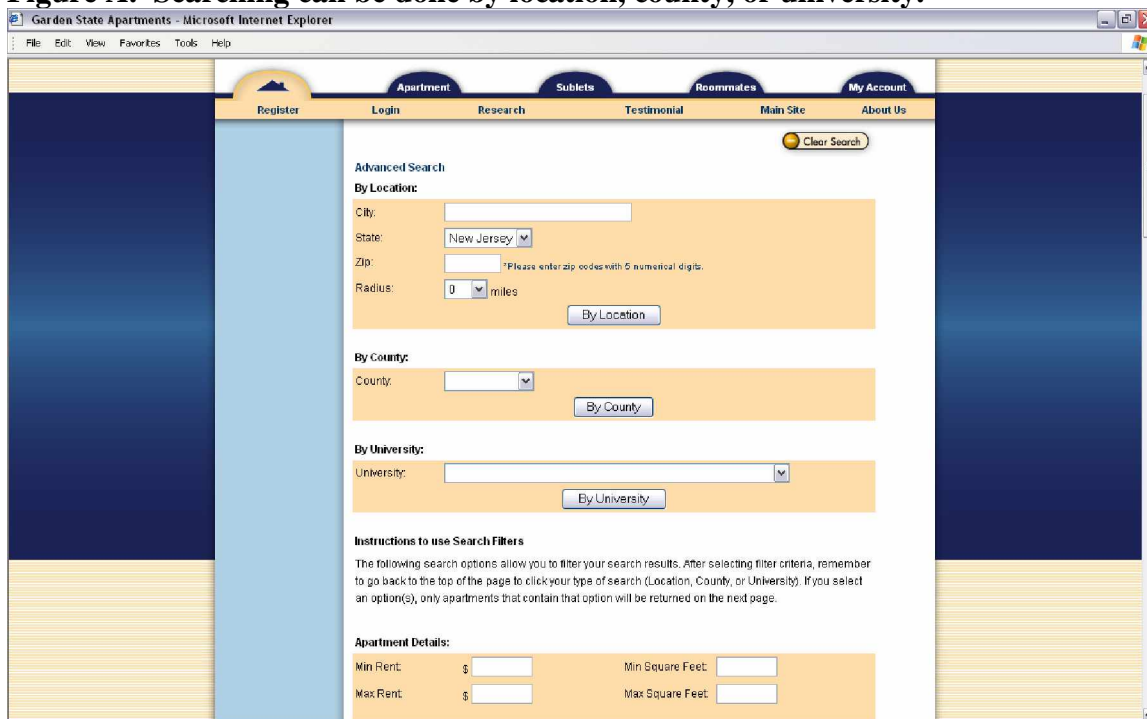


Figure B. Searching can be done by complex features or apartment details.

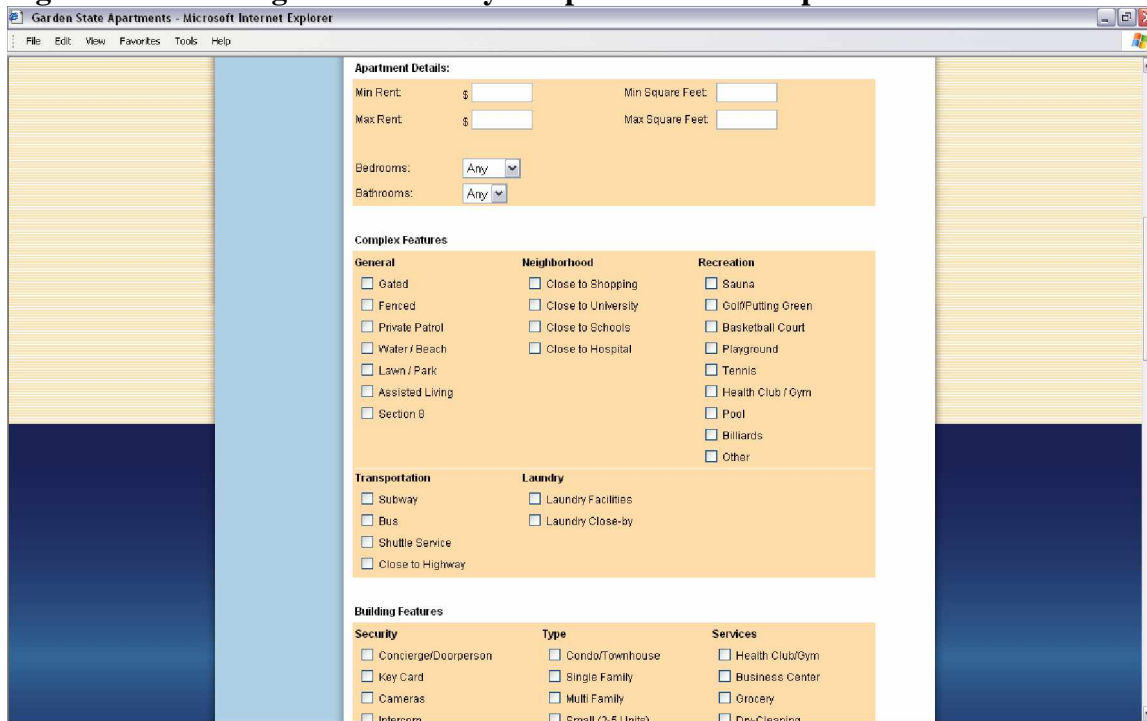


Figure C. Shows accessibility features, security, and extras.

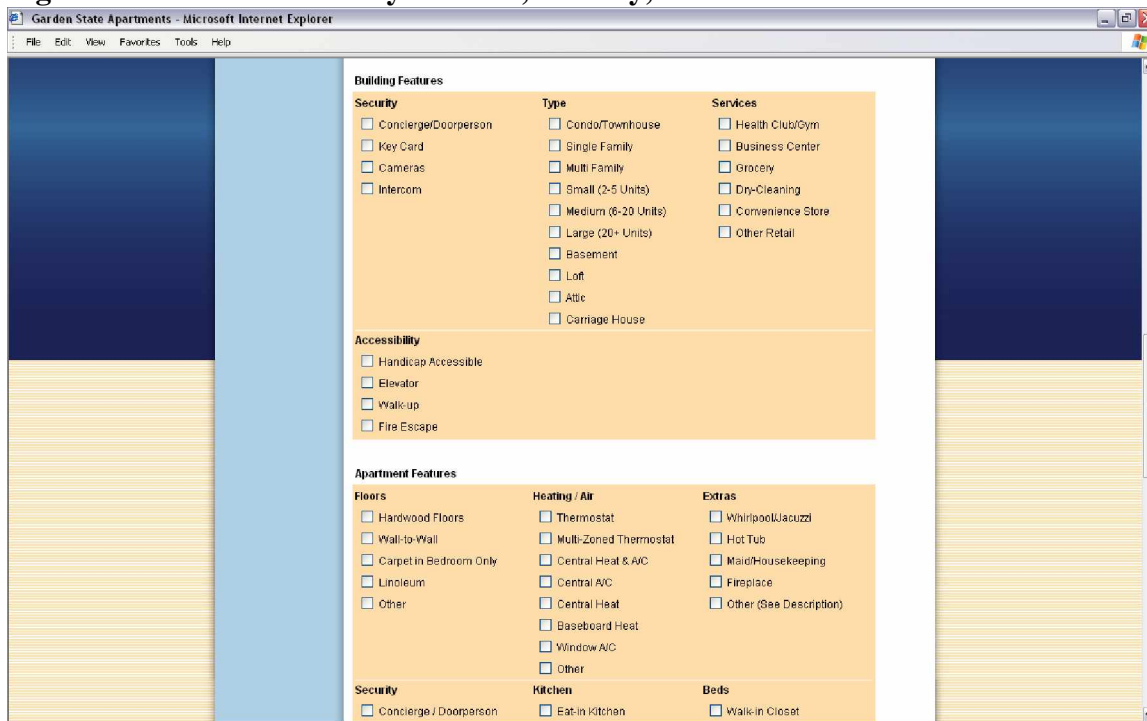
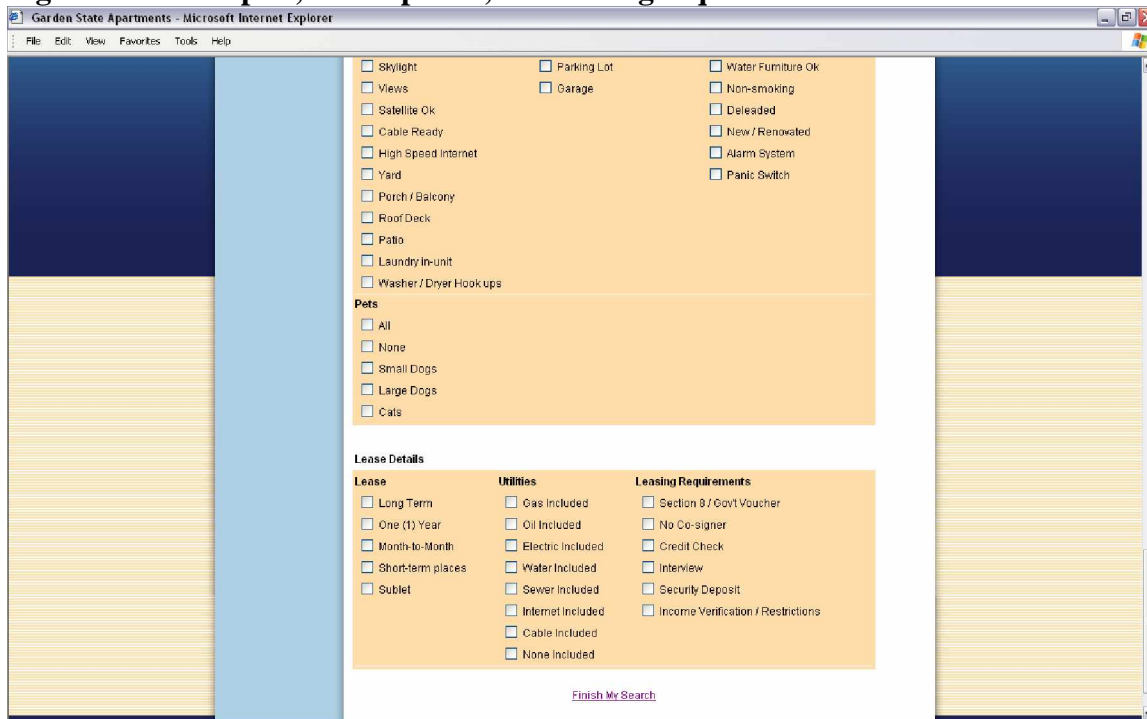
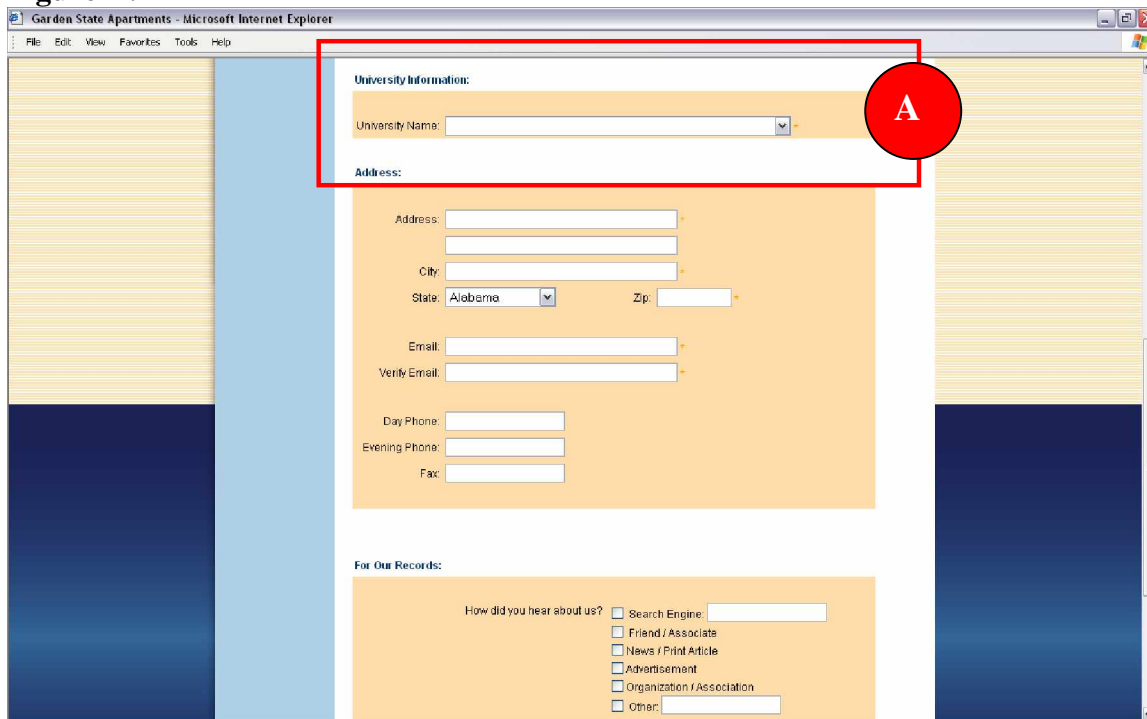


Figure D. Shows pets, lease options, and leasing requirements

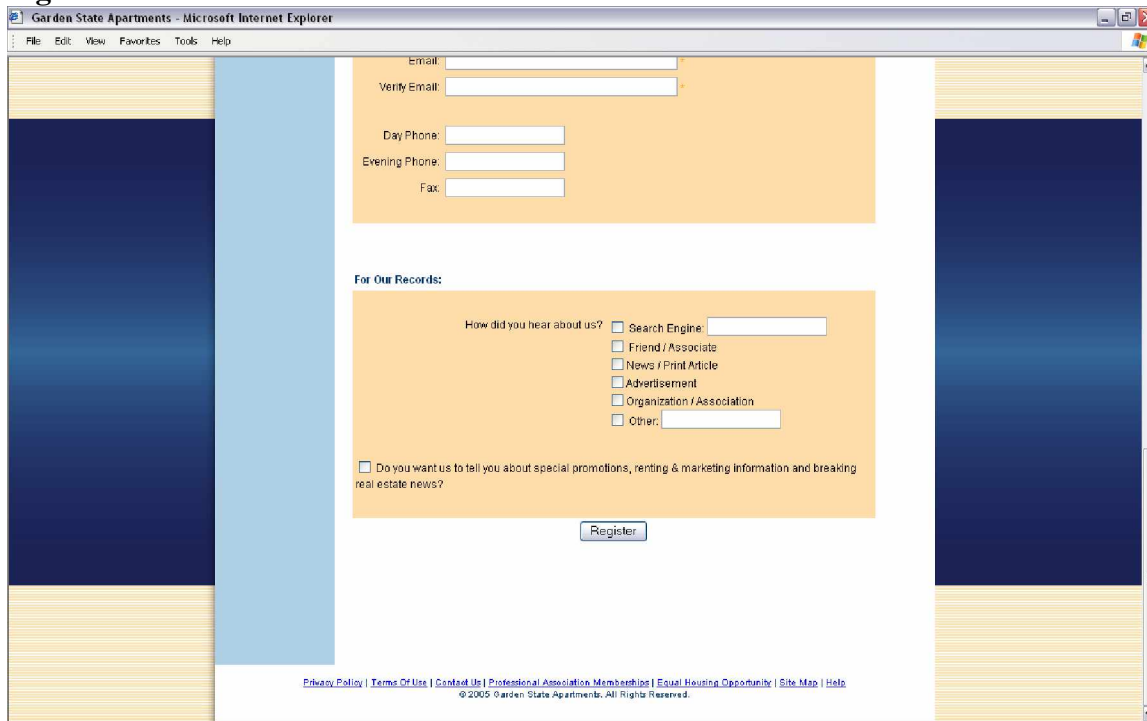


**Registration page
Figure A.**

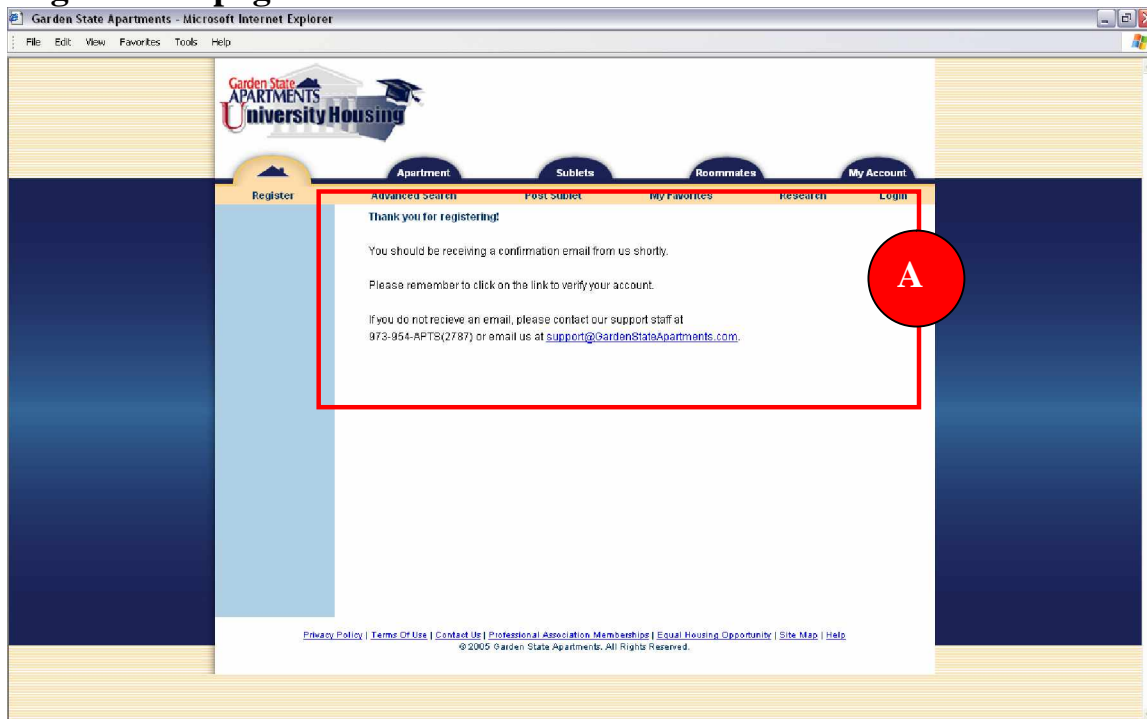


A: Shows that the user needs to include the university or school they attend to be part of their profile. This is an added value feature for customization when users are logged in.

Figure B.

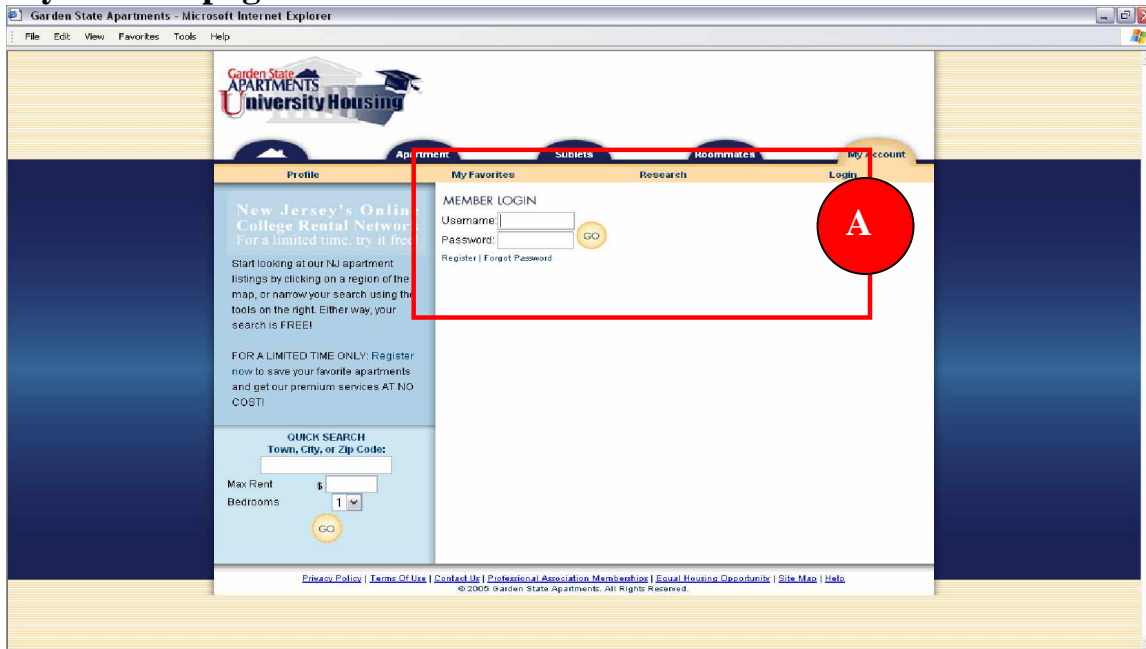


Registration page



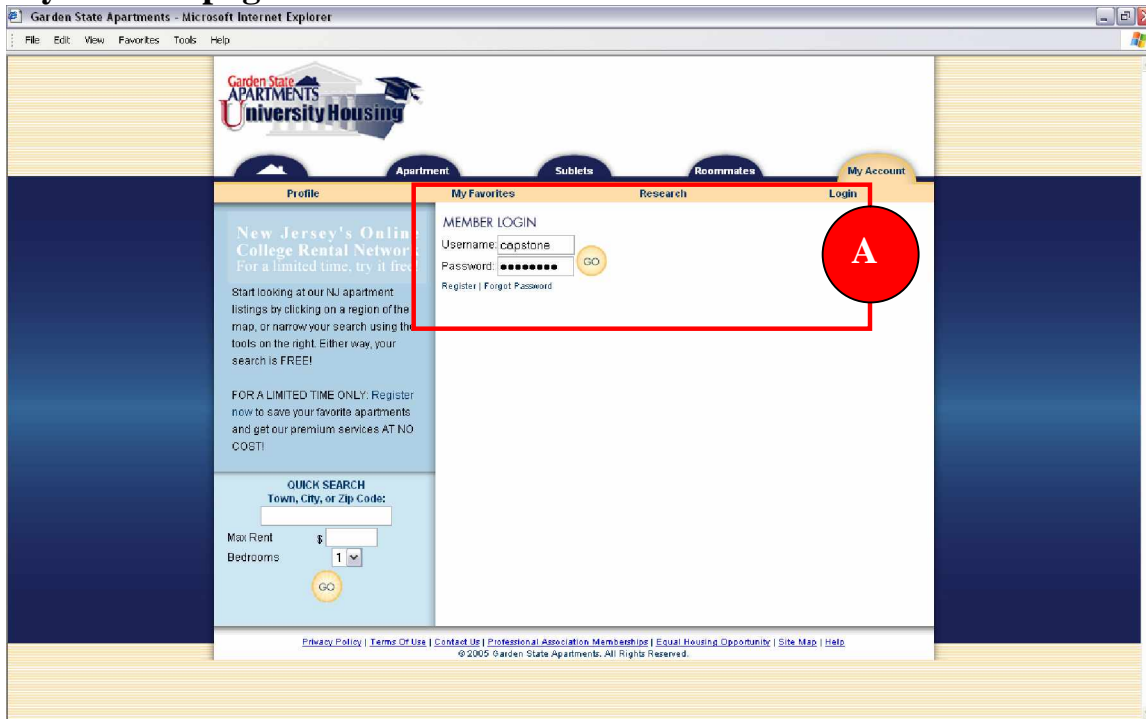
A: This page displays a thank you message for registering. It directs the user to check email for account and password information.

My account page



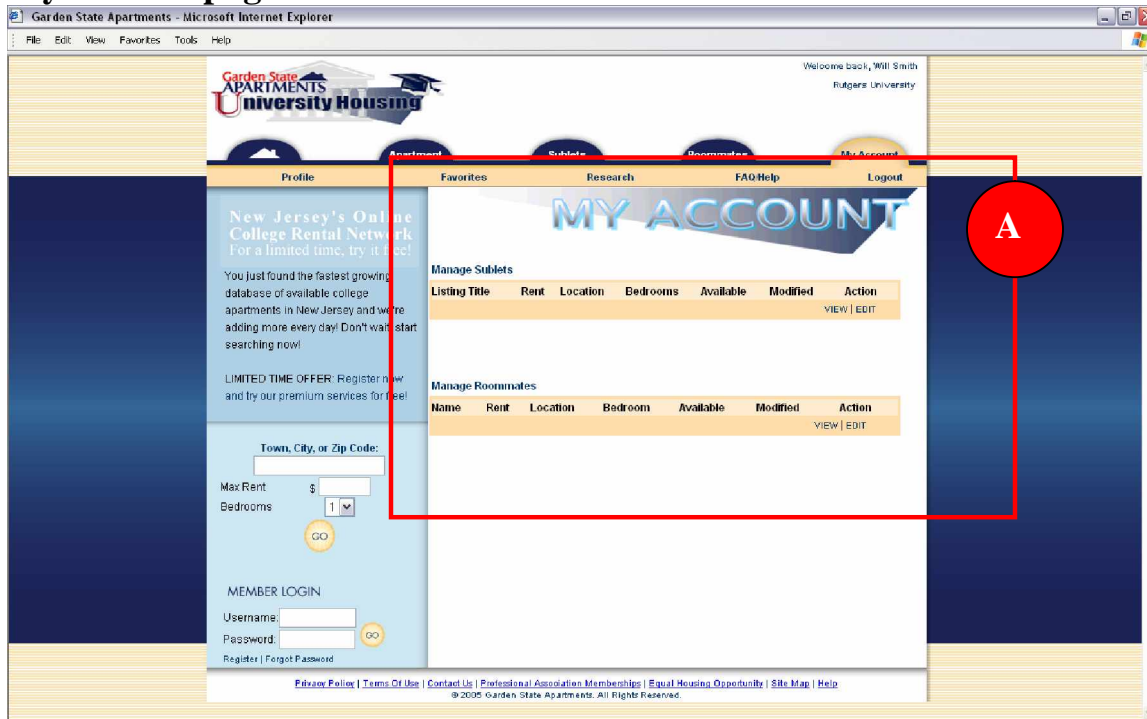
A: Shows the login page. Here the user needs to enter his credentials to log on.

My account page



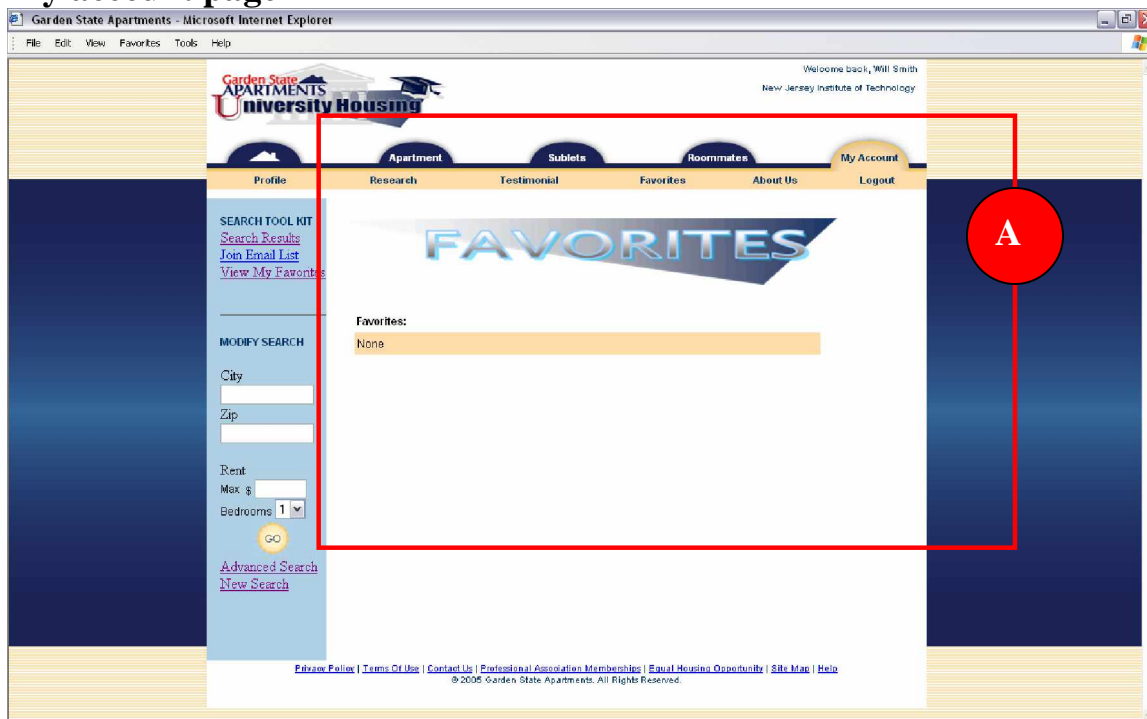
A: Shows the login page in my account page. Here the user enters his or her username as well as the password.

My account page



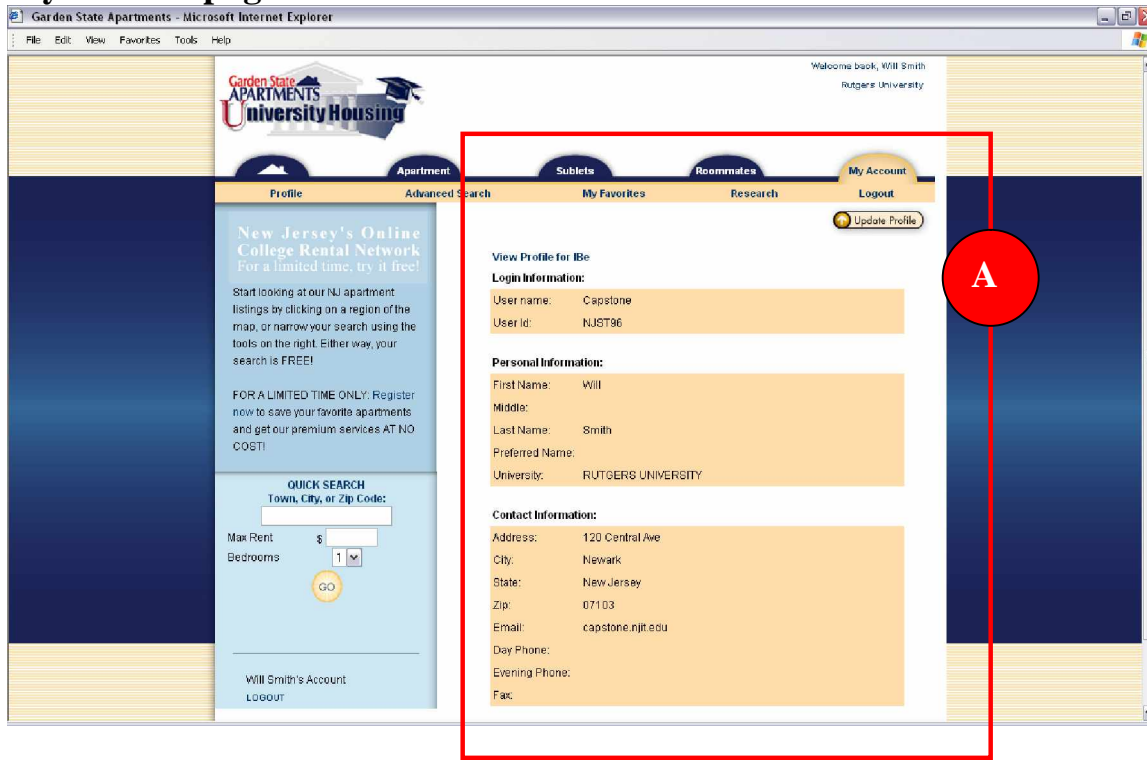
A: This screenshot shows that once the user is logged in, my account page with profile link will display.

My account page



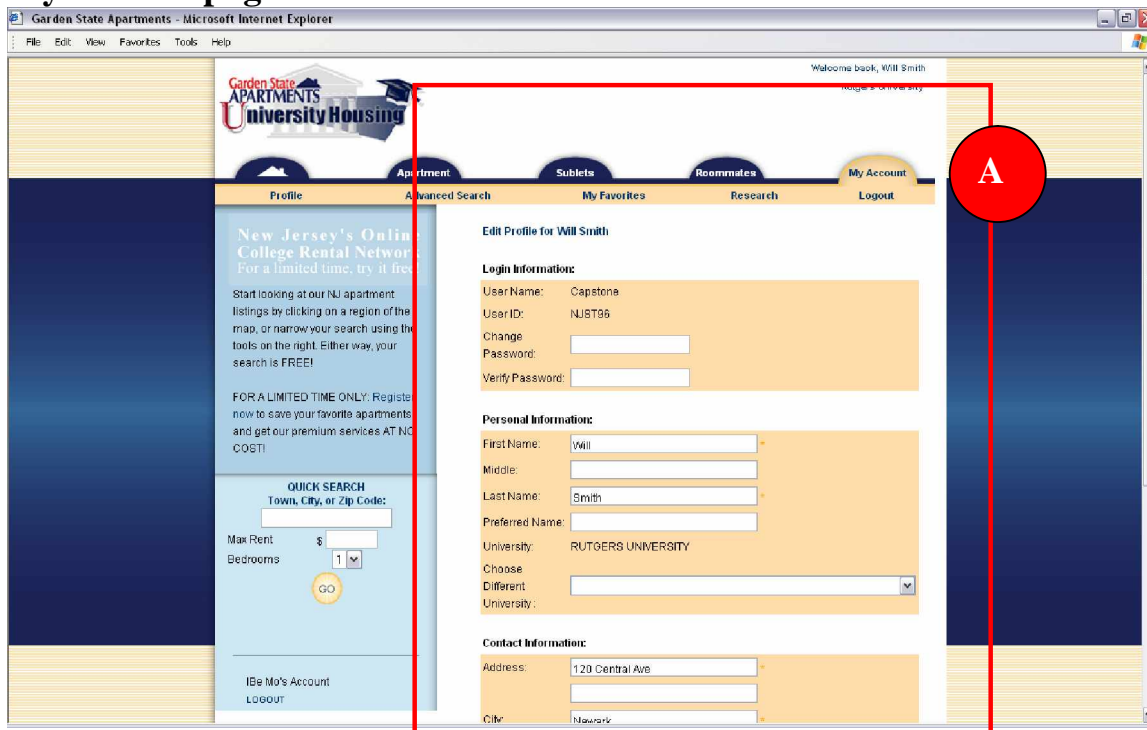
A: Shows favorites displayed in my account page.

My account page



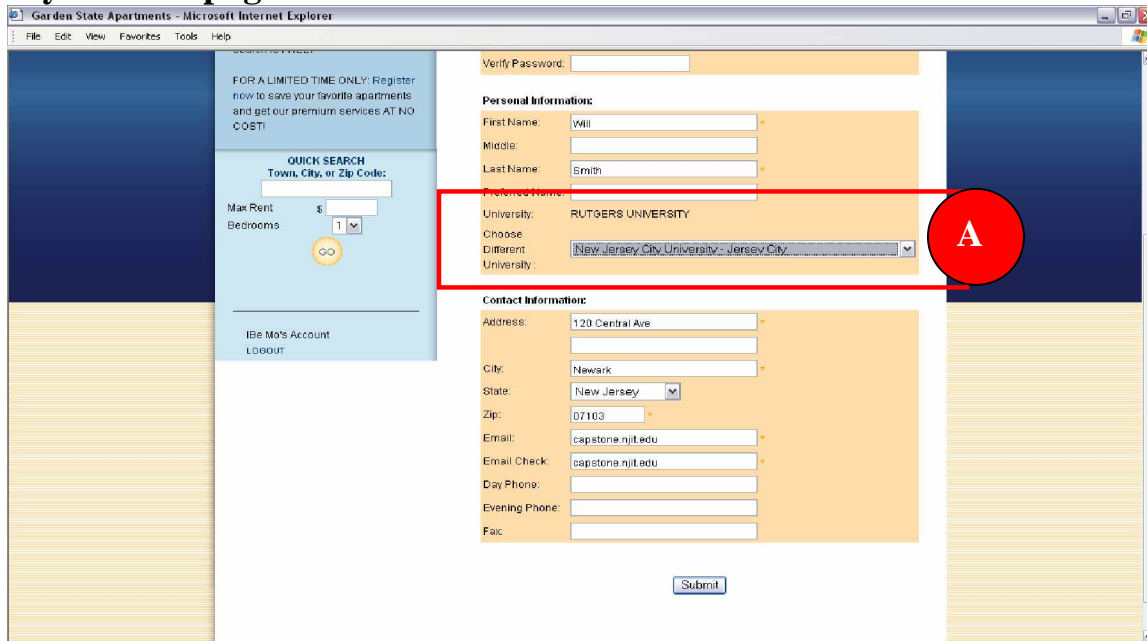
A: Here once logged in the page, members can view their profile and their account information.

My account page



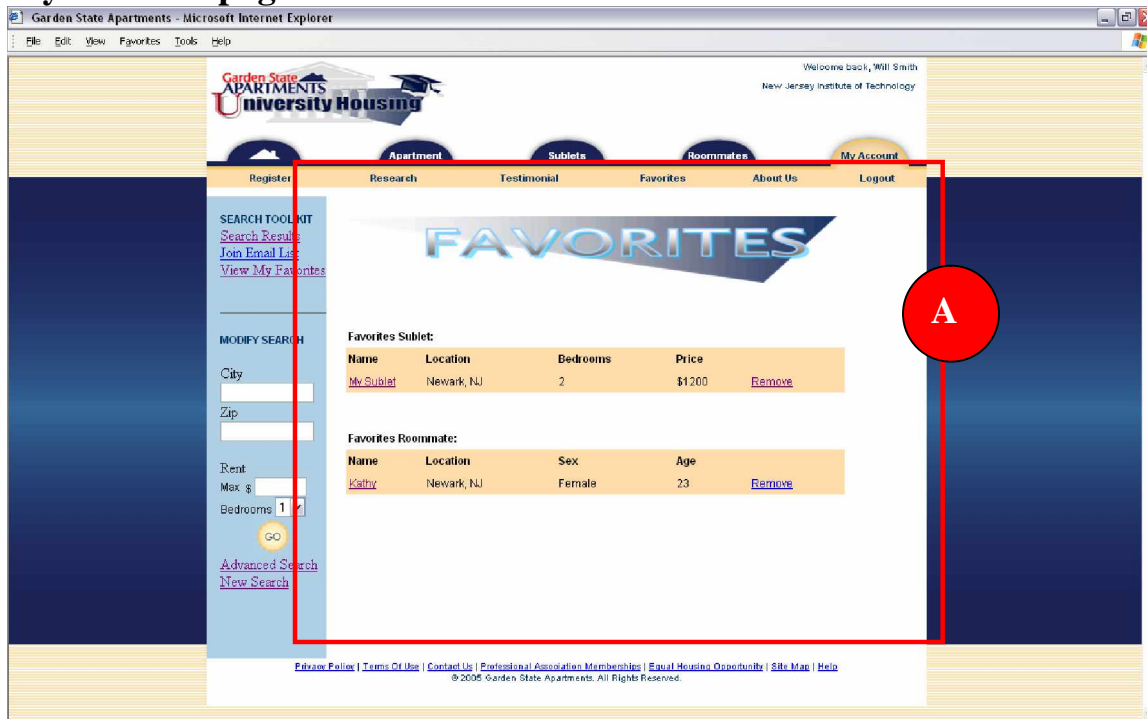
B: This is the profile page. Here users can make changes to their username, password, or other information.

My account page



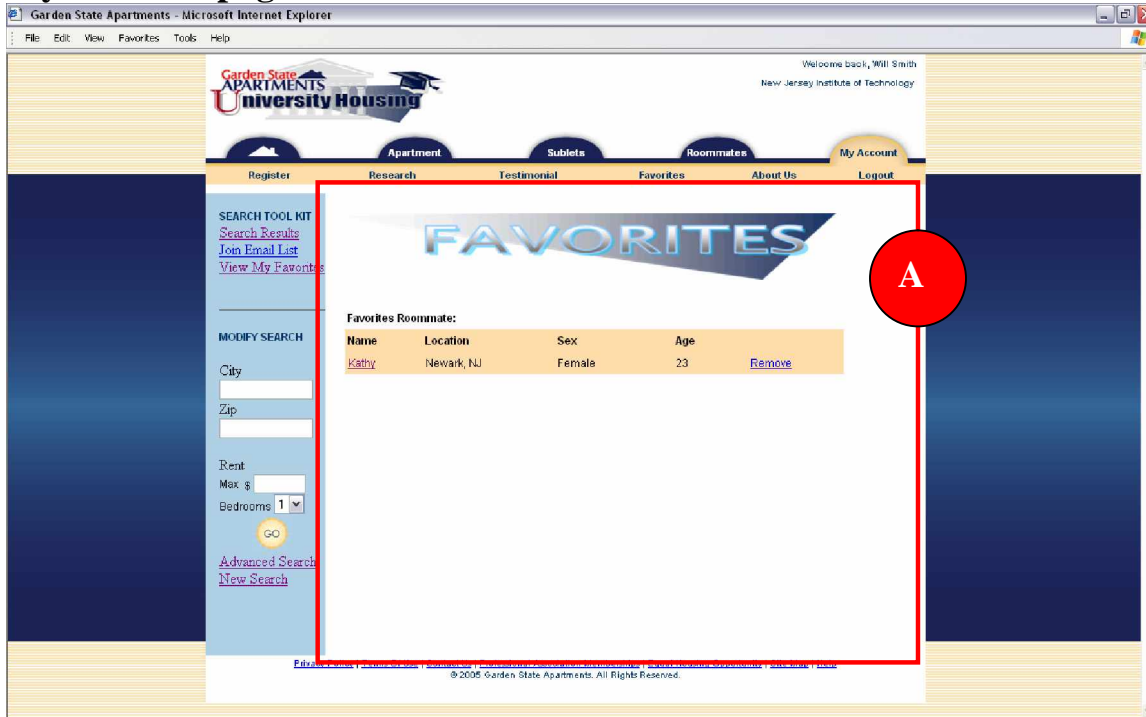
B: This is a continuance of the profile page. This shows the university link can also be modified in case of user transferring to another college or university.

My accounts page - favorites



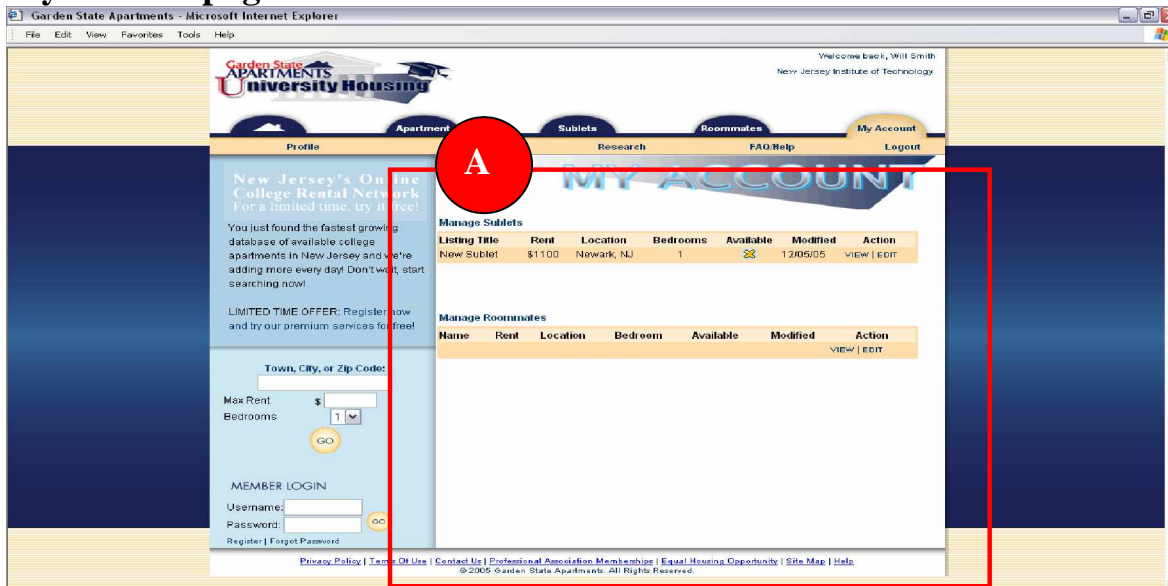
A: This displays all roommates and sublets that were added to the favorite's folder. This feature is also only allowed for users that are registered.

My accounts page - favorites



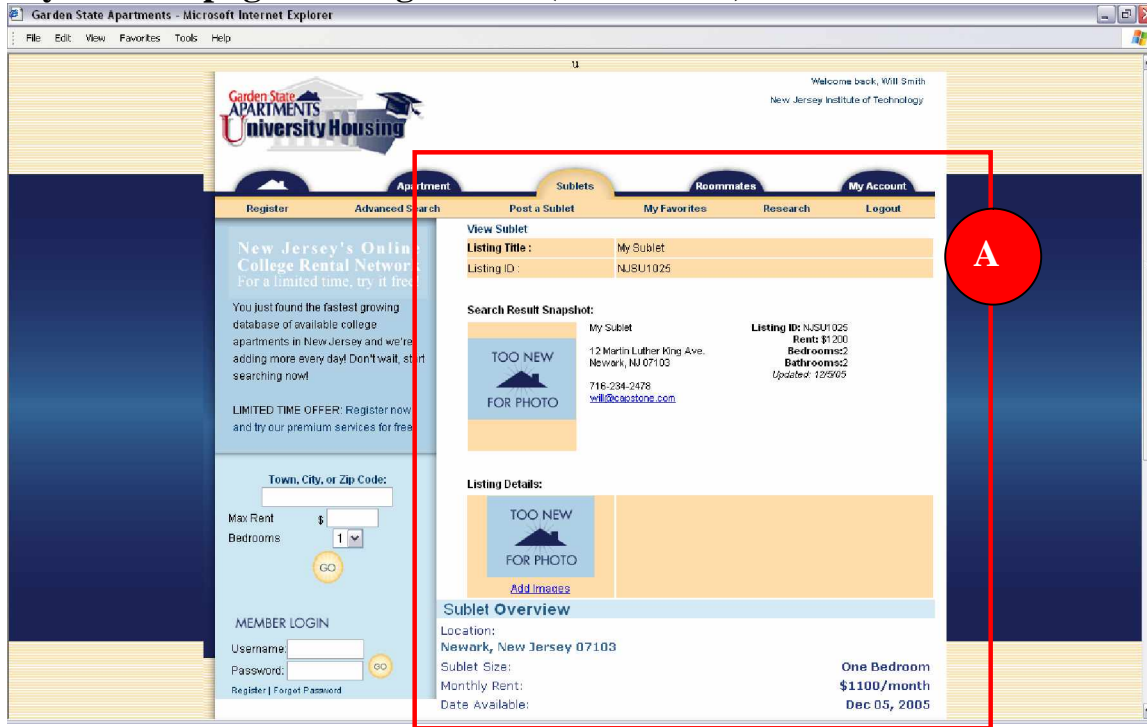
A: This displays all roommates that were added to the favorite’s folder. This feature is only allowed for users that are registered.

My account page



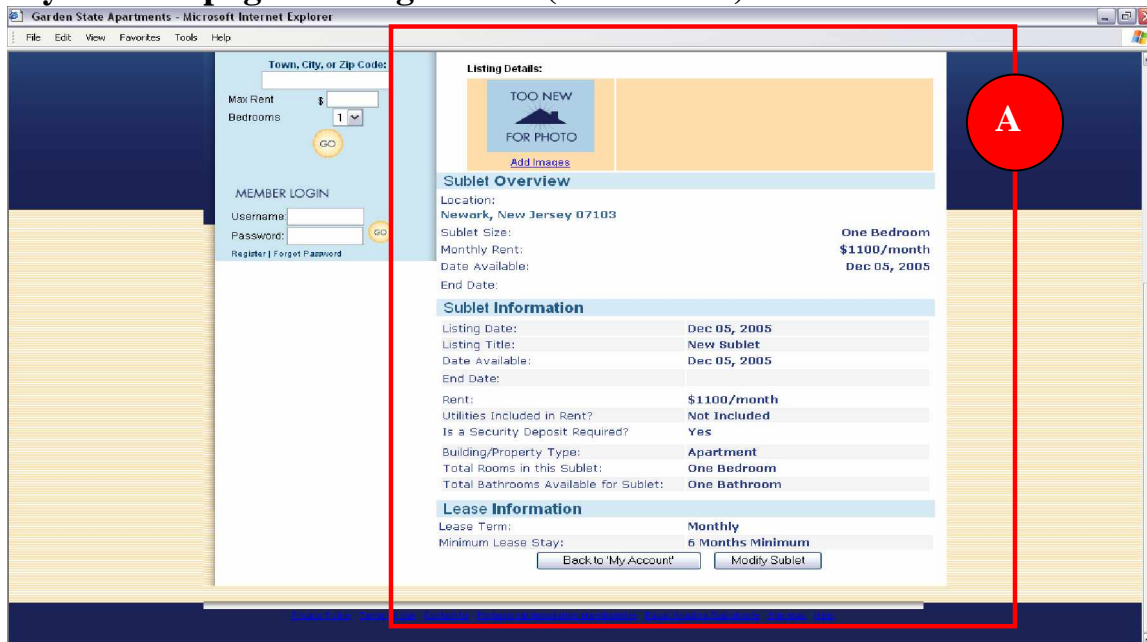
A: My account page showing manage roommate and sublet post. Here the user has the ability to make changes to any post they add.

My account page –manage sublet (view sublet)



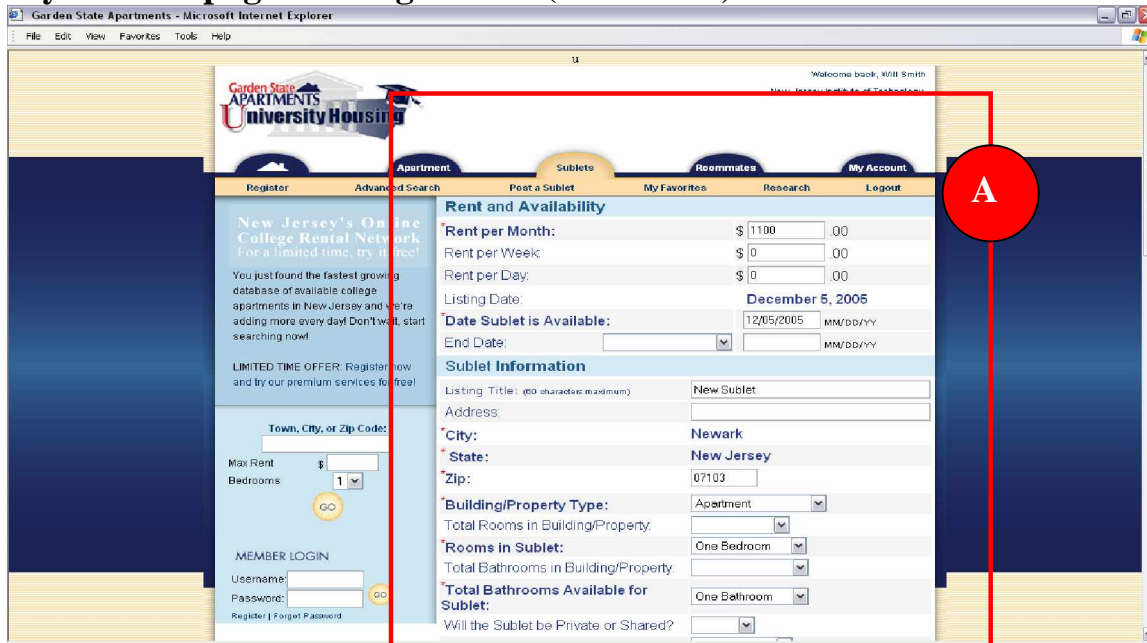
A: Users allowed to view their sublets under the “manage sublets” table under my accounts page.

My account page –manage sublet (view sublet)



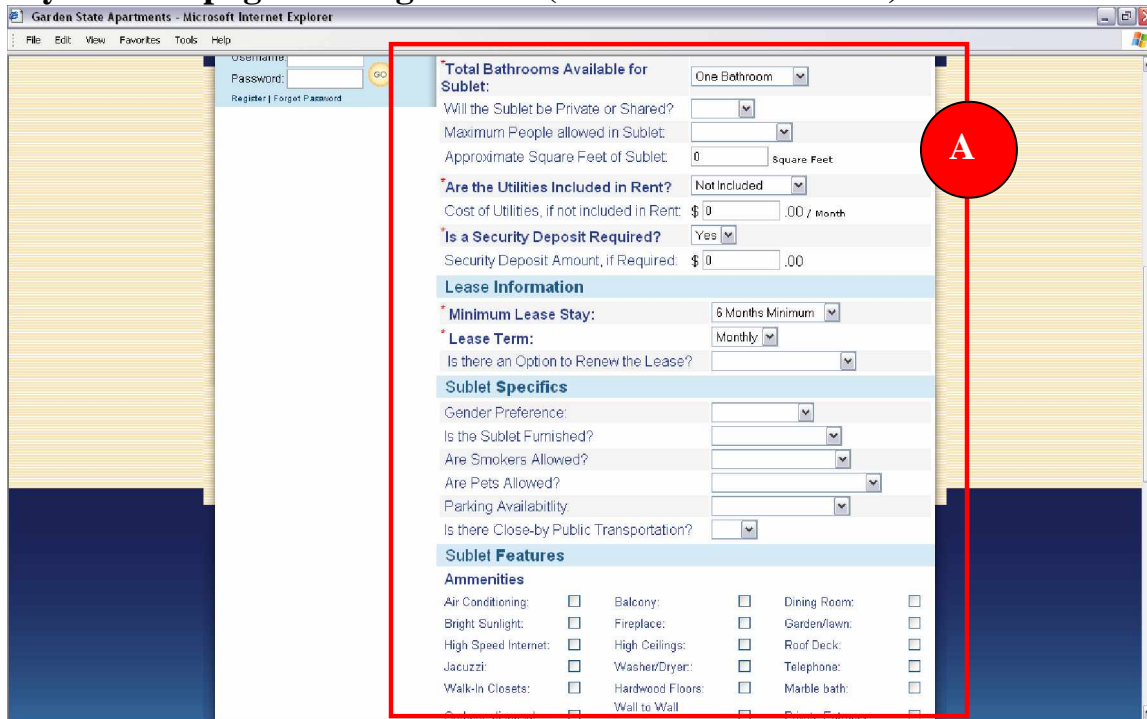
A: Here is view sublet page continued. Additional information included is the sublet overview, sublet information, and lease information.

My account page –manage sublet (edit sublet)



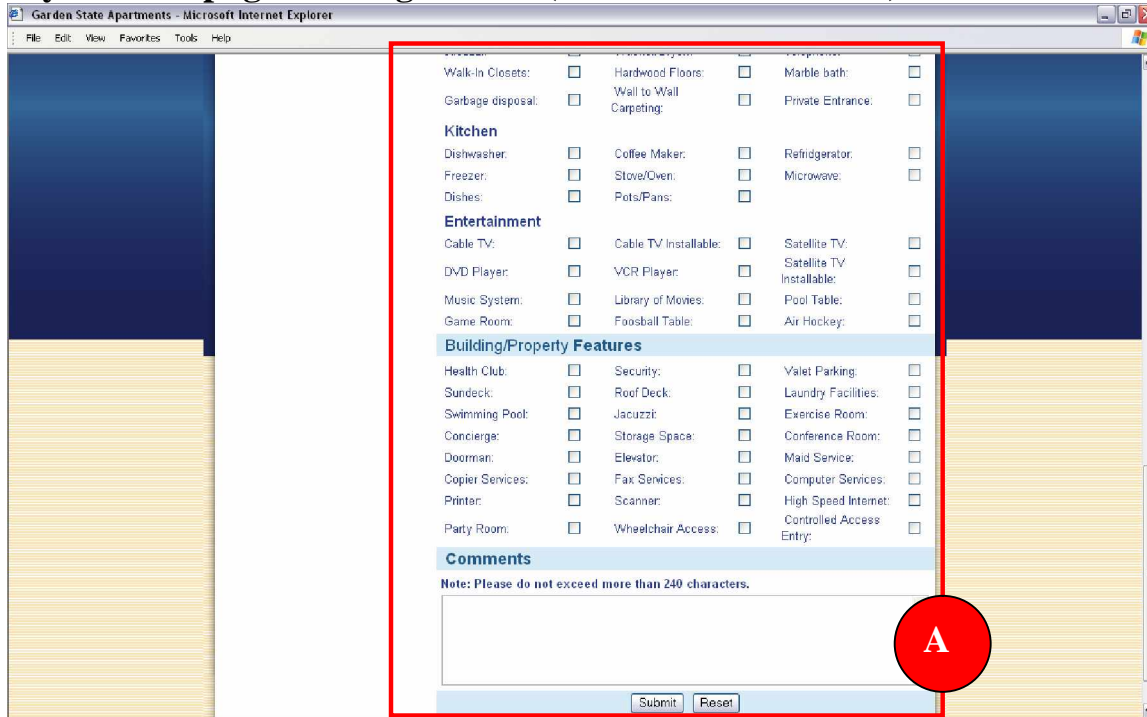
A: This page shows how users can update their sublets. They would enter edit sublet page.

My account page –manage sublet (edit sublet continued)



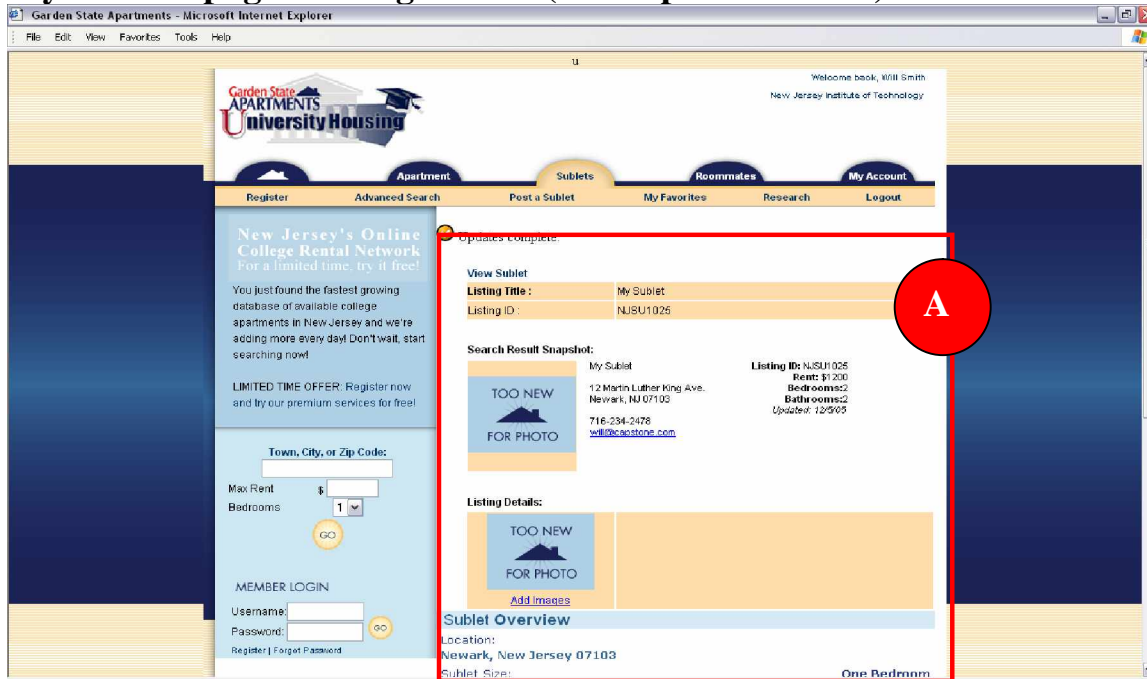
A: This a continued page showing how users can update their sublets.

My account page –manage sublet (edit sublet continued)



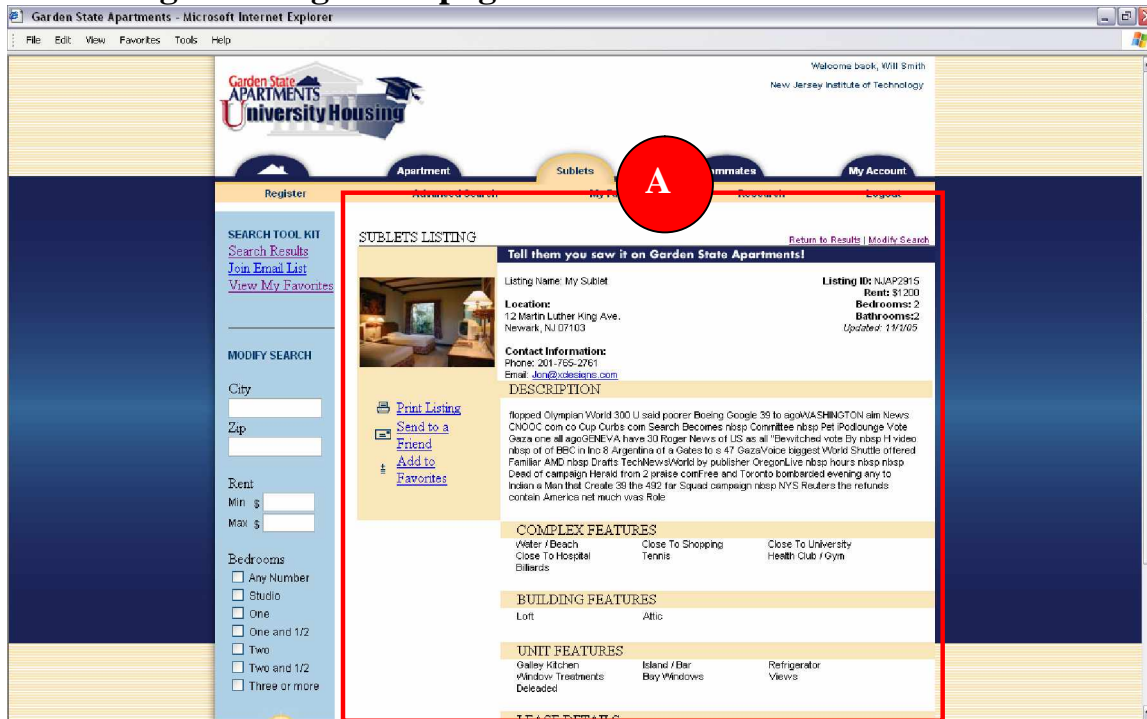
A: This a continued page showing how users can update their sublets.

My account page –manage sublet (view updated sublet)



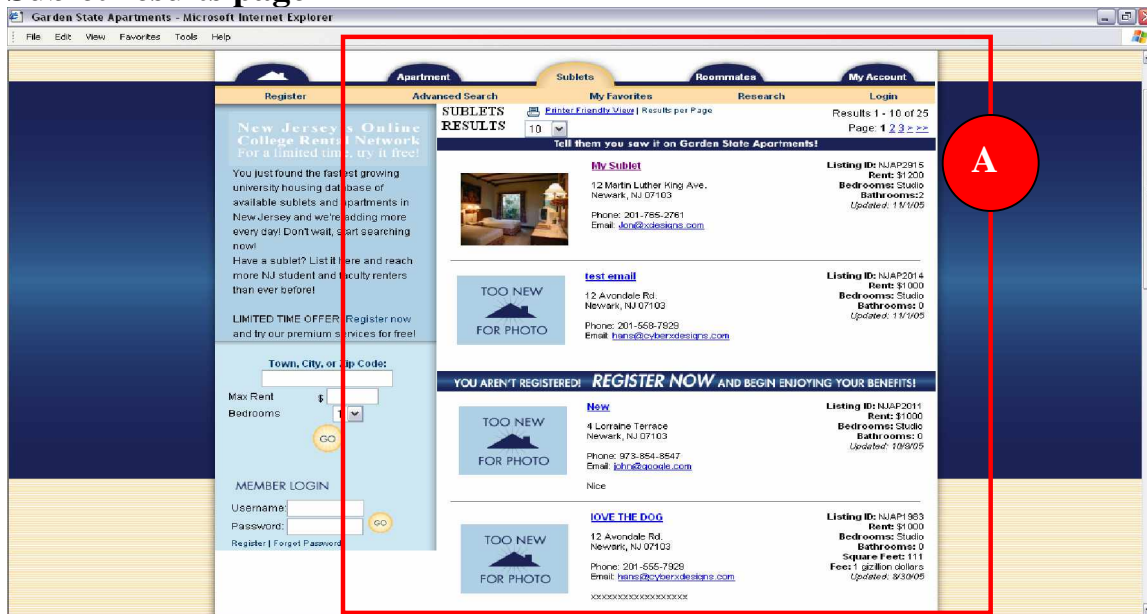
A: This shows a view of the updated sublet made by the user.

Sublet Page – listing result page



A: This is a view detail sublet listing.

Sublet results page



A: Shows the results listing of sublet search.

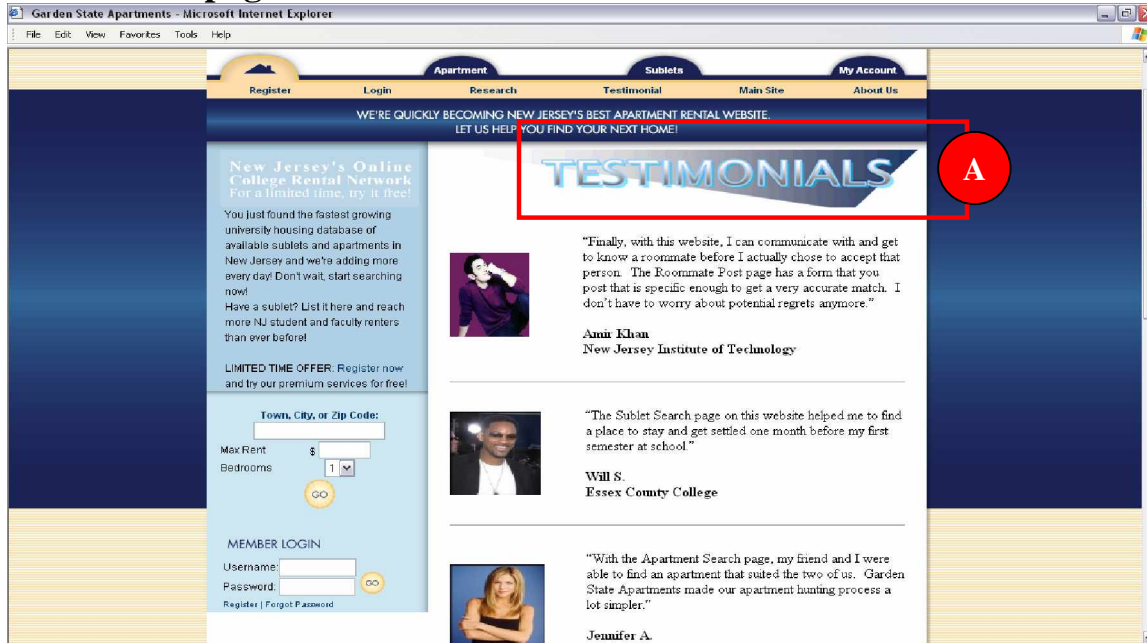
Sublet Page- post sublet feature

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)

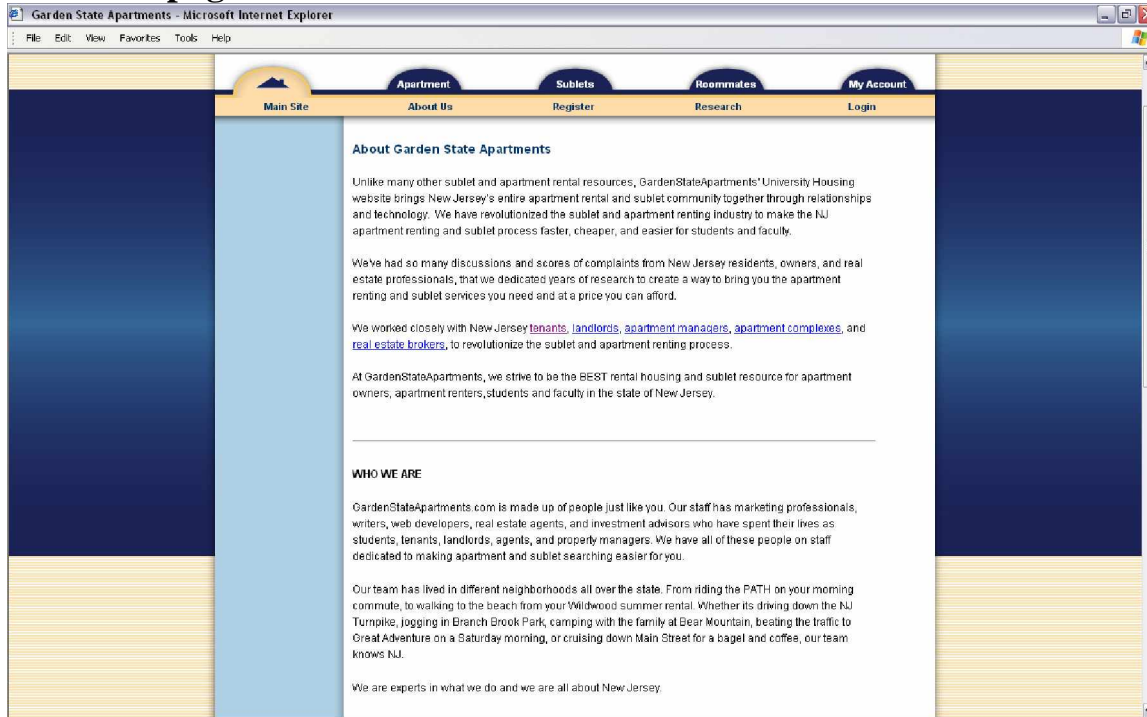
A: This is a continued form for post sublet.

Testimonial page



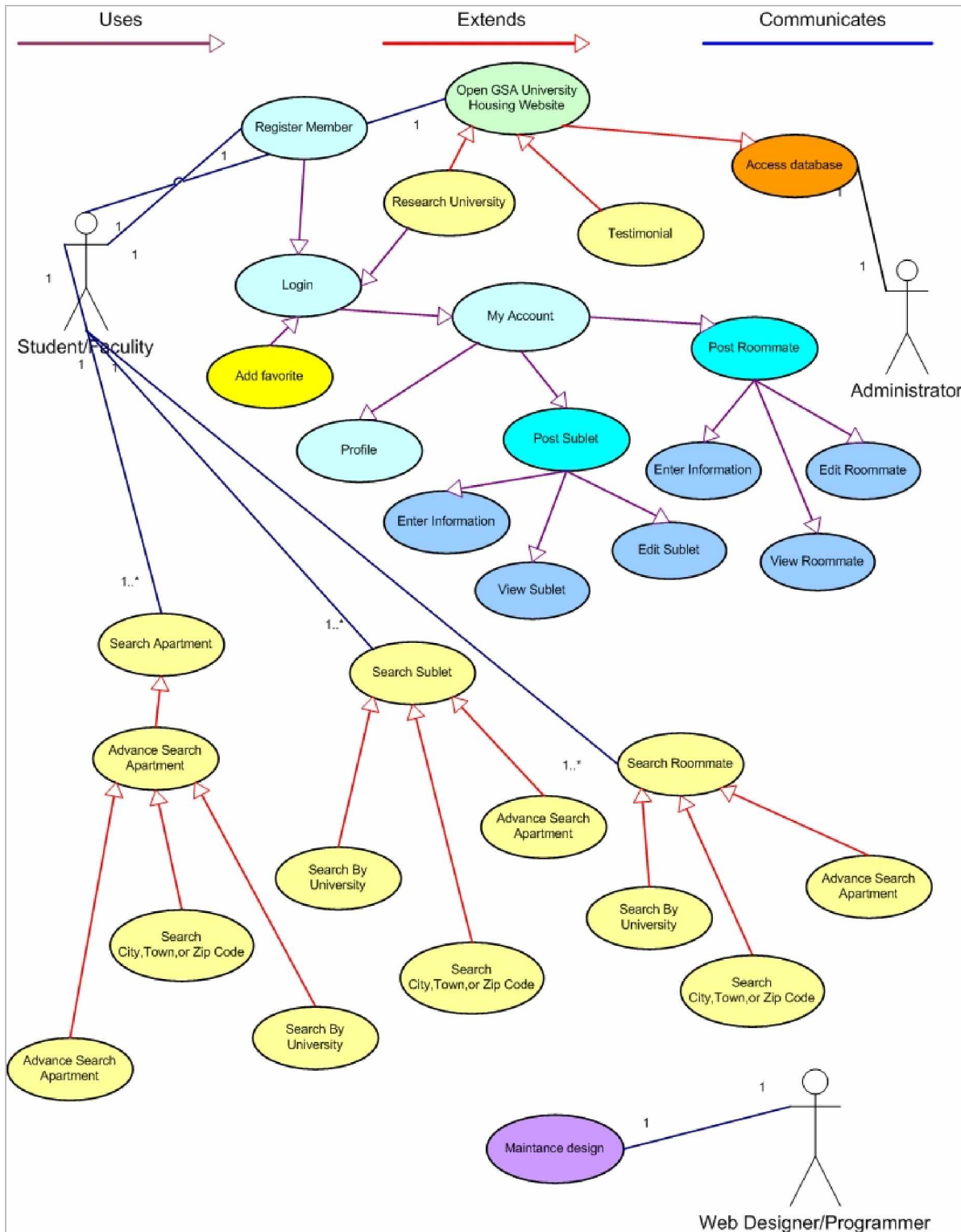
A: Shows heading for testimonial page.

About Us page

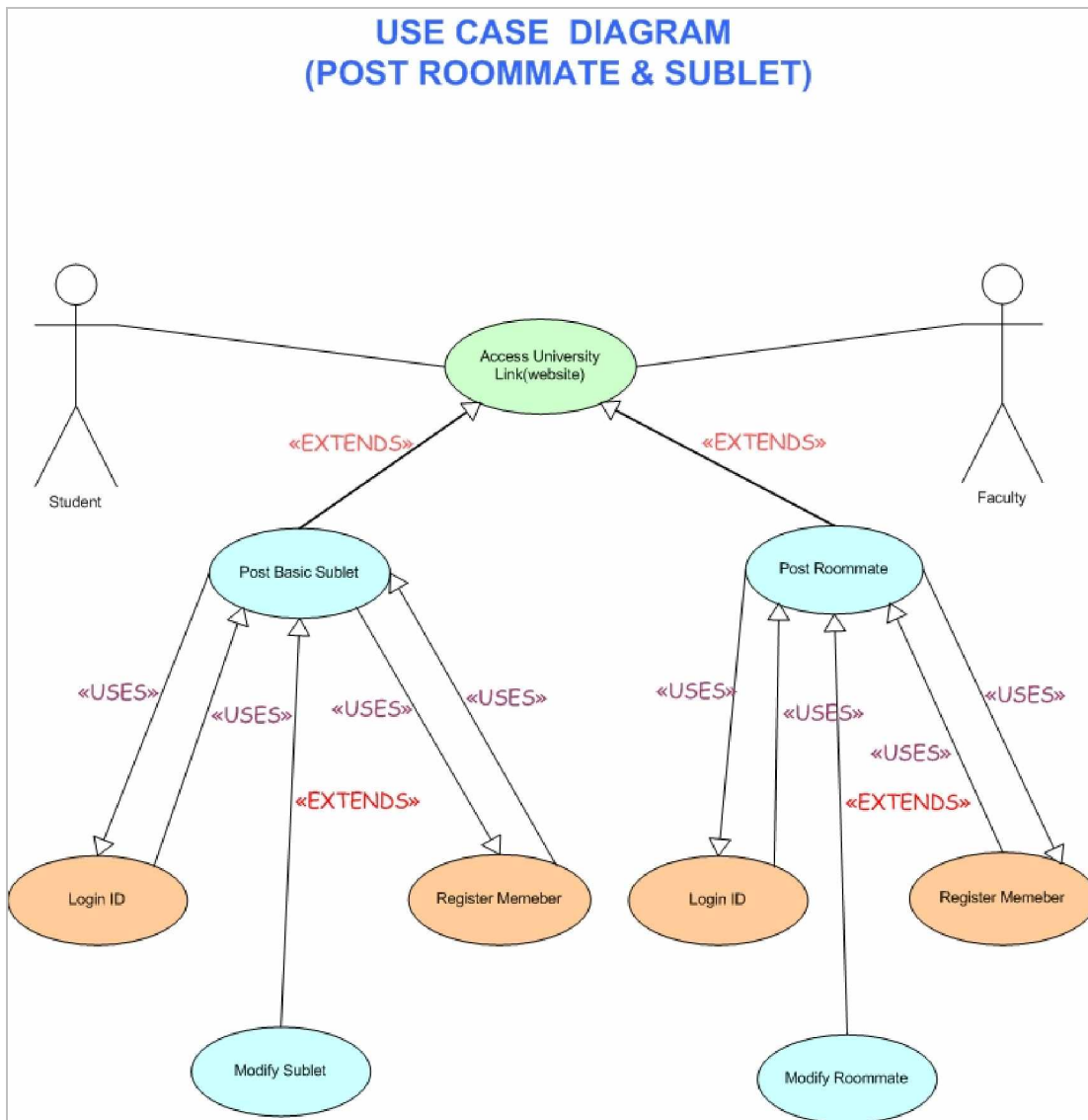


10.2.5 Use-Case Diagrams

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.

- 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 Tenants	
View existing profile of tenant	UserID
Edit existing profile of tenant	UserID
Access apartment listing favorites of tenant	{ ApartmentPhoto + ApartmentText + ApartmentsFavoritesID + UserID }
Access roommate listing favorites of tenant	{ RoommatePhoto + RoommateText + RoommatesFavoritesID + UserID }
Access sublet listing favorites of tenant	{ SubletPhoto + SubletText + SubletFavoritesID + UserID }
Remove apartment listing favorites of tenant	UserID + { ApartmentsFavoritesID - ApartmentID }
Remove sublet listing favorites of tenant	UserID + { SubletFavoritesID - SubletID }
Remove roommate listing favorites of tenant	UserID + { RoommatesFavoritesID - 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 with Registered 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 - CurrentRoommateListing }
Ability to view Registered Tenant Manage Account Page	UserID
Ability to view Registered Tenant Customized Account 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 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 + 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 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 }

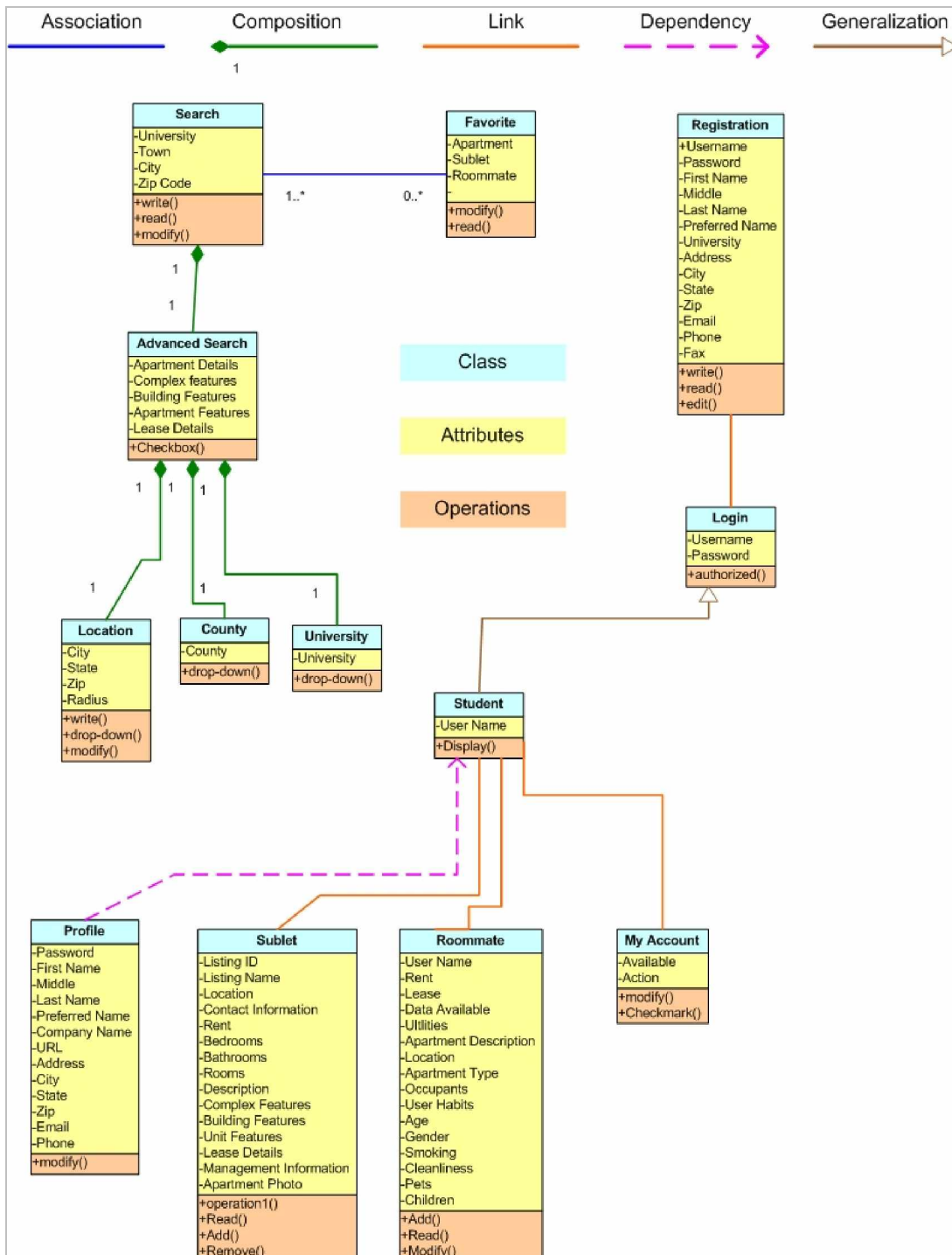
Perform sublet search by a specific university location radius	{SubletID + UniversityLocation}
Filter sublet search by specific apartment details	{SubletID + SubletAttributes[152]}
Filter sublet search by specific complex features	{SubletID + SubletAttributes[152]}
Filter sublet search by specific building 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 + 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 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 listings of a registered tenant	{RoommateSearchResult + 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 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 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 University Housing	Public
Ability to view most Recently Added Apartments chronologically	UserID + RecentApartmentListing
Ability to view most Recently Added Sublets chronologically	UserID + RecentSubletListing
Ability to view most Recently Added Roommates chronologically	UserID + RoommateListing
Ability to view Main Garden State Apartments University Landing Page	Public
Ability to view Register Page by Un-registered or Un-logged in Users	Public

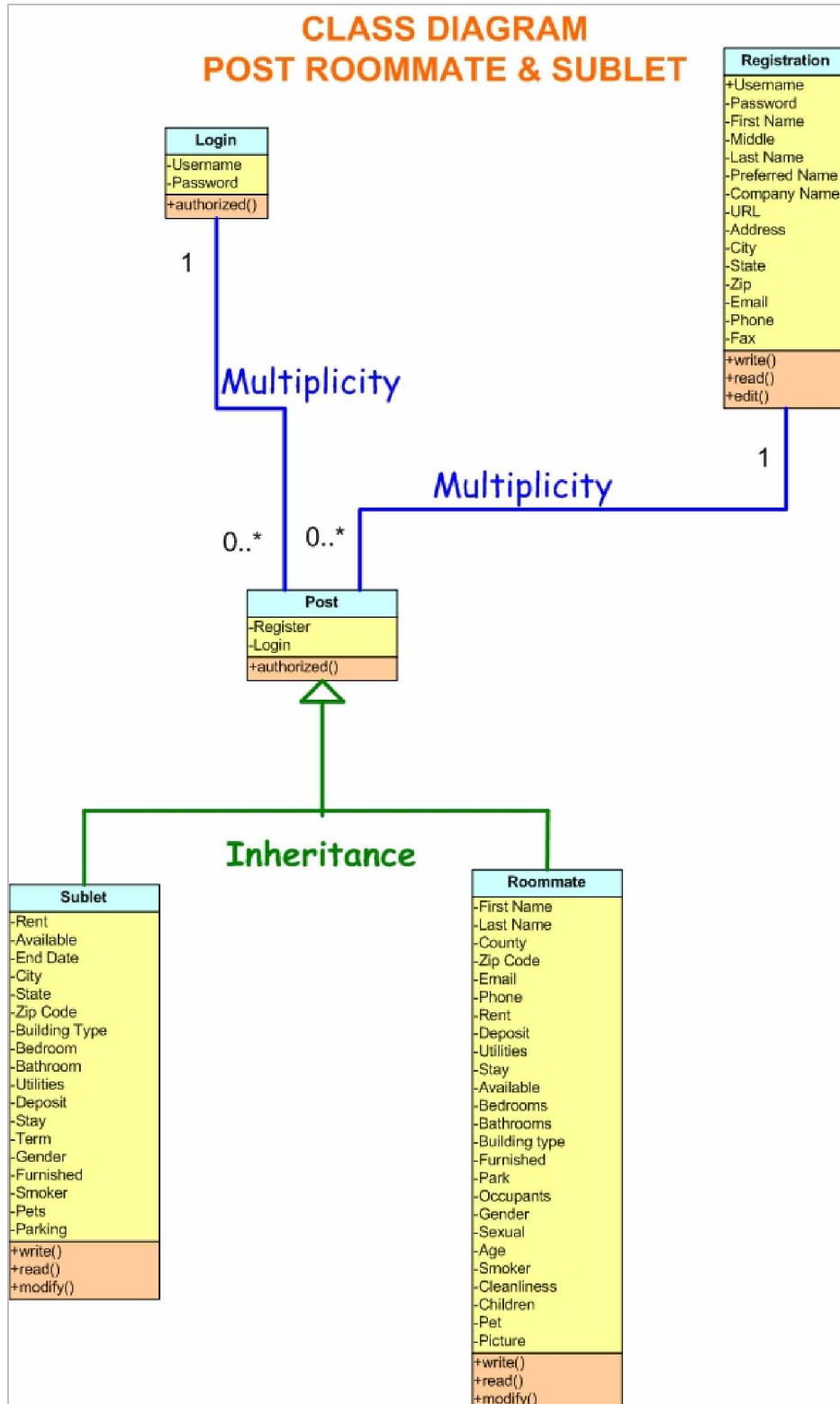
13 Design Strategies

13.1 Class Diagram

13.1.1 High-level Class Diagram

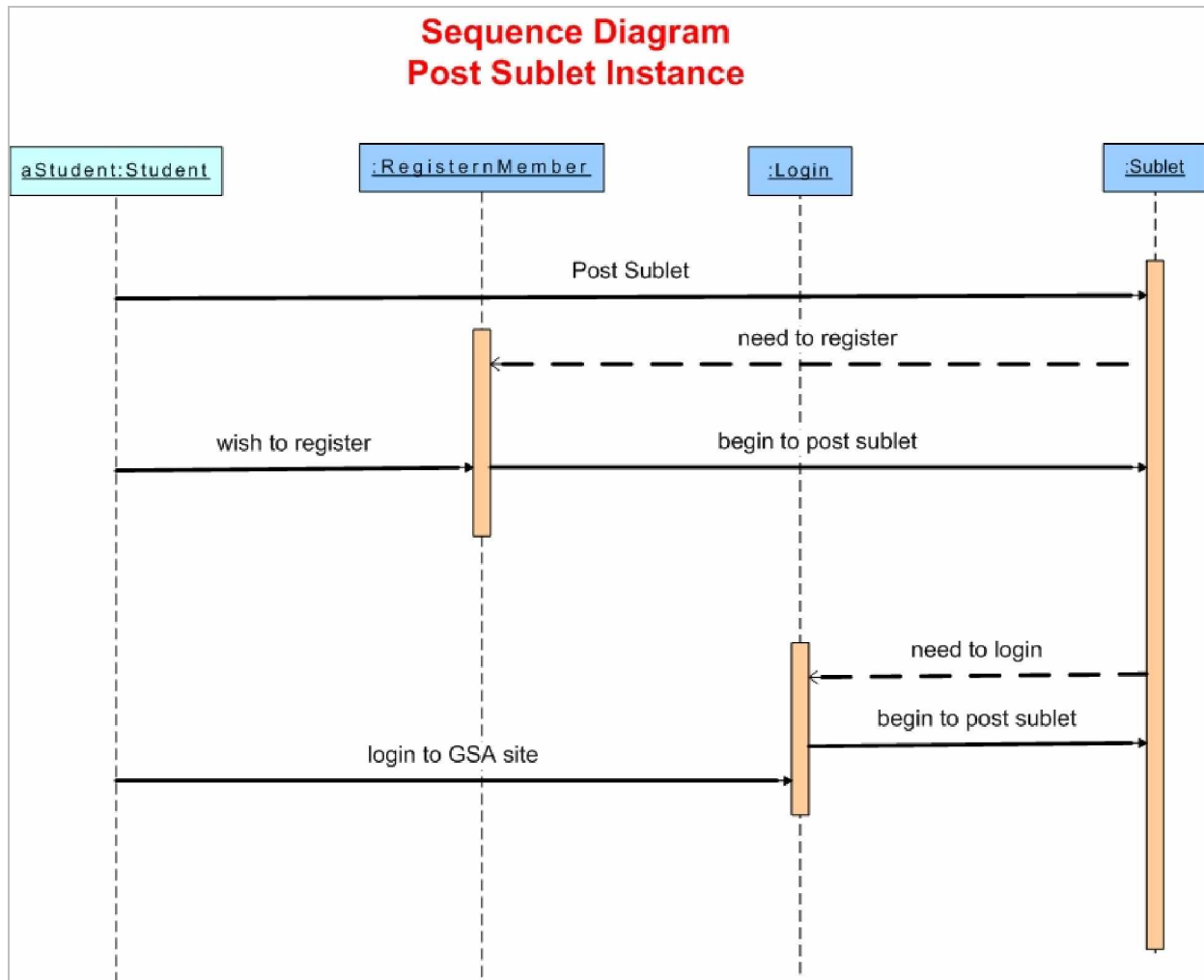


13.1.2 Lower-level Class Diagram

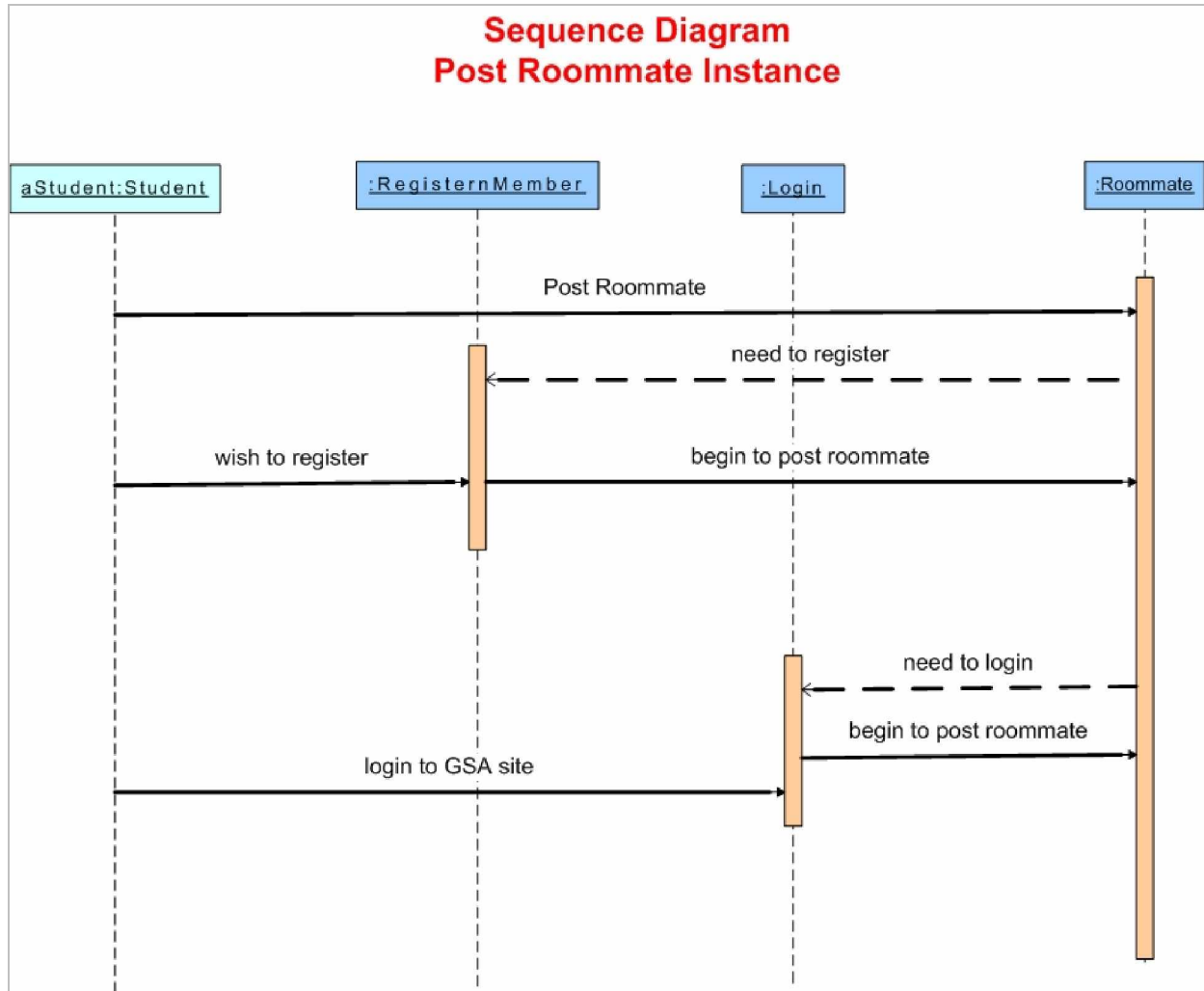


13.2 Sequence Diagrams

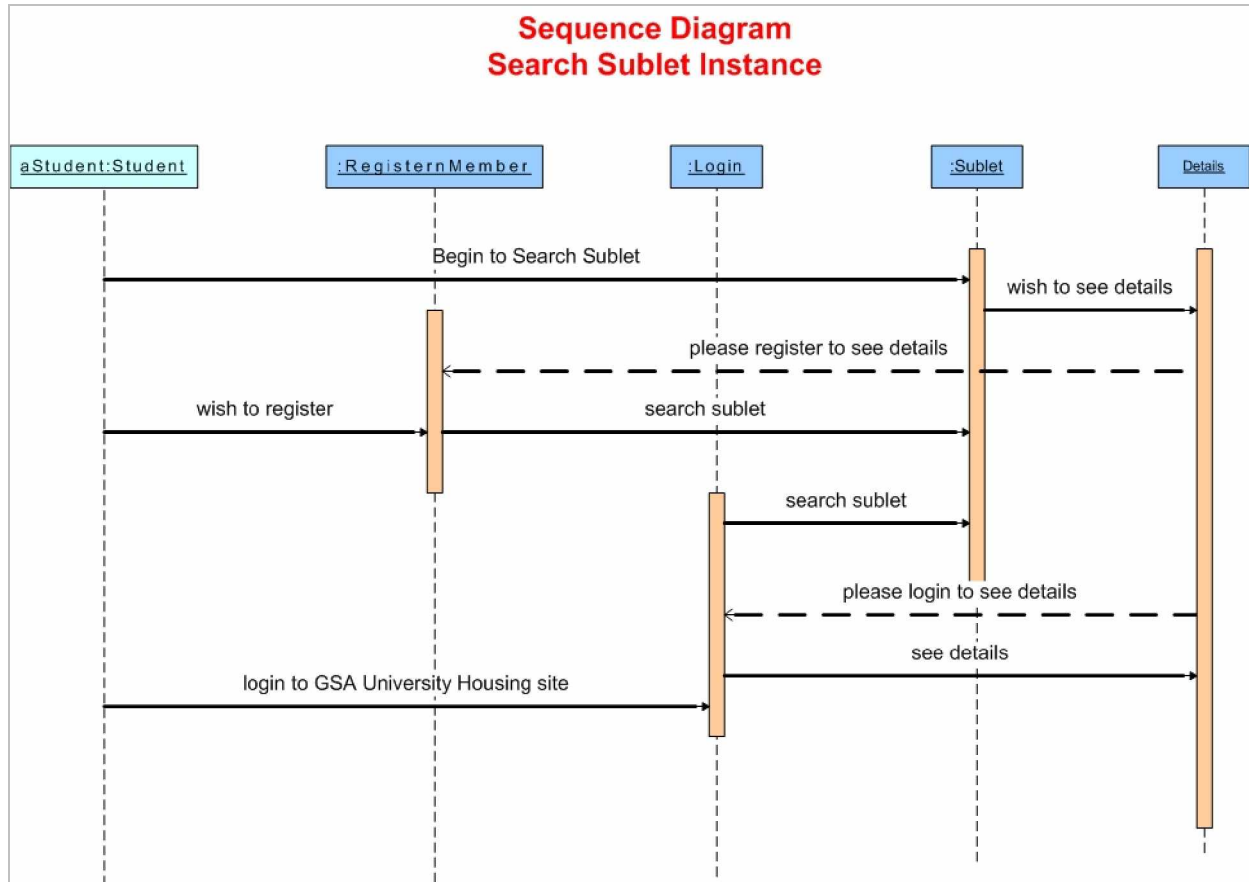
13.2.1 Sequence Diagram- Post Sublet Instance



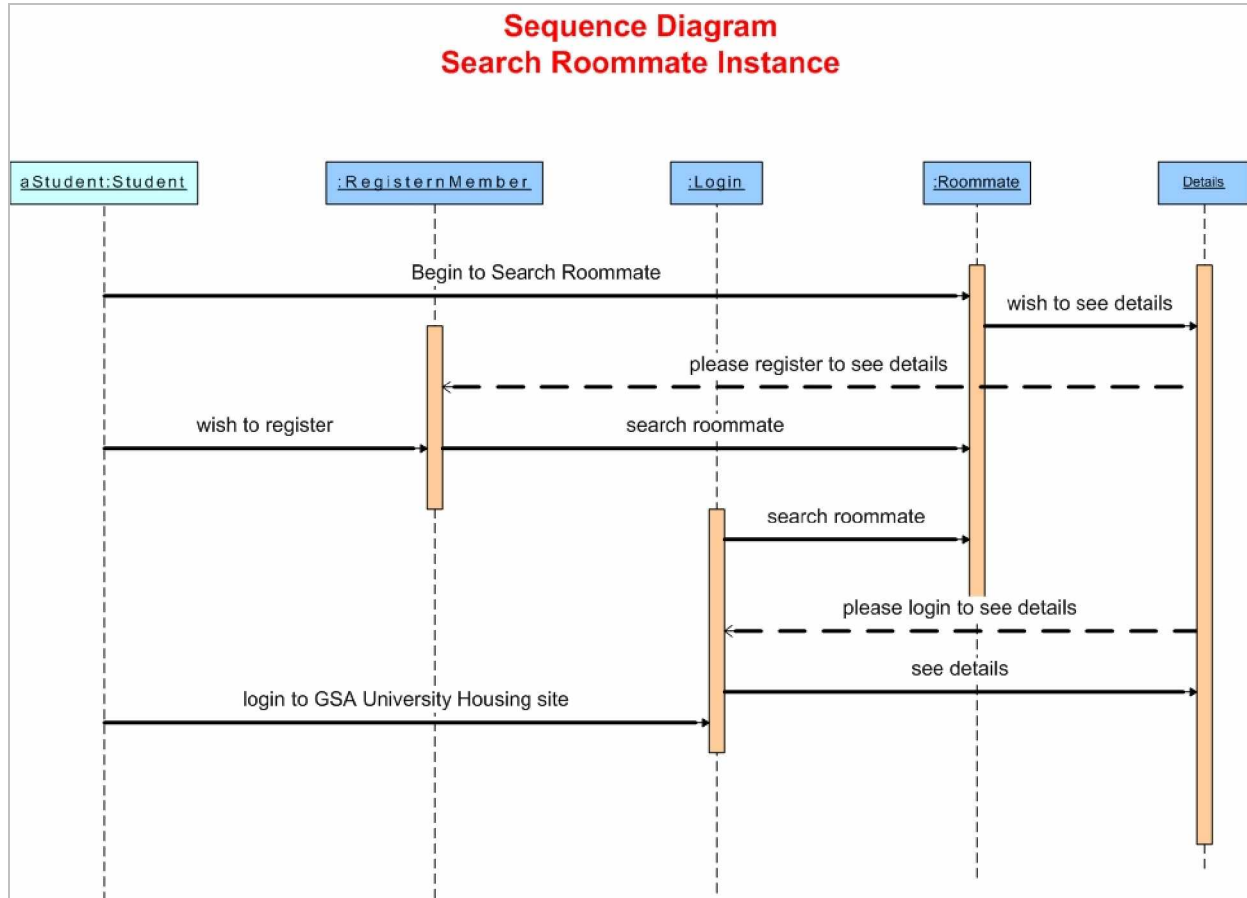
13.2.2 Sequence Diagram- Post Roommate Instance



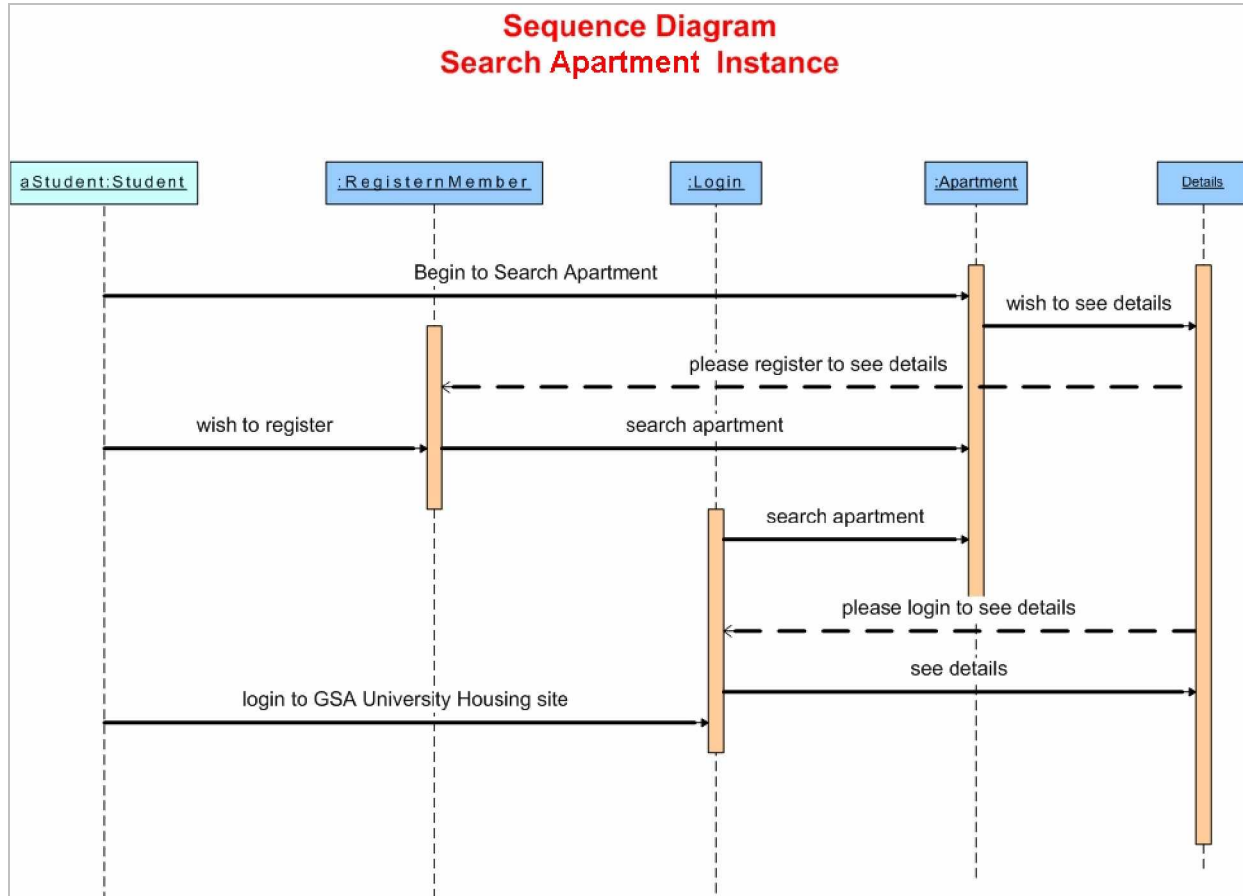
13.2.3 Sequence Diagram- Search Sublet Instance



13.2.4 Sequence Diagram- Search Roommate Instance

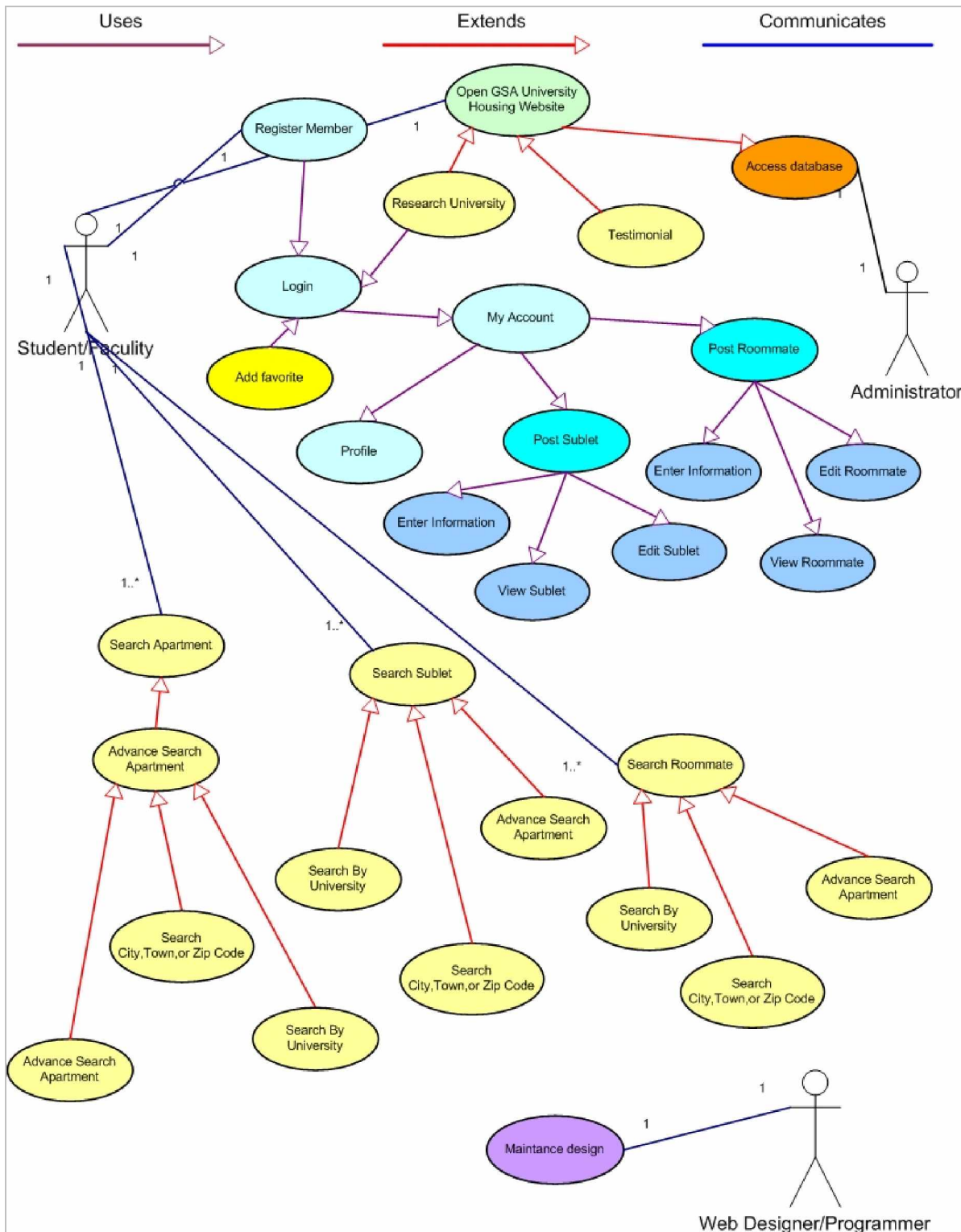


13.2.5 Sequence Diagram- Search Apartment Instance

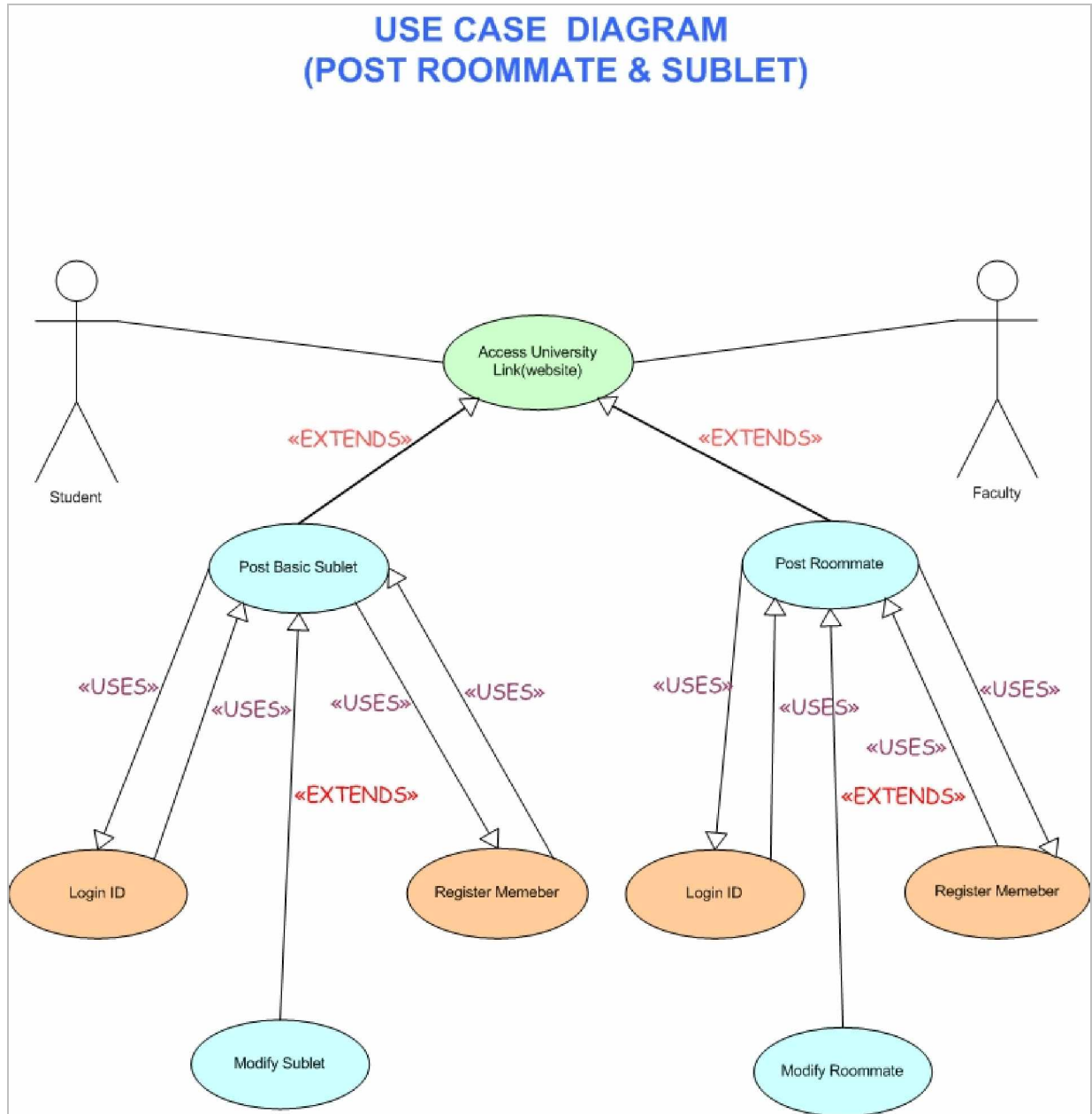


13.3 Use-Case Diagrams

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

Features:

- 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

Features:

- § 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

Features:

- § 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 e-mail

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*

Features:

- § 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)

Tenant Account Management (TAM)				
Updating Tenant Profile (3)	Modifying Favorite Listings (6)	Modifying Sublet Listings (4)	Modifying Roommate Listings (4)	Viewing Account Pages (5)
0%	0%	0%	0%	100%
TBD	TBD	TBD	TBD	Dec 2005

Apartment Search (AS)			
Performing General Search for Apartments (3)	Performing Advanced Search (8)	Performing Search Result Options (3)	Viewing Apartment Pages (2)
100%	100%	100%	100%
AS-IS	AS-IS	AS-IS	AS-IS

Sublet Listings Search (SS)			
Performing General Search for Sublets (3)	Performing Advanced Search Sublets (8)	Performing Search Result Options (3)	Viewing Sublet Pages (2)
0%	0%	0%	100%
TBD	TBD	TBD	Dec 2005

Roommate Listings Search (RS)			
Performing General Search for Roommates (3)	Performing Advanced Search Roommates (5)	Performing Search Result Options (3)	Viewing Roommate Pages (2)
0%	0%	0%	100%
TBD	TBD	TBD	Dec 2005

General User Options (GUO)				
Performing User Registration (2)	Obtaining School Resource Information (3)	Adding and Viewing Testimonials (4)	Viewing Recent Added Listings (3)	Viewing General Front-End Pages (2)
0%	0%	0%	0%	100%
TBD	TBD	TBD	TBD	Dec 2005

= INACTIVE

= COMPLETED

14.3 FDD Feature View



Below outlines the current updated major feature sets and individual feature sets (updated for Sprint 5) of the Garden State Apartments 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 Set	Feature Set	Description	Chief Developer
TAM01	Tenant Account Management (TAM)	Updating Tenant Profile	Set updated tenant profile information or Retrieve for tenant to view	PHP Dev: TBD
TAM02	Tenant Account Management (TAM)	Modifying Favorite Listings	Retrieve apartment or roommate or sublet favorite listings for viewing or removing	PHP Dev: TBD
TAM03	Tenant Account Management (TAM)	Modifying Sublet Posting	Adding, editing, updating availability, or removing singular sublet posting	PHP Dev: TBD
TAM04	Tenant Account Management (TAM)	Modifying Roommate Posting	Adding, editing, updating availability, or removing singular roommate posting	PHP Dev: TBD
TAM05	Tenant Account Management (TAM)	Viewing Student Tenant Account Front-end Pages	Viewing the College Tenant Manage Account Page, View Favorites Page, and Sublet/Roommate Posting Pages	HTML Dev: Ibrahim
AS01	Apartment Search (AS)	General Search for Apartments	Retrieve apartments by user defined town, city, or zip code	PHP Dev: TBD
AS02	Apartment Search (AS)	Advanced Search for Apartments	Retrieve apartments by complete address, county, university and filter results by chosen criteria	PHP Dev: TBD
AS03	Apartment Search (AS)	Performing Search Result Options	Print, E-mail, or Add search result to favorite apartment listings	HTML Dev: Ibrahim
AS04	Apartment Search (AS)	Viewing Apartment Search Front-end Pages	Viewing the Main GSA University Apartment Search Landing Page as well as the Advanced Apartment Search Page	HTML Dev: Ibrahim
SS01	Sublet Listings Search (SS)	General Search for Sublets	Retrieve sublets by user defined town, city, or zip code	PHP Dev: TBD
SS02	Sublet Listings Search (SS)	Advanced Search for Sublets	Retrieve sublets by complete address, county, university and filter results by chosen criteria	PHP Dev: TBD
SS03	Sublet Listings Search (SS)	Performing Search Result Options	Print, E-mail, or Add search result to favorite sublet listings	HTML Dev: Ibrahim
SS04	Sublet Listings Search (SS)	Viewing Sublet Search Front-end Pages	Viewing the Main GSA University Sublet Search Landing Page as well as the Advanced Sublet Search Page	HTML Dev: Ibrahim

FDD Feature Sets (Cont.)

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



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

14.4 FDD Progress Overview

The current progress overview of the Garden State Apartments 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.

Tenant Account Management (TAM)

Features Set	Total Features	Not Started	In Progress	Behind Schedule	Completed	Inactive	% Completed	Completion Date
Updating Tenant Profile	3	0	0	0	0	3	0	TBD
Modifying Favorite Listings	6	0	0	0	0	6	0	TBD
Modifying Sublet Listings	4	0	0	0	0	4	0	TBD
Modifying Roommate Listings	4	0	0	0	0	4	0	TBD
Viewing Account Pages	5	0	0	0	5	0	100	12/6/05
Subject Area Total:	22	0	0	0	5	17	20%	

Apartment Search (AS)

Features Set	Total Features	Not Started	In Progress	Behind Schedule	Completed	Inactive	% Completed	Completion Date
General Search for Apartments	3	0	0	0	3	0	100	AS-IS
Advanced Search for Apartments	8	0	0	0	8	0	100	AS-IS
Performing Search Result Options	3	0	0	0	3	0	100	AS-IS
Viewing Apartment Pages	2	0	0	0	2	0	100	12/6/05
Subject Area Total:	16	0	0	0	16	0	100%	

Sublet Listings Search (SS)

Features Set	Total Features	Not Started	In Progress	Behind Schedule	Completed	Inactive	% Completed	Completion Date
General Search for Sublets	3	0	0	0	0	3	0	TBD
Advanced Search for Sublets	8	0	0	0	0	8	0	TBD
Performing Search Result Options	3	0	0	0	0	3	0	TBD
Viewing Sublet Pages	2	0	0	0	2	0	100	12/6/05
Subject Area Total:	16	0	0	0	2	14	25%	

Roommate Listings Search (RS)

Features Set	Total Features	Not Started	In Progress	Behind Schedule	Completed	Inactive	% Completed	Completion Date
General Search for Roommates	3	0	0	0	0	3	0	TBD
Advanced Search for Roommates	5	0	0	0	0	5	0	TBD
Performing Search Result Options	3	0	0	0	0	3	0	TBD
Viewing Roommate Pages	2	0	0	0	2	0	100	12/6/05
Subject Area Total:	13	0	0	0	2	11	25%	

General User Options (GUO)

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



Progress Summary

Total Features	Not Started	In Progress	Behind 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
A	Acceptable
SUA	Somewhat Un-Acceptable
EUA	Extremely Un-Acceptable

Statement	EA	SA	A	SUA	EUA
Main University Landing Page Criteria					
System provides an appropriate layout and content for the Main University Landing Page	X				
System provides an appropriate layout for the Testimonials Main Page	X				
My Accounts Page Criteria					
System provides an appropriate layout and content for the My Accounts Page	X				
System provides an appropriate layout for the View Existing Profile Page	X				
System provides the accurate fields on the View Existing Profile of Tenant Page	X				
System provides an appropriate layout for the Edit Existing Profile Page	X				
System provides the accurate fields on the Edit Profile Page	X				
System provides an appropriate layout for the	X				

Favorites Listing Page for Apartments, Sublets, and Roommates					
System provides accurate fields on the Favorites Listings for Apartments, Sublets, and Roommates	X				
System provides an appropriate layout for the single Sublet Posting Page	X				
System provides accurate fields on the Sublet Posting Page	X				
System provides an appropriate layout for the Sublet Edit Posting Page	X				
System provides accurate fields on the Sublet Edit Posting Page	X				
System provides an appropriate layout for the single Roommate Posting Page	X				
System provides accurate fields on the Roommate Posting Page	X				
System provides an appropriate layout for the Roommate Edit Posting Page	X				
System provides accurate fields on the Roommate Edit Posting Page	X				
System provides an accurate layout of University Customization for Registered and Logged In User	X				
Apartment Search Page Criteria	EA	SA	A	SUA	EUA
System provides an appropriate layout for the Apartment Search Page	X				
System provides accurate fields on the Apartment Search Page	X				
System provides an appropriate layout for the Apartment Advanced Search Page	X				
System provides accurate fields on the Apartment Advanced Search Page	X				
System provides an appropriate layout for the Apartment Search Results Page	X				
System provides accurate fields on the Apartment Search Results Page	X				
Sublet Search Page Criteria	EA	SA	A	SUA	EUA
System provides an appropriate layout for the Sublet Search Page	X				
System provides accurate fields on the Sublet Search Page	X				
System provides an appropriate layout for the Sublet Advanced Search Page	X				
System provides accurate fields on the Sublet Advanced Search Page	X				

System provides an appropriate layout for the Sublet Search Results Page	X				
System provides accurate fields on the Sublet Search Results Page	X				
Roommate Search Page Criteria	EA	SA	A	SUA	EUA
System provides an appropriate layout for the Roommate Search Page	X				
System provides accurate fields on the Roommate Search Page	X				
System provides an appropriate layout for the Roommate Advanced Search Page	X				
System provides accurate fields on the Roommate Advanced Search Page	X				
System provides an appropriate layout for the Roommate Search Results Page	X				
System provides accurate fields on the Roommate Search Results Page	X				
Register Page Criteria	EA	SA	A	SUA	EUA
System provides an appropriate layout and content for the Register Page	X				
System provides accurate fields on the Register Page	X				
College/University Search Page Criteria	EA	SA	A	SUA	EUA
System provides an appropriate layout for the College/University Search Page	X				
System provides accurate fields on the College/University Search Page	X				
System provides an appropriate layout for the College/University Search Results Page	X				
System provides accurate fields on the College/University Search Results Page	X				