NEW JERSEY INSTITUTE OF TECHNOLOGY

DUET ONLINE CONSIGNMENT STORE
COMPUTER SCIENCE PROJECT

CIS 491 FALL 2002
Presented to Prof. O. ELJABIRI

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1.0 Introduction

1.1 Abstract

We will build an online and "in-house" solution for improving the organizational and operational activity performed at the DUET Consignment Store. The store manager, sales personnel, as well as the customer (consignor) will function as the principal users of the new system. The consignor will also have the ability to perform such tasks from the console located at the consignment store. For added convenience, the consignor will have the ability to view his account online and track all the items that he is willing to sell or buy. On the other hand, store personnel directly associated with this system, will access the system from the store. The system will include the following features:

Consignor Records

- Access to contact information including postal and email addresses, phone numbers, account balance, items and commission percentages
- Consignor's detailed inventory data including number of items, "dates in," prices, and settlements

Inventory

- Organized by item number, category, description, date in, price and quantity. Pricing, including original, current and lowest price for each item
- Items sold, date, price, invoice number and consignor

Reports

- Consignor reports with printable lists
- Inventory reports including type/category, consignor, price range, date in, date of last sale, date discounted
- Sales reports by date, salesperson, total amount and payment method
- Financial reports
- User customized sales invoices

This list of features contains every function needed to keep sellers, buyers, inventory, sales, accounting and reporting flowing smoothly.

1.2 Background

Given the current state of financial stability, people are looking to save money in every possible way. One of the many ways to do this is through purchasing used goods that are still exploitable, yet are not desired by their original owner. Over the past few years, consignment shopping has become more popular and the stigma that was once associated with buying "pre-owned" clothing no longer exists. Today, people are beginning to realize that a savvy shopper is a smart shopper and that there can be great satisfaction finding a great bargain. There is a consignment store located in New Jersey named “Duet” that carries a wide variety of high quality and brand name clothing and accessories, including but not limited to shoes, belts, scarves, purses, and even hats. Over the last few years, Duet has seen a slow, but steady increase in its customer base. With the increase in business, the current work situation is becoming more difficult to run and manage. One of the areas that are hindering potential increases in business growth is its reliance on an outdated software application.

The existing (As-Is) DOS based system is built around the necessity to create paper documents. The inventory control system and open-to-buy system is built around a database/spreadsheet program. The consignment store's activities and inventory are tracked by spreadsheets. The computer is located at the main office and is not connected with the register on the floor, which provides summary information. At the end of the day, the register report is forwarded to the main office and is entered into the computer. In all, the entire process is a combination of manual work along with computer work. Unfortunately, the current work setup makes it very hard to perform important tasks such as updating inventory information, producing summary reports, bill payments to the consignors, or even showing consignor account information on demand. The system currently being used involves a great amount of manual data entry, which leads to a high amount of time spent on input and output activities and system maintenance.

1.3 Problem Statement

We propose to design "DUET's Consignment Store," a user-friendly software system that solves the needs of the consignment store manager and its personnel, while at the same time, providing valuable services for the customer (Consignor). This new solution, which implements .NET technologies both along the front-end and back-end, will help save money by automating many time-consuming procedures and routines that would normally be done by hand in the store. Among these would include: updates of Consignor accounts, Consignor Account History statements, etc. By implementing the new system, much more time will be saved in administrative duties at a reasonable cost, while also providing the

Consignor better access and control to his account information within the consignment store.

The decision to base the solution on Internet technologies allows for flexibility in setting the user requirements for the software. Ideally, the DUET Consignment Store System will run best under a Windows platform using Internet Explorer, but its use will not be limited to such system settings. By using Internet technologies, the consignor will be able to access the system either on-site or remotely, 24 hours a day, 7 days a week. All areas of the system, from user access to transaction processing will be protected by security measures such as a login procedure with password checking. On top of this, access rights will be set accordingly so as to only allow enough access to such information that should be accessible by a given user. Furthermore, the interface will be user-friendly and easy to learn with minimal or no additional training sessions even for people that are not familiar with the computer technology.

In greater detail, The DUET System will provide complete information about consignors, store inventory, sales activity, and store revenues. All information accessed within the online system will be pulled from a series of databases that hold all pertinent information. The system will also generate daily, monthly, quarterly, or annual sales reports for use by management. Based on such information, the DUET System will also provide an easier way to produce Consignor reports based on buying habits, in order to do targeted promotions or mailings. The databases will be linked in the sense that customers will be tied to their store merchandise, which in turn is then tied to a sales invoice. This allows for a complete trail of inventory activity to be stored as certain merchandise switches from an “Available” status to either a “Sold” or “Returned” status.

For Consignors, their account balances will be automatically credited and updated during the posting process in real time. The DUET System will also keep track of the Consignor's personal information including name, address, phone number, email address, and purchase amounts. Consignors will have access rights to change and add/delete their personal information as they see fit. Built-in error checking in the form of warning messages will ensure that all data is entered correctly and completely in all areas and stages of the DUET system. For instance, all intended changes to Consignor account information would be prompted for confirmation before saving any changes, additions or deletions.

1.4 Previous Work

Consignment has long been an option of doing business in society. With the advent of the Internet and the World Wide Web, it has become more advantageous to integrate the business structures of consignment for both online and on-site. By implementing Internet technologies, consignment businesses can improve the quality of their work while also providing a much more interactive user experience for the customer. With this trend, new database software programs and web sites are entering the market. During the research phase of the DUET System Project, online tools were found that were specifically designed for consignor needs. The DUET System aims to synthesize the best features of such existing tools while seeking to best serve the stakeholders.

http://www.netshoppingplace.com/consignment.php

Netshoppingplace.com is one such web site that implements a good level of practicality yet can use some extra work to become a good and powerful site. First of all, this site seems to be inefficiently organized. Before one can look into items

that are being sold, the user must open at least six other pages before being directed to the place where the user can begin his shopping experience. Organizational problems continue once in the shopping area. All categories are listed on the side of the screen yet the user does not have a firm grasp of where exactly on the site the user is located. Furthermore, the site oddly includes links to other web sites that are selling new items at higher prices than what can be found on the current page. The "Product List" link, placed on the consignor site, will take you to other retailers. This web site gave insight into what kind of mistakes should be avoided in the design of the DUET System.

http://www.edoubletake.com/

Edoubletake.com is a web-based consignment store that benefits from good organization, planning, and implementation. The entire sidebar (evident for all pages) has the same layout, with the most important links highlighted and easy to see. This helps for quick navigation to various important information and services. Consignors can search for specific items by using a search engine, which helps expedite the entire process. Overall, this site is user-friendly and effective, and it implements a reliable design.

http://www.consignmentsuccess.com/

Consignmentsuccess.com is a site that provides a downloadable package that includes an application along with Web capabilities. The package implements well designed database screens with buttons that are easy to navigate, often in the form of one-click-access from one screen to another. What makes this package very powerful is that it successfully integrates both an application for tracking things such as inventory and point-of-sale activities, but it also gives the online user as good an experience as can be aside from being at the store itself. With this said, there are still

some features that can be added. Such lacking features include customer online access to personal accounts, payment history screens, pages showing the status of items, and also a customer information update page. The DUET System project will include such features to make the user experience a more empowering one.

1.5 Methodology

In dealing with our project, the team came about many different methodologies to choose from, such as the spiral model, the waterfall, and prototyping. The waterfall methodology is the forefather of many other methodologies. This method relies on the fact that each process cannot take place until its preceding task has been accomplished. If there needs to be any changes in the system, then every step must be reevaluated in sequential order, starting with the task before it. The waterfall method is extremely reliable when it comes to end results, but the process can get lengthy and expensive. This could make maintenance a nightmare.

The second methodology that was explored was the spiral model. This methodology was originally used to improve the waterfall design through a risk analysis stage. After every small step in the design phase of the system, a risk analysis study is done. If everything seems to be progressing in an appropriate manner, then the next phase of the system is commenced. In the case that the risk is great, then some backtracking must be done. By doing risk analysis after every phase, the developers try to eliminate the need to ever have to go back to fix errors in the system. This process can also be lengthy and expensive, but would save a developer a lot of time in maintaining the system. No longer would every step need

to be reevaluated, as long as the risk analysis is done appropriately.

The last methodology that was researched was prototyping. Ultimately, this was the methodology that was chosen for the "DUET" online consignment store project. Choosing between the three was not as hard as initially expected. Although each of these methodologies is a well-established way about engineering software, the DUET system is relatively small in scale and customer-oriented. By implementing a small-scale system, valuable input can be received on how to improve the system without building the whole system first. The users could comment on the interface, ease of use, and functionalities before the final system is engineered. Gathering requirements is very important; however, two parties may think differently about the same concept. By designing the prototyped system, the design team could figure out if it is meeting the needs of the consignment store. If not, then the design team could easily and inexpensively modify the existing prototype. Once everything is finalized and approved, the full-scale model would be adopted.

1.6 Glossary

Consignors -- The customer for the DUET store and the main off-site users of the software product. These account access pages will feature some personal information on each registered consignor including postal and email addresses, telephone numbers, account balance, and commission percentages. Consignor pages will also include detailed inventory data including the number of items bought or sold, transaction history, product prices, and settlements.

Inventory – Inventory pages/tables will include information such as: item number, category, product description, purchase/delivery date, price and quantity. Prices can include the original, current, and the lowest price for each item. Any price discounts will be displayed along with the dates they came into effect. This section will also include information such as: items sold, sale date, price of item(s) sold, invoice number, and consignor.

Sales -- Organize by date, invoice, status, name/description, type of payment and total. Multiple price tags can be used. Detailed invoices can be printed and emailed. Taxes and net due/payable amounts will be computed automatically. The pages/tables will include a second sales tax option as well as a user-customized sale invoice. There will also be drop-down invoice menus for payment type, payment terms, and contact information.

Reports -- Consignor Reports will have printable lists. Inventory Reports will include the following fields: Type/Category, Consignor, Price Range, Date In, Date of Last Sale, and Date Discounted. Sales Reports are organized by Date, Salesperson, Total Amount, and Payment Method. Financial Reports will also be an option, to be used by Management only.

Settlements -- Print checks to consignors. To be organized by Consignor, the Number of Settlement, Amount of Settlement, Payment Method, Sales Value, Item Sold, and Most Recent Settlement. This will also record various other payments aside from cash, check, or credit card such as store credit or gift certificate.

Employees – This section will be organized by name, employee number, items sold, account balance, last update and by the most recent sale. Employees will able to

view account balances (if any), items sold, commission percentage earned, bonuses earned, subtractions, hire/termination dates, last updates, most recent sales, and most recent commission prints.

2.0 Project Management

2.1 Feasibility Study – Cost-Benefit Analysis

Our group measured **feasibility** by figuring out how beneficial or practical the development of an information system will be to an organization. We defined the cost-benefit techniques as such:

System Costs can be grouped into two areas. The first area is the cost associated with developing a system while the second area is the cost associated with its operation. System development costs are considered "one time" costs and therefore will not reappear once the project has reached completion. Examples of such costs include: personal costs, computer hardware and software, training, supplies, and equipment costs. Operating costs usually recur throughout the lifetime of the systems. Examples are lease payments, software license payments, salaries and maintenance.

Benefits will be defined as either increases in profit or decreases in cost. Benefits can be classified as *Tangible* and *Intangible Benefits*. Tangible benefits are those that can be quantified, such as a financial gain. Intangible benefits are those that are too difficult or impossible to quantify. For example, one can refer to levels of customer satisfaction, employee morale, the ability for better decision making, and the like.

Cost-Benefit Analysis Chart

Project Consignment Store
Economic Feasibility Study
Cost-Benefit Analysis

	Year of Project					
	0	1	2	3	4	TOTAL
Net Economic Benefit	$0	$12,750.00	$12,750.00	$12,750.00	$12,750.00	
Discount Rate (6.5%)	1.00000	0.93897	0.88166	0.82785	0.77732	
PV of Benefits	$0.00	$11,971.83	$11,241.16	$10,555.08	$9,910.87	
NPV of All BENEFITS	$0.00	$11,971.83	$23,212.99	$33,768.06	$43,678.93	**$43,678.93**
One-Time COSTS	($8,075.00)					
Recurring costs	$0	($7,500.00)	($7,500.00)	($7,500.00)	($7,500.00)	
Discount Rate (6.5%)	1.00000	0.93897	0.88166	0.82785	0.77732	
PV of Recurring Costs	$0.00	($7,042.25)	($6,612.44)	($6,208.87)	($5,829.92)	
NPV of All COSTS	($8,075)	($15,117)	($21,730)	($27,939)	($33,768)	($33,768)
Overall NPV						$9,910.44
Overall ROI - (Overall NPV / NPV of all COSTS)						0.29
Break-Even Analysis						
Yearly NPV Cash Flow	($8,075)	$4,930	$4,629	$4,346	$4,081	
Overall NPV Cash Flow	($8,075)	($3,145)	$1,483	$5,829	$9,910	
Project break-even occurs between years 2 and 3						
Use first year of positive cash flow to calculate break-even fraction: ((4629 - 1483) / 4629) = .6796						
Actual break-even occurred at around 1.6796 years						
Note: All Dollar values have been rounded to the nearest dollar						

One Time Cost = $8,075.00

Recurring Cost = X = $7,500.00

Discount Rate = 6.5%

PV = X * 1/ (1 + 6.5%)^{y}

NPV = Sum of all PV's

NPV (Benefits) – (NPV (Cost) + One Time Cost) = Total Profit

$43,678.93 – ($33,768.00 + $8,075) = $1835.93

Net Profit is equal to $1835.93

Tangible Benefits Worksheet		
A.	Improved Speed and Reliability	$4,500
B.	Cost Reduction or Avoidance	$2,500
C.	Management Planning or Control Improvement	$2,750
D.	Improved Flexibility	$3,000
E.	Other	$0
TOTAL Tangible Benefits		$12,750

Recurring Costs Worksheet		
A.	Application Software Maintenance	$5,750
B.	Hardware Maintenance	$1,500
C.	Incremental Data Storage	$200
D.	Supplies	$50
TOTAL Recurring Costs		$7,500

One-Time Costs Worksheet		
A.	Research and Development Costs	$5,000
B.	New Hardware	$750
C.	New Software (Application)	$1,325
D.	User Training	$1,000
E.	Other	$0
TOTAL One-Time Costs		$8,075

2.2 Project Milestones

2.2.1Work Breakdown Structure (WBS)

Work Plan	Estimated Hours	Assigned To

Introduction

Abstract	5	Wojciech
Project Background	10	Anthony & Le
Problem Statement	15	Anthony & Le
Previous Work	10	Anthony & Le
Methodology	10	Anthony
Glossary	10	Le

Project Management

Project Team & Roles Assignment	10	Wojciech
Work Breakdown Structure (WBS)	20	Wojciech
Milestones	5	Wojciech
Project Planning (Gant & Pert Charts)	15	Wojciech
Feasibility Study	15	Anthony
Cost Estimation COCOMO	10	Grzegorz
Risk Management	10	Anthony

Analysis

Stakeholders Analysis	10	Anthony & Le
VORD Method	15	Anthony & Le
Use Case Scenario	10	Anthony & Le
Requirements Definition	10	Kenny
DFD Diagrams	20	Grzegorz
Gathering Requirements	20	Wojciech & Grzegorz
Process Specification	10	Grzegorz
ERM Model	10	Grzegorz
Structured Chart	10	Daniel
Data Dictionary	15	Daniel & Kenny
Database Design	20	Grzegorz
User Interface Design	40	Daniel
System Architectural Design	10	Daniel
Static Object Mode Diagram	10	Kenny
Programming	30	Kenny
Implement	5	Daniel & Kenny
Documentation	10	Daniel & Kenny
Testing	5	Entire Group

2.2.2 Project Milestone- Estimated Completion Time

BEGIN PHASE	END PHASE	PHASE IMPLEMENTED AND ALLOCATED RESOURCES	DESCRIPTION OF PHASE
September 10th	September 17th	PHASE I –Primary Requirements Gathering Wojciech Baranowski Grzegorz Baranowski	Interact with stakeholders to gather information for the software that will be developed
September 17th	September 24th	PHASE II - High-Level System Architecture Anthony Lopez Thien Le Wojciech Baranowski	Rapid, high-level design of system is created with little technical details
September 24th	October 15th	PHASE III -- Prototyping (Throwaway or Revolutionary) Minghui Hiu Daniel Pitera	Developers construct alpha version of the software client; Researchers enhance understanding of project based on prototype, continued stakeholders' analysis, etc.
October 15th	October 25th	PHASE IV -- Formal Requirements Wojciech Baranowski Grzegorz Baranowski Anthony Lopez Thien Le	Team revisits requirements and adds detail to requirements specification
October 28th	November 4th	PHASE V -- Detailed Design Minghui Hiu Daniel Pitera	Comprehensive, well-detailed design for the software is created
November 5th	November 29th	PHASE VI – Implementation Minghui Hiu Daniel Pitera Wojciech Baranowski Grzegorz Baranowski Anthony Lopez Thien Le	Full-scale development of the software system is carried out (Minghui and Daniel). Beta version is released upon successful testing (entire team)
November 5th	December 5th	PHASE VII – Documentation Wojciech Baranowski Grzegorz Baranowski Anthony Lopez Thien Le	Documentation for the project is created by the team, including: reference manual, tutorial manual, developer manual and online help system.
December 3rd	December 6th	PHASE VIII -- Project Review Minghui Hiu Daniel Pitera Wojciech Baranowski Grzegorz Baranowski Anthony Lopez Thien Le	Final overall review of software product along with completion of system testing
December 7th	December 10th	PHASE IX -- Project	20-minute demonstration of

		Release and Presentation Minghui Hiu Daniel Pitera Wojciech Baranowski Grzegorz Baranowski Anthony Lopez Thien Le	entire development process and software product along with the release of the software project and any necessary documentation to the sponsor.

PROJECT MILESTONES - Actual Completion Time

TASK ID	TASK ID	PHASE NAME	START DATE	END DATE	HUMAN RESOURCES	DESCRIPTION OF PHASE
1	**1**	**Group Creation**	*September 3, 2002*	*September 9, 2002*		Group 9 is formed.
2		Idea Realization	*September 3, 2002*	*September 9, 2002*	Wojciech Baranowski Grzegorz Baranowski Anthony Lopez	Group 9 realizes its project idea.
3		Group Creation	*September 3, 2002*	*September 3, 2002*	Entire Group	
4	**2**	**Initialization**	***September 10, 2002***	***September 17, 2002***		**Group efforts go underway in this phase.**
5		Project Approval	*September 10, 2002*	*September 10, 2002*	Entire Group	Project idea is approved by instructor.
6		Abstract	*September 10, 2002*	*September 10, 2002*	Wojciech Baranowski Grzegorz Baranowski Anthony Lopez	Summary of project is created.
7		Problem Statement	*September 11, 2002*	*September 11, 2002*	Wojciech Baranowski Grzegorz Baranowski Anthony Lopez	The stakeholders' existing problems are explained.
8		Previous Work	*September 10, 2002*	*September 11, 2002*	Wojciech Baranowski Grzegorz Baranowski Anthony Lopez	Project research is tracked.
9		Methodology	*September 12, 2002*	*September 17, 2002*	Wojciech Baranowski Grzegorz Baranowski	Project methodology cycle is chosen.
10		Glossary	*September 13, 2002*	*September 16, 2002*	Wojciech Baranowski Anthony Lopez[75%]	Glossary of major terms and system users is listed.
11	**3**	**Project Management**	***September 17, 2002***	***September 23, 2002***		**Project planning is performed in this phase.**
12		Cost-Benefit Analysis	*September 17, 2002*	*September 19, 2002*	Anthony Lopez	Financial data for project is performed.
13		COCOMO II Analysis	*September 17, 2002*	*September 18, 2002*	Grzegorz Baranowski	COCOMO analysis is performed
14		Work Breakdown Structure	*September 17, 2002*	*September 23, 2002*	Wojciech Baranowski Grzegorz Baranowski Thien Le[50%]	Work Breakdown Structure is set for the remainder of the project cycle.
15		Project Milestones	*September 19, 2002*	*September 23, 2002*	Anthony Lopez	Phase start and end dates are set for the project.
16		Risk Management	*September 19, 2002*	*September 23, 2002*	Thien Le	Risk management exercises are performed.

17	**4**	**Analysis**	***September 24, 2002***	***October 7, 2002***		**More in-depth analysis of project is performed in this phase.**
18		Stakeholders Analysis	*September 24, 2002*	*September 30, 2002*	Thien Le Wojciech Baranowski	Project stakeholders must be realized by this point.
19		Requirements Gathering	*September 30, 2002*	*October 4, 2002*	Thien Le	Stakeholders are given a questionnaire and the results are analyzed here.
20		**VORD Method**	***September 24, 2002***	***September 26, 2002***		**First sub-phase of Analysis.**
21		Brainstorming for View Points	*September 24, 2002*	*September 24, 2002*	Anthony Lopez	Brainstorming of ideas on functional and non-functional requirements, and users.
22		Service Templates	*September 24, 2002*	*September 25, 2002*	Wojciech Baranowski Grzegorz Baranowski Anthony Lopez Thien Le	Service Template diagrams are created.
23		Hierarchy Diagram	*September 25, 2002*	*September 26, 2002*	Wojciech Baranowski	Hierarchy diagrams are created.
24		View Point Templates	*September 25, 2002*	*September 26, 2002*	Grzegorz Baranowski	View Point Template diagrams are created.
25		Use Case Scenario	*September 27, 2002*	*October 2, 2002*	Grzegorz Baranowski	Use Case Scenario diagram is created.
26		**Requirements Definition**	***September 26, 2002***	***October 7, 2002***		**Second sub-phase of Analysis.**
27		Data-Flow Diagrams (DFD)	*September 26, 2002*	*October 2, 2002*	Wojciech Baranowski Grzegorz Baranowski Thien Le[50%]	DFD diagrams are created during this period.
28		Functional Requirements	*October 3, 2002*	*October 7, 2002*	Wojciech Baranowski Grzegorz Baranowski Anthony Lopez[25%]	Functional Requirements definitions are created during this period.
29		Non-Functional Requirements	*October 3, 2002*	*October 7, 2002*	Wojciech Baranowski Grzegorz Baranowski Anthony Lopez[25%]	Non-Functional Requirements definitions are created during this period.
30	**5**	**Process Specifications**	***October 8, 2002***	***October 14, 2002***		**Structured English, Decision Trees, and Decision Tables are created in this phase.**
31		Structured English	*October 8, 2002*	*October 14, 2002*	Anthony Lopez	
32		Decision Trees	*October 8, 2002*	*October 14, 2002*	Anthony Lopez	
33		Decision Tables	*October 8, 2002*	*October 14, 2002*	Anthony Lopez	

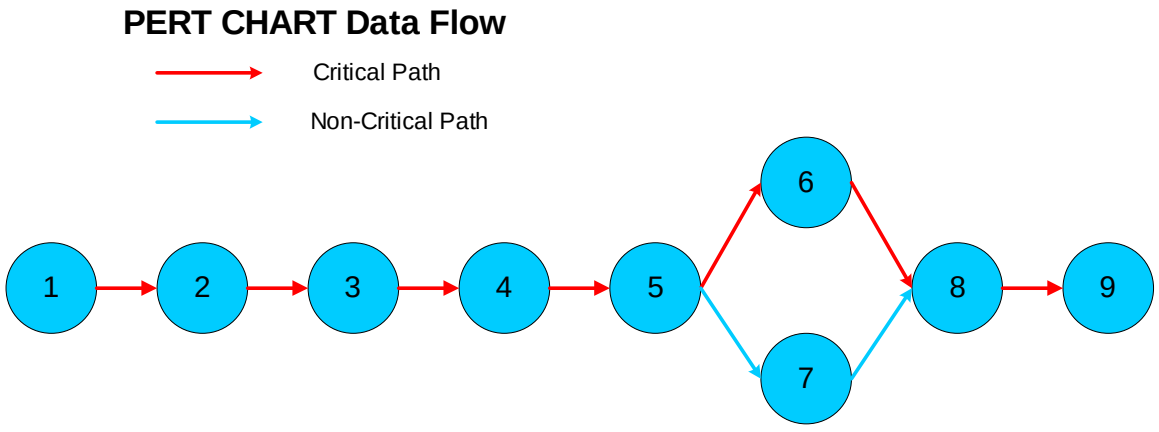
34	**6**	**Data Dictionary**	***October 15, 2002***	***October 22, 2002***	**Grzegorz Baranowski Wojciech Baranowski[25%] Anthony Lopez[50%]**	**Data Dictionary is created in this phase.**
35	**7**	**User Interface Design (To-Be)**	***October 22, 2002***	***October 31, 2002***	**Minghui Hiu Daniel Pitera**	**GUIs and front-end materials are initially designed.**
36	**8**	**System Design**	***October 23, 2002***	***October 29, 2002***		**Front-end and Back-end System Architecture Layout is designed.**
37		System Structure	*October 23, 2002*	*October 29, 2002*	Thien Le	
38		Abstract Machine	*October 23, 2002*	*October 29, 2002*	Thien Le	
39		Sequence Diagram	*October 23, 2002*	*October 29, 2002*	Thien Le	
40		Client-Server Architecture	*October 23, 2002*	*October 29, 2002*	Thien Le	
41	**9**	**ERM Model**	***October 30, 2002***	***November 4, 2002***	**Wojciech Baranowski Thien Le**	**ERM Model is designed in this phase.**
42	**10**	**Structure Chart**	***October 30, 2002***	***November 4, 2002***	**Grzegorz Baranowski Wojciech Baranowski[50%] Anthony Lopez[50%]**	**Structure Chart is created in this phase.**
43	**11**	**System Development**	***November 5, 2002***	***November 27, 2002***	**Minghui Hiu Daniel Pitera**	**The system is hard-coded and the software and hardware are coordinated to produce the final release.**
44		System Prototype Design	*November 5, 2002*	*November 15, 2002*	Minghui Hiu Daniel Pitera	
45		Final System Design	*November 15, 2002*	*November 27, 2002*	Minghui Hiu Daniel Pitera	
46	**12**	**System Testing**	***November 27, 2002***	***December 2, 2002***	**Minghui Hiu Daniel Pitera Wojciech Baranowski[25%] Grzegorz Baranowski[25%] Anthony Lopez[25%] Thien Le[25%]**	**Quality Assurance is performed on the system.**
47		White Box Testing	*November 27, 2002*	*November 29, 2002*	Stakeholders	Performed by people outside of the development team.
48		Black Box Testing	*November 29, 2002*	*December 2, 2002*	Minghui Hiu Daniel Pitera Wojciech Baranowski[25%] Grzegorz Baranowski[25%] Anthony Lopez[25%] Thien Le[25%]	Performed by the development team with full knowledge of functionality and code.

49	13	Project Release and Presentation	December 3, 2002	December 3, 2002	Entire Group	Final product release and presentation scheduled for December 3, 2002.

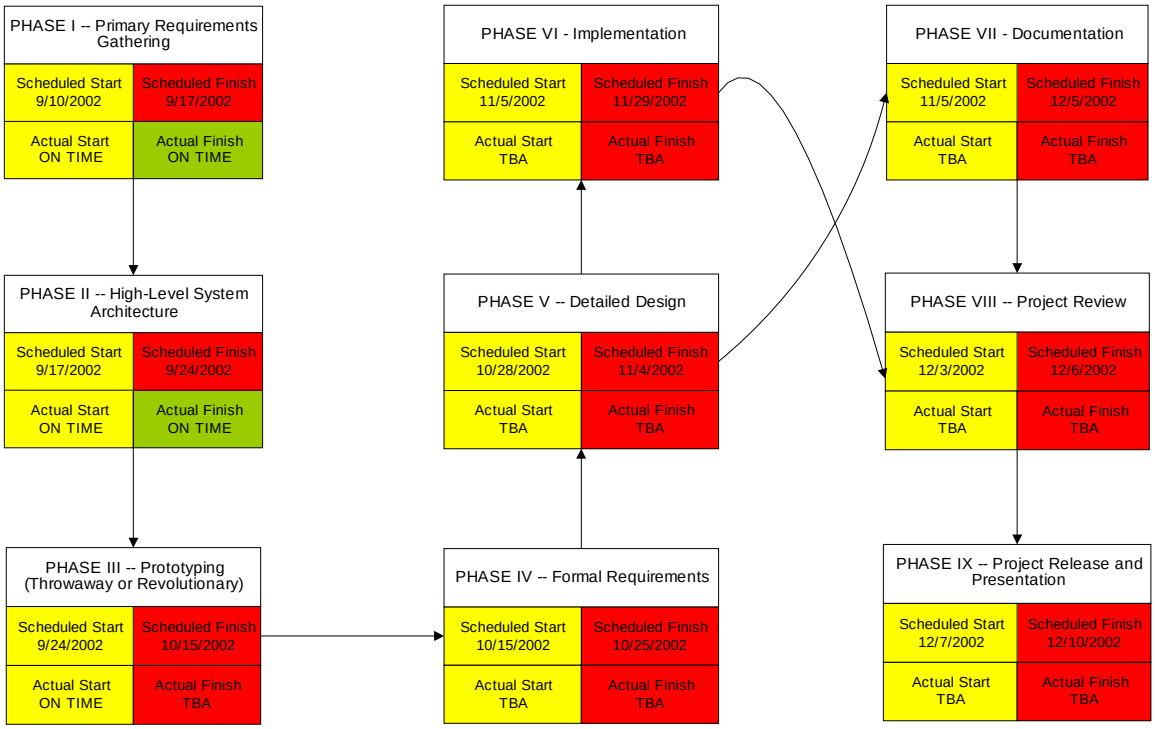
2.2.3 PERT Chart

TASK ID	ACTIVITY	TIME (Days)	PREDECESSOR
1	PHASE I – Primary Requirements Gathering	6	-
2	PHASE II – High-Level System Architecture	6	I
3	PHASE III -- Prototyping (Throwaway or Revolutionary)	16	I, II
4	PHASE IV -- Formal Requirements	9	III
5	PHASE V -- Detailed Design	6	III, IV
6	PHASE VI – Implementation	19	IV, V
7	PHASE VII – Documentation	23	V
8	PHASE VIII – Project Preview Presentation	4	VI, VII
9	PHASE IX -- Project Release	3	VIII

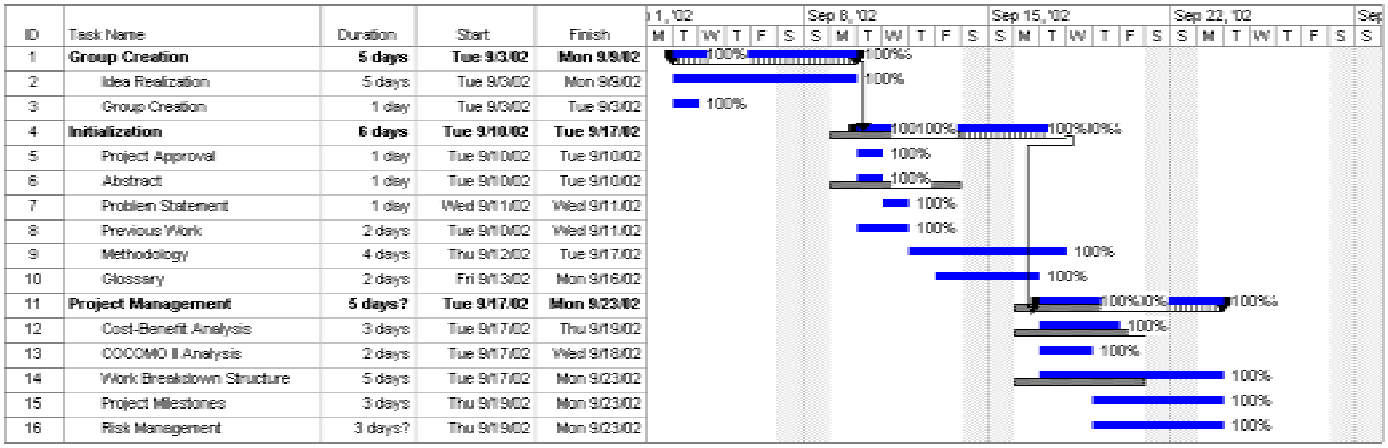
[Also shown by the Visio charts below.]



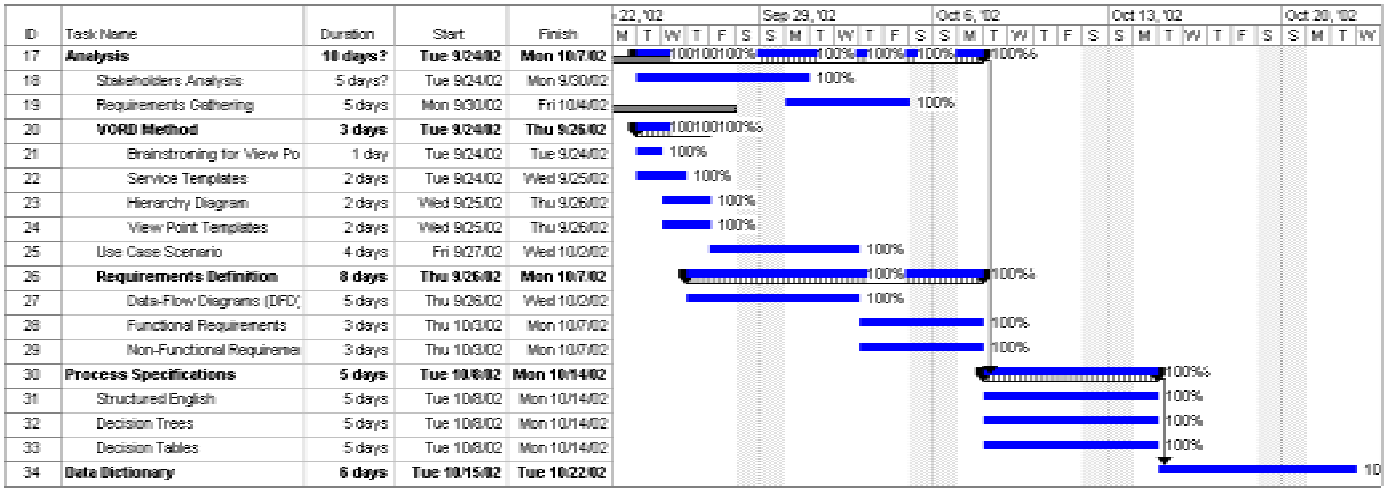
PERT Chart for DUET Online Consignment Store System



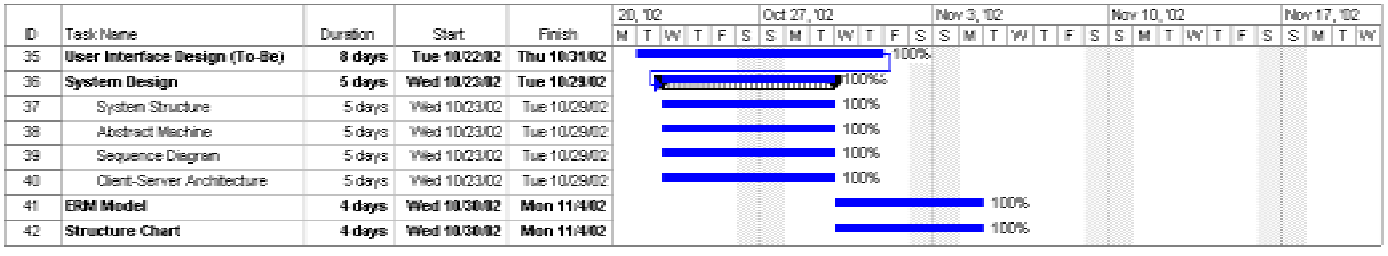
Gantt Chart



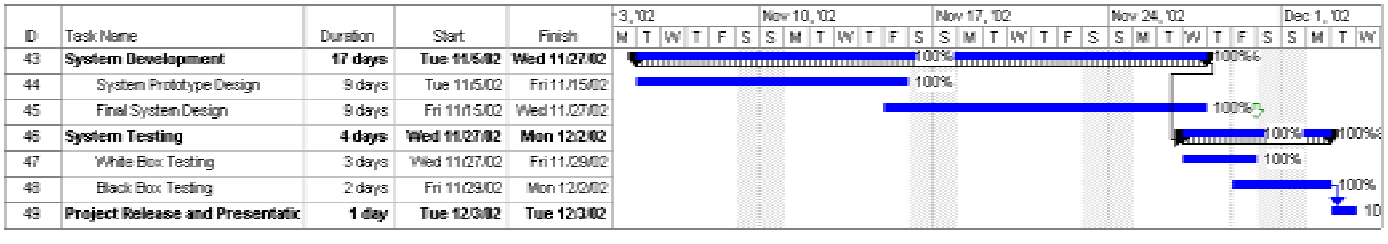
ID	Task Name	Duration	Start	Finish
1	**Group Creation**	**5 days**	**Tue 9/3/02**	**Mon 9/9/02**
2	Idea Realization	5 days	Tue 9/3/02	Mon 9/9/02
3	Group Creation	1 day	Tue 9/3/02	Tue 9/3/02
4	**Initialization**	**6 days**	**Tue 9/10/02**	**Tue 9/17/02**
5	Project Approval	1 day	Tue 9/10/02	Tue 9/10/02
6	Abstract	1 day	Tue 9/10/02	Tue 9/10/02
7	Problem Statement	1 day	Wed 9/11/02	Wed 9/11/02
8	Previous Work	2 days	Tue 9/10/02	Wed 9/11/02
9	Methodology	4 days	Thu 9/12/02	Tue 9/17/02
10	Glossary	2 days	Fri 9/13/02	Mon 9/16/02
11	**Project Management**	**5 days?**	**Tue 9/17/02**	**Mon 9/23/02**
12	Cost-Benefit Analysis	3 days	Tue 9/17/02	Thu 9/19/02
13	COCOMO II Analysis	2 days	Tue 9/17/02	Wed 9/18/02
14	Work Breakdown Structure	5 days	Tue 9/17/02	Mon 9/23/02
15	Project Milestones	3 days	Thu 9/19/02	Mon 9/23/02
16	Risk Management	3 days?	Thu 9/19/02	Mon 9/23/02



ID	Task Name	Duration	Start	Finish
17	**Analysis**	**10 days?**	**Tue 9/24/02**	**Mon 10/7/02**
18	Stakeholders Analysis	5 days?	Tue 9/24/02	Mon 9/30/02
19	Requirements Gathering	5 days	Mon 9/30/02	Fri 10/4/02
20	**VORD Method**	**3 days**	**Tue 9/24/02**	**Thu 9/26/02**
21	Brainstroming for View Po	1 day	Tue 9/24/02	Tue 9/24/02
22	Service Templates	2 days	Tue 9/24/02	Wed 9/25/02
23	Hierarchy Diagram	2 days	Wed 9/25/02	Thu 9/26/02
24	View Point Templates	2 days	Wed 9/25/02	Thu 9/26/02
25	Use Case Scenario	4 days	Fri 9/27/02	Wed 10/2/02
26	**Requirements Definition**	**8 days**	**Thu 9/26/02**	**Mon 10/7/02**
27	Data-Flow Diagrams (DFD)	5 days	Thu 9/26/02	Wed 10/2/02
28	Functional Requirements	3 days	Thu 10/3/02	Mon 10/7/02
29	Non-Functional Requirements	3 days	Thu 10/3/02	Mon 10/7/02
30	**Process Specifications**	**5 days**	**Tue 10/8/02**	**Mon 10/14/02**
31	Structured English	5 days	Tue 10/8/02	Mon 10/14/02
32	Decision Trees	5 days	Tue 10/8/02	Mon 10/14/02
33	Decision Tables	5 days	Tue 10/8/02	Mon 10/14/02
34	**Data Dictionary**	**6 days**	**Tue 10/15/02**	**Tue 10/22/02**



ID	Task Name	Duration	Start	Finish
35	**User Interface Design (To-Be)**	**8 days**	**Tue 10/22/02**	**Thu 10/31/02**
36	**System Design**	**5 days**	**Wed 10/23/02**	**Tue 10/29/02**
37	System Structure	5 days	Wed 10/23/02	Tue 10/29/02
38	Abstract Machine	5 days	Wed 10/23/02	Tue 10/29/02
39	Sequence Diagram	5 days	Wed 10/23/02	Tue 10/29/02
40	Client-Server Architecture	5 days	Wed 10/23/02	Tue 10/29/02
41	**ERM Model**	**4 days**	**Wed 10/30/02**	**Mon 11/4/02**
42	**Structure Chart**	**4 days**	**Wed 10/30/02**	**Mon 11/4/02**



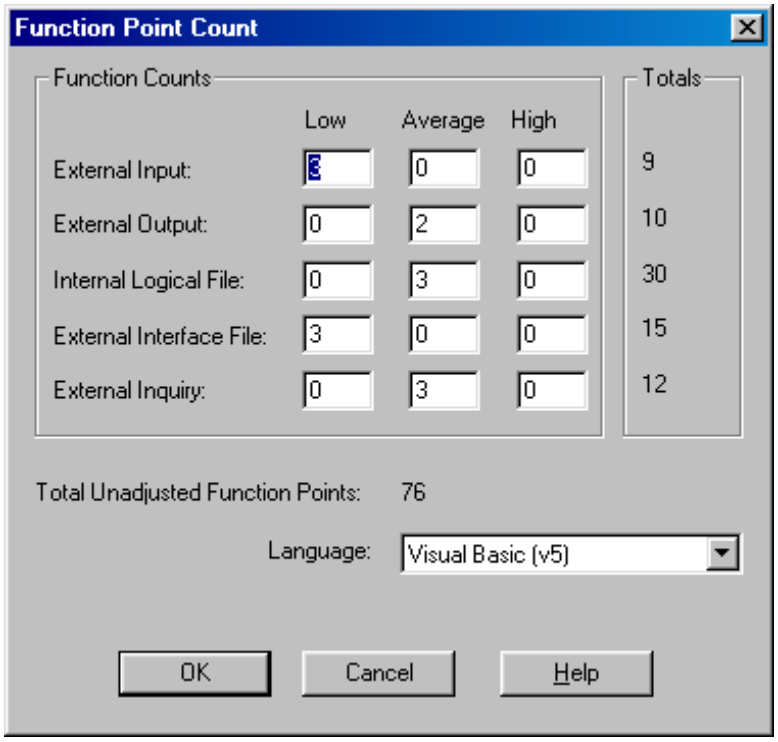
ID	Task Name	Duration	Start	Finish
43	**System Development**	**17 days**	**Tue 11/5/02**	**Wed 11/27/02**
44	System Prototype Design	9 days	Tue 11/5/02	Fri 11/15/02
45	Final System Design	9 days	Fri 11/15/02	Wed 11/27/02
46	**System Testing**	**4 days**	**Wed 11/27/02**	**Mon 12/2/02**
47	White Box Testing	3 days	Wed 11/27/02	Fri 11/29/02
48	Black Box Testing	2 days	Fri 11/29/02	Mon 12/2/02
49	**Project Release and Presentatic**	**1 day**	**Tue 12/3/02**	**Tue 12/3/02**

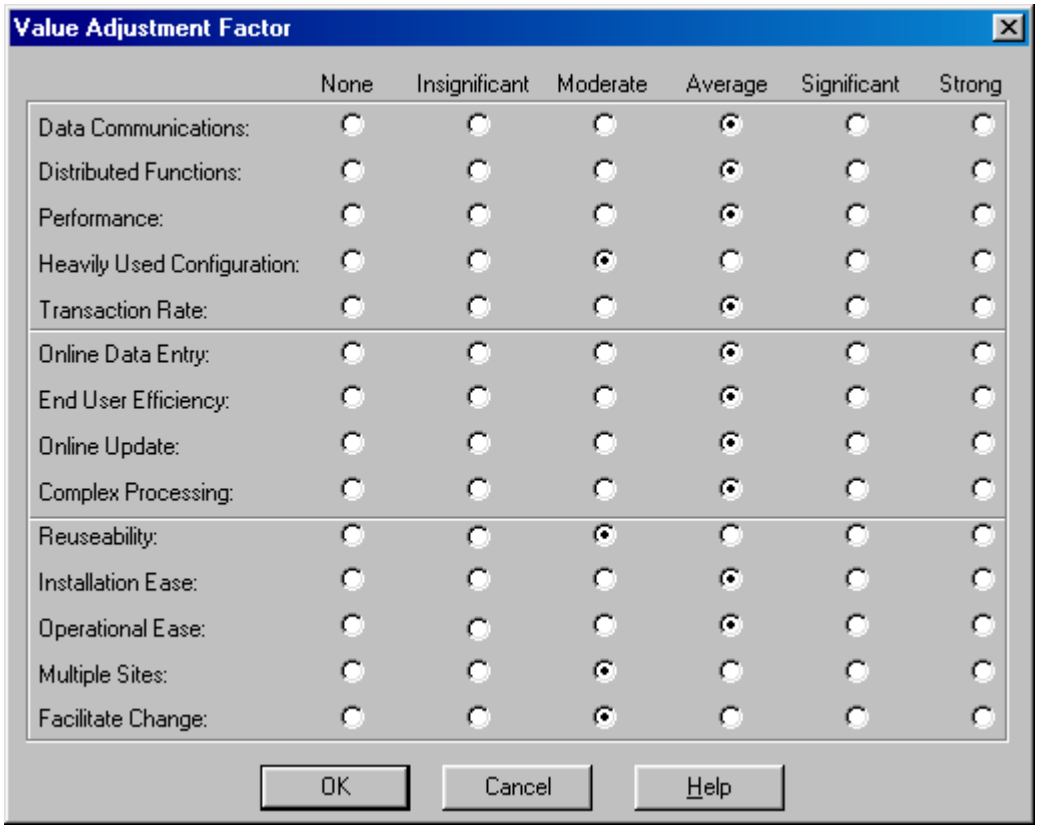
2.3 COCOMO II

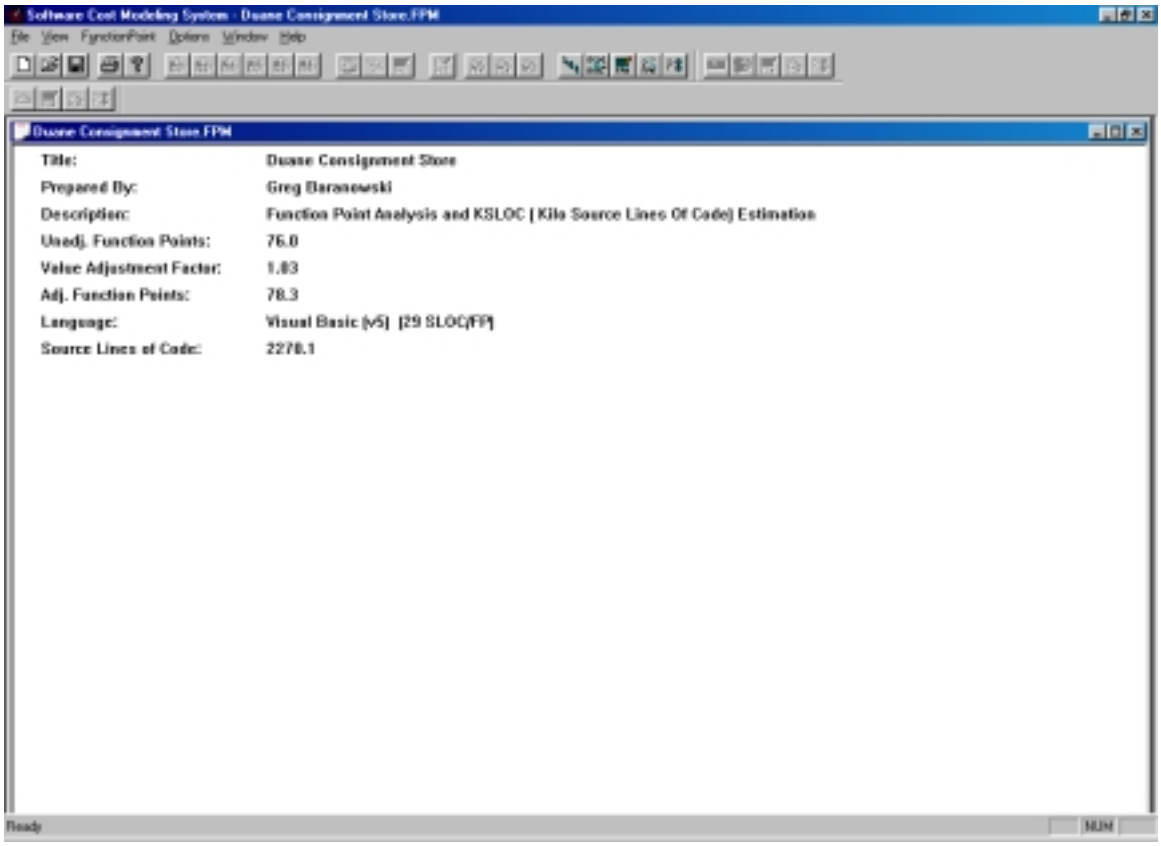
2.3.1 Function Point Analysis and KSLOC Estimation

All group members have had previous experience with similar projects. We qualified our project as a medium complexity project with two team members to perform prototyping and one working on the database design.

Total unadjusted functional points were calculated as follows:



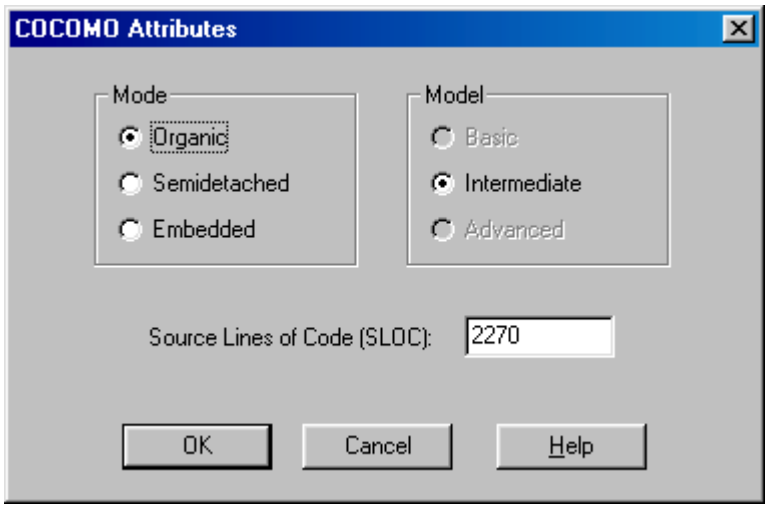

Value Adjustment Factor
None
Insignificant
Moderate
Average
Significant
Strong
Data Communications:
Distributed Functions:
Performance:
Heavily Used Configuration:
Transcription Rate:
Online Data Entry:
End User Efficiency:
Online Update:
Complex Processing:
Reuseability:
Installation Ease:
Operational Ease:
Multiple Sites:
Facilitate Change:
OK
Cancel
Help

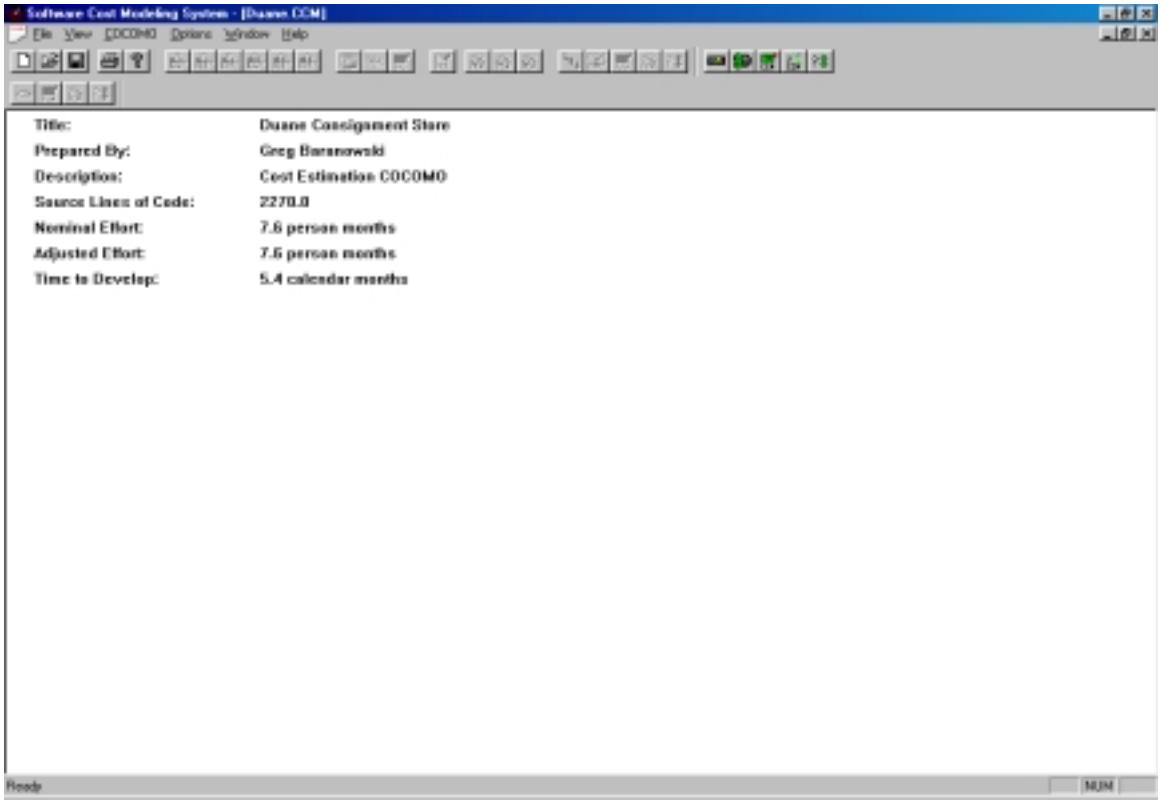

Software Cost Modeling System - Duane Consignment Store.FPM
File View FunctionPoint Options Window Help
Duane Consignment Store FPM
Title: Duane Consignment Store
Prepared By: Greg Baranowski
Description: Function Point Analysis and KSLOC (Kilo Source Lines Of Code) Estimation
Unadj. Function Points: 76.0
Value Adjustment Factor: 1.03
Adj. Function Points: 78.3
Language: Visual Basic (v5) [29 SLOC/FP]
Source Lines of Code: 2270.1
Ready
NUM

Total Unadjusted Function Points result is 76. Since normal medium complexity appears to be a reasonable assumption, our Value Adjustment Factor is 1.03. By multiplying both factors, our Adjusted Function Points Factor is 78.3. Unfortunately, at the present time, there is no information available about the approximate number of lines of code per function point for ASP.NET. However we expect to those numbers to fall above the value given for VISUAL BASIC. This way we have result of 2270.1 lines of code, or 2.27 kilo source line of code (KSLOC).

2.3.2 Cost Estimation Using COCOMO II

The scope of the project is well understood, the tools used are well known, and the similar online sites do exist. Therefore we will use the organic mode of the COCOMO II model to calculate the estimated schedule.





Since the six members of our development team will only be able to work on the project a maximum of 6 hours per week each, we estimate the total time needed for the analysis, design and implementation of our project to equal (4 months / 0.15) * 0.166 = 4.42 months.

2.4 Risk Management

1. Project Size and Effort Risk	Rate
What is the project's estimated duration?	1
What is the project's estimated size in function points?	3
What is the project's effort, in staff hours?	3
What is the estimate cost?	2
Will multiple physical installations extend project implementation?	2
How much will the project schedule depend on availability of end-user staff for analysis and testing?	3
Will stringent quality requirement for the proposed system add to duration and cost for frequent inspections, documentation and testing?	3
Is the end date fixed or flexible?	4
2. Business and Requirements Risk	
Is the project in Computing Plan?	2
Will business success depend on the project?	4
Was cost of ownership analyzed?	2
Do the intended users and their management accept and appreciate the value of the new system, or oppose it?	2
Will company politics affect the project team's makeup?	1
How large is the user population? How diverse?	2
Will this be user's first experience with the type of system under development?	2
Are the functional requirements clear, or vague?	1
Will the system depend on many other business systems?	3
Will the new system require new maintenance procedures?	2
Could implementation interrupt mission-critical operations?	4
Will user staff be available during development?	1
3. Resource and Skill Risk	
Are critical tasks out the project team's control?	2
Will the project require major hardware or software upgrades?	3
Must multiple departments provide technical resources to the project?	3
Will the technical staff be continuously available throughout the project?	2
Is any software (i.e., language, database, communications or tools) for the project new to the development team?	2
Is any hardware new to the development team?	3
Will construction require complex and intricate logic?	3
Will project teams inexperienced in the product or business areas be on the project?	5
Note: Rate Low to High (from 1 to 5)	

3.0 Analysis

3.1 Stakeholders

1. Consignor:

Consignor plays very important role as a stakeholder in the Consignment Store system. He/She is the person who is the client in the Consignment Store. Consignor is the person who is interested in selling or buying different, used or new items by opening their account in the Consignment Store. As a new customer, a Consignor gets a new consignment store personal account that helps him/her to keep track of any activities in the store related to selling or buying his/her items. Consignor will be able to access personal account and modify his/her personal information like address or telephone number by using previously assigned store consignor identification number. Consignor will be able to verify current account balance, check on payouts information and history.

2. Store Manager.

The second important stakeholder in this system is the Store Manager. He/She is the person who tries to make a store attractive and have more and more new Consignors to keep the business running and making profit. The Store Manager is responsible to create and maintain Consignor's account and inventory files. He/She takes and assigns for each Consignor's new item a price, description and locates it in correct inventory database. After the specific item is sold he/she has to update inventory files and show the money against Consignor's account balance. It depends on the store rules, when a Store Manager generates final balance report of the account and makes payout to the Consignor. A Store Manager has ability to run different kind of reports that they will help him/her

overview the Consignment Store financial situation. What makes the Store Manager more important stakeholder is a fact that he/she is also responsible for a Consigner Store employees. As a Store Manager he/she has ability to manage employee's database and employees account/payroll system. A Store Manager makes sure that a Consignor Store and any sell-buy operations are being done correctly with a customer satisfaction.

3. Sales Person:

Another stakeholder in this system is a Sales Person who regularly has a personal contact with the client. He/she, similarly to the Store Manager has power to use the system to open any new account and update inventory database for a new item that Consignor wants to sell or buy. A Sales Person is able to maintain any Consignor's existing account on customer personal request.

4. System Designer:

Another stakeholder is the System Designer, a person that originally designed the Consignor Store system. It is the responsibility of the designer to satisfy the requirements of the Store Manager and Sales People who come in contact with the system, including the potential Consignors. The designer has to "keep eye" on the system by maintain and update any databases, files and accounts. It is also his/her responsibility to identify and eliminate any errors in the system. He/She knows exactly how the system should function and what features it should contain in order to satisfy customer needs.

3.2 Gathering Information

3.2.1 Gathering Information-Questionnaire

Students from New Jersey Institute of Technology in Newark are developing new software for "Duet's" Consignment Store. This system will be used by store personnel for "in store activities" as well as by customers (consignors) who will be able to access their personal accounts online from any location where an Internet connection is available. Your feedback will help us design a system that will make buying and selling textbooks less painful for everyone.

1. How often do you use "Duet's" Consignment Store?

- ❑ At least once a week
- ❑ Every second week
- ❑ Once a month
- ❑ Occasionally

2. Do you use "Duet's" Consignment Store to:

- ❑ Buy items
- ❑ Sell items
- ❑ Both

3 How would you rate your level of computing expertise?

- ❑ Beginner
- ❑ Moderate
- ❑ Advanced

4. Are you using any other consignment store other than "Duet"?

- ❑ Yes, to Sell
- ❑ Yes, To Buy
- ❑ No

5. If you answered, "Yes, to Buy" please specify why?

- ❑ When the item was cheaper
- ❑ When I couldn't find item in the store near me
- ❑ It was convenient to me
- ❑ No reason

6 Would you like to have the ability to access and check your account online for "Duet's" Consignment Store?

- ❑ Yes
- ❑ No

7 If no, why?

- ❑ My knowledge about computers is limited
- ❑ Its not secure
- ❑ I don't use Internet
- ❑ I don't need it
- ❑ Other: _____

8 In the future, would you like to buy items from “Duet” using Internet?

- ❑ Yes
- ❑ No

3.2.2 Questionnaire Results

The following are the results of the questionnaire from customers of "Duet" consignor store. We distributed 65 questionnaires and we received 53 responses.

Survey Questions	***Response***
1. How often do you use “Duet” Consignment Store?	
At least once a week	16
Every second week	23
Once a month	11
Occasionally	3
2. Do you use "Duet" to:	
Buy items	14
Sell items	6
Both	33
3. How would you rate your level of computing expertise?	
Beginner	6
Moderate	42
Advanced	5
4. Are you using any other consignment store other than "Duet"?	
Yes, To Sell	4
Yes, To Buy	29
No	20
5. If you answered "Yes, To Buy" please specify why	
When the item was less expensive	7
When I couldn't find item in the store near me	15
It was convenient to me	2
No reason	5
6. Would you like to have ability to access and check your account online for "Duet" Consignor Store?	

Yes	48
No	5

7. If no, why?	
My knowledge about computers is limited	2
Its not secure	1
I don't use Internet	0
I don’t need it	2
Other: _____	0

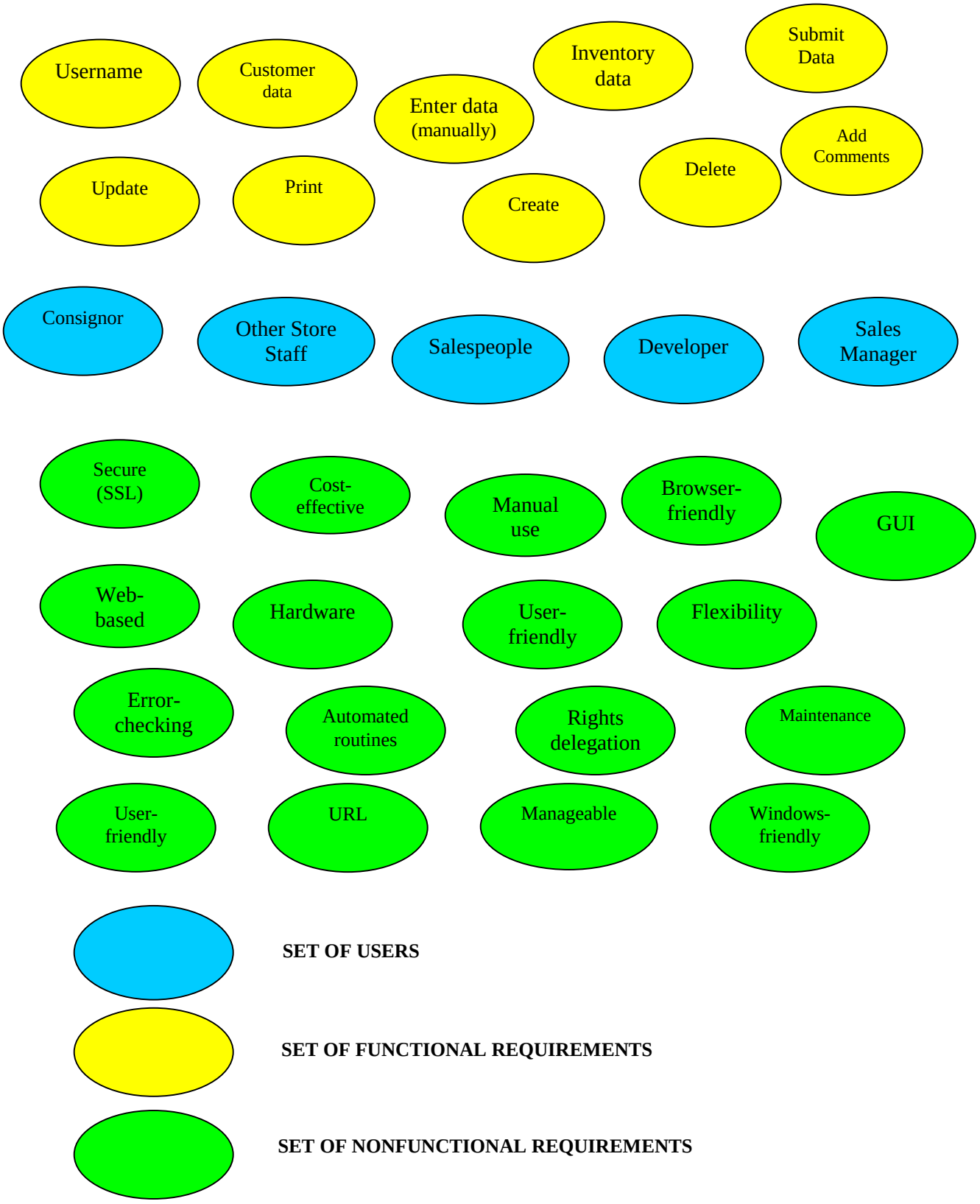
8.In the future, would you like to buy items from "Duet" online?	
Yes	38
No	15

3.2.3 Questionnaire Results - Summary

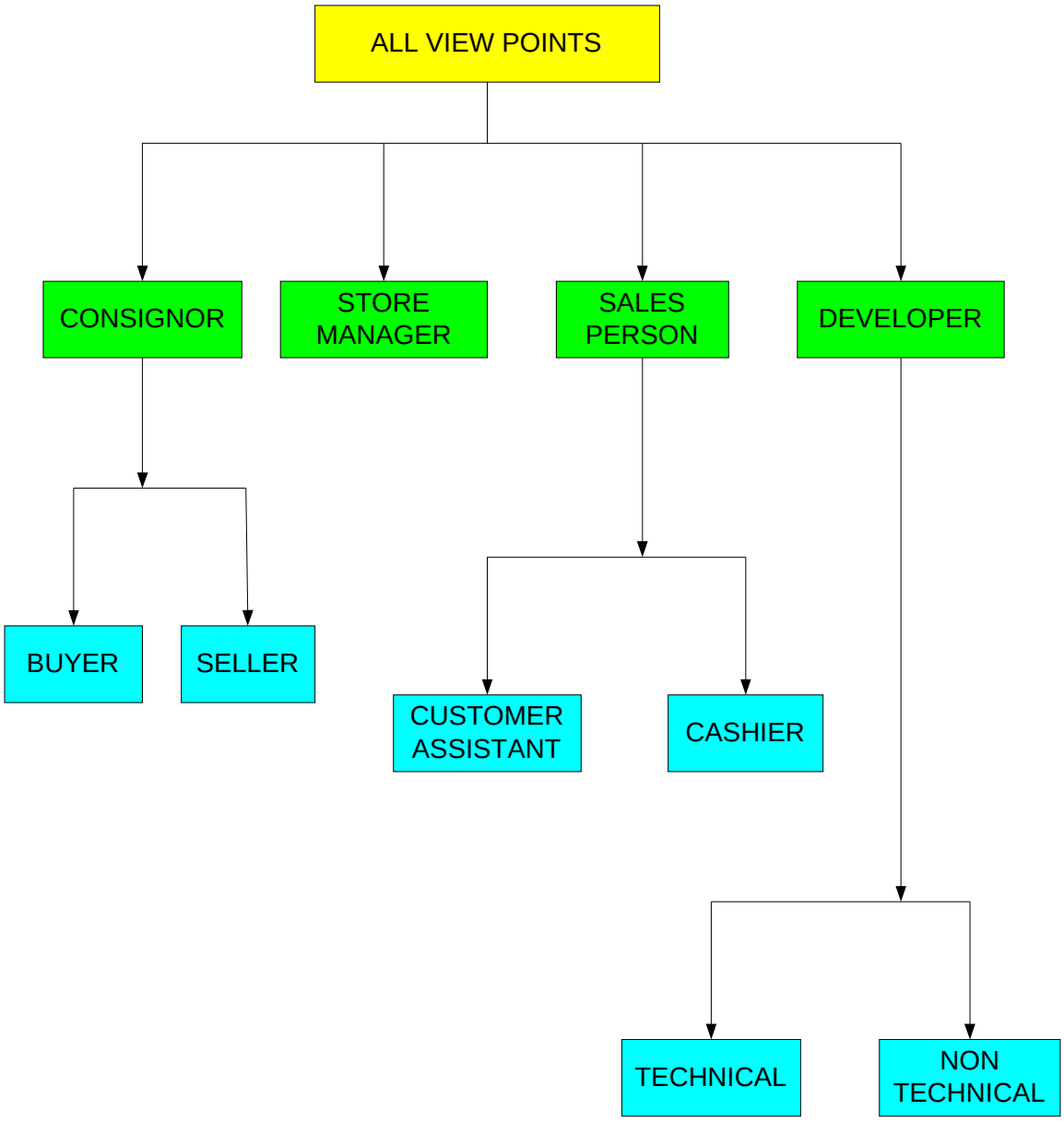
Results from our questionnaires distributed among customers of “Duet” Consignment Store shows that new system is needed and recommended for this store. Out of the 73% of active customers that use this store at least once in the period of two weeks 63% is using it to buy and sell items. For 40% of respondents “Duet” is the only consignment store they are using. Over 90% would like to have ability to access and check their personal accounts on the Internet. The remaining 10% are people that doesn’t need this option or people that has limited knowledge about computers. On the store manager request we also include a question about future options, which is ability to shop online at “Duet”. Over 72% of customers are in favor of this feature as well. One of the questions included in questionnaire was about people level of computing expertise. Almost 80% response was at the moderate level. This is telling us that new system cannot be too difficult to operate.

3.3 Vord Method

3.3.1 Brainstorming for View Points



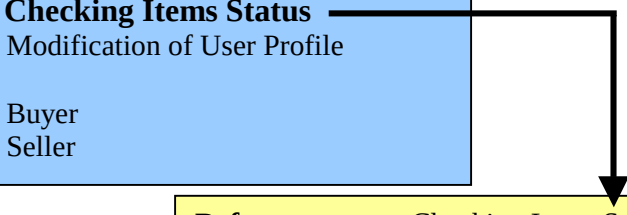
3.3.2 Hierarchy Diagram



3.3.3 View Point Templates and Service Template

View Point Template and Service Template of Consignor Entity:

Reference:	Consignor
Attributes:	Name Consignor_ID Password Contact Information Email Address
Events:	Access Personal Account Modify Personal Information View Account Balance Check Personal Inventory Logout
Services:	Checking Payouts **Checking Items Status** Modification of User Profile
Sub-VPs:	Buyer Seller



Reference:	Checking Items Status
Rationale:	To provide the consignor with the ability to view his/her item inventory online at any time and place. This is fast, easy and convenient service, which will help consignor to monitor and manage his/her money.
Specification:	Consignor retrieves his/her item inventory by logging on to the personal account in the consignor system and selecting the "View Personal Inventory" option. By doing this he/she will be able to view all items in listed in the account divided into two categories: item sold and pending items. Also in the item sold categories consignor can view item sell price and date as well as cumulative total for all sold items.
VPs:	Consignor
Non-Funct. Requirements:	Display updated personal item inventory
Provider:	Wojciech Baranowski

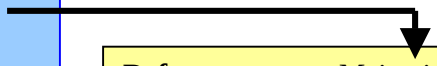
View Point Template and Service Template of Store Manager Entity

Reference:	Store Manager
Attributes:	First Name Last Name Login Name Password Telephone Number Email Address
Events:	Login Check an Inventory Database Access to All System Pages Add/Delete/Modify Files Add/Delete/Modify Employee Information Add/Delete/Modify/Find Inventory Item Generate Daily, Weekly, or Monthly Reports Calculating Total Amount Printing Checks Update Payout History Logout
Services:	Open New Accounts Manage Employees Creating/Maintaining Inventory Files Generate Reports
Sub-VPs:	Technical Non-technical

Reference:	Generate Reports
Rationale:	To print business reports with specific data regarding store sales activity during three different time periods.
Specification:	Store Manager is granted rights to login and gain access to all system pages regarding Store Activity, except for those pages designated specifically for the Consignor. The Store Manager can view all data stored in the database including Consignor Account, the Employee Payroll System, and Inventory Files.
VPs:	Store Manager
Non-Funct. Requirements:	Each report also displays similar statistics for the previous year, for analysis purposes.
Provider:	Anthony Lopez

View Point Template and Service Template of the Sales Person Entity

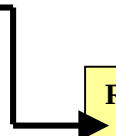
Reference:	Sales Person
Attributes:	First Name Last Name Login Name Password Sales Person ID Pay Rate Status
Events:	Login Check an Inventory Database Sales Transactions Buy Items from Consignors Logout
Services:	**Maintain Store Atmosphere** Sales Transactions
Sub-VPs:	Non-technical



Reference:	Maintain Store Atmosphere
Rationale:	To keep customers and consignors satisfied with the quality of the items, courtesy, and professionalism. To arrange store displays and finalize transactions between the store, consignors, and customers
Specification:	Sales Person has the ability to gain access to the Point of Sale system. He or she will complete transactions between the store, consignors, and customers and provide the change or payout. They will have access to Consignor Accounts, Inventory Files, and some of their employee files (such as their name and address information
VPs:	Sales Person
Non-Funct. Requirements:	Sales Transactions
Provider:	Thien Le

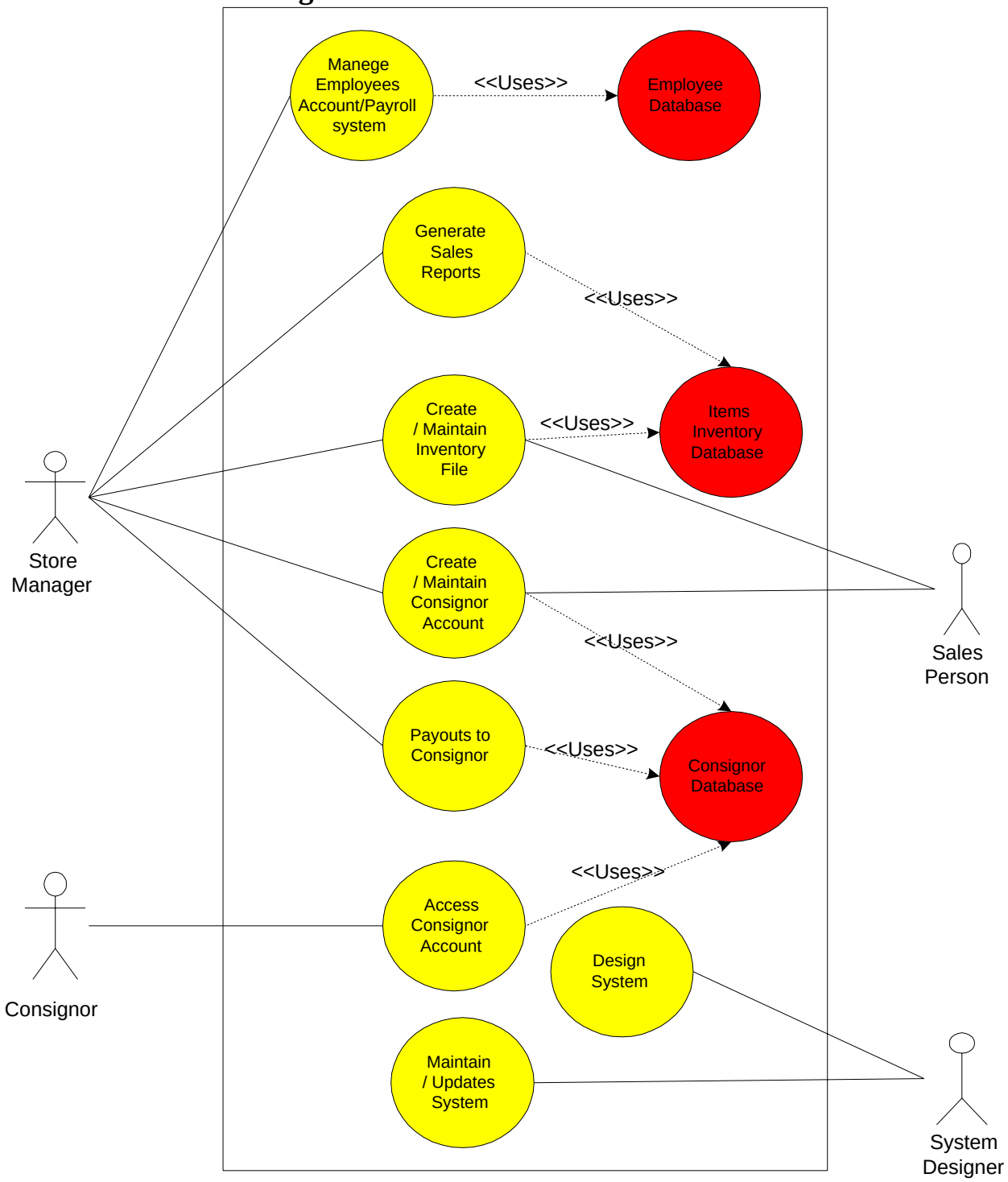
View Point Template and Service Template of Developer Entity:

Reference:	Developer
Attributes:	First Name Last Name Login Name Password Telephone Number Email Address
Events:	Login Check an Inventory Database Access to All System Pages Add/Delete/Modify Files Logout
Services:	**Maintain System** Update System
Sub-VPs:	Technical Non-technical



Reference:	Maintain System
Rationale:	To keep system running with minimal number of troubles. To eliminate any errors, those are recognized while use of the system.
Specification:	Developer has an ability to login and gain access to all system pages. She/He can view all data stored in the database including Consignor Account, Employee Payroll System and Inventory Files. Developer cans create/modify/delete different kind of queries to generate required by Store Manager reports.
VPs:	Developer
Non-Funct. Requirements:	Error Checking, Maintenance
Provider:	Grzegorz Baranowski

3.4 Use Case Scenario Diagram



3.5 Requirements Definition

3.5.1 Functional requirements

1. Every consignor, a store manager, salesperson should login to the system using a unique username and password. The system will have the option for the users to change their passwords. There will be difference in abilities that each person will have after login process is completed (store manager will have more accessibility then consignor)
2. Store Manager and Sales Person will be able to open a new account for every new customer. They will be able to modify or delete existing account on a customer premise.
3. Consignor will be required to access his/her account to be able to modify personal information, check personal item inventory and to view their account balance and history of the payouts.
4. Sales People and Store Manager will enter manually any new item that consignor wants to sell into the inventory database. They will be able to add any required comments and brief description to the input item. There will be an easy way to maintain inventory files by finding item, modify item info and delete item.
5. Store Manager will be able to open an employee payroll account for any new employee, manage this account by making any necessary changes to employee personal information.

6. Store Manager will be able to generate different kind of reports that should show financial condition of the store and help him/her make any financial decisions.
7. Store Manager will create payouts to the consignor on monthly based schedule, unless otherwise request by consignor. Each payout will be transferred to the payout history that each consignor will be able to check out by access his/her personal account.

3.5.2 Non-functional Requirements:

1) The system in general should be well organized and straightforward.
2) The system should be user friendly and easy to use. It should be understandable to any client and no special training session should be required.
3) The system should prevent any unauthorized access and secure any private information.
4) The system should be easy to maintain and to provide any necessary updates that are required by users.
5) The system should be flexible while used, more than one user at the same time.
6) The system should be reliable and satisfying all users.
7) The system should be available at all times and work with high performance.

8) The system should be cost effective. The physical cost of the system should be within the system development budget.

9) The system should be compatible with the Windows operating system, which is uploaded on the store computers.

10) The system should operate on the hardware:

- ❖ CPU: Intel Pentium 4/1 GHz or equivalent
- ❖ RAM: 512 megabytes
- ❖ Hard Disk: 10GB free space for database

3.6 Requirements Specifications

The Consignor Store Project will involve designing a system that will help to run and manage "Duet" Consignor Store with consignor online access to check and update personal accounts. The following is a list of requirement specifications for the system:

1. The consignors will have secure online access to personal account from any place with the Internet connection and any time.
   - 1.1.1 Login name, password, and personal PIN will be required to access the system.
   - 1.1.2 Consignor will be able to check only his personal account.
2. The system will include a separate database to maintain information about consignors.

2.1.1 The database will contain following information: Consignor ID, name, address, phone number, E-mail address, and payout history for all consignors registered in the system.

2.1.2 The store manager and salesperson will have an option to add, delete or modify consignor information.

2.1.3 Consignor will have an option to view his account with remote access.

2.1.4 The databases will be created using Microsoft SQL Server.

3. The system will include Item Inventory Database to keep record of every item that consignor wants to buy or try to sell.

3.1.1 The database will include item description, price, arriving date, sold date and consignor ID.

3.1.2 The Store Manager and Salesperson will have the option to add, delete and modify item records as needed.

4. By gathering information from consignor database and item inventory database store manager will generate all kinds of reports and manage payout service.
5. The Consignor Project in general should be well organized and straightforward.
6. The consignors should access their accounts by using all major standards-compliant web browsers:
   a. Microsoft Internet Explorer 5.x or higher
   b. Netscape 4.7 or higher
7. The system will have information tutorial, which will guide all new or inexperience users.

3.7 DFD Diagram

3.7.1 Grammatical Analysis

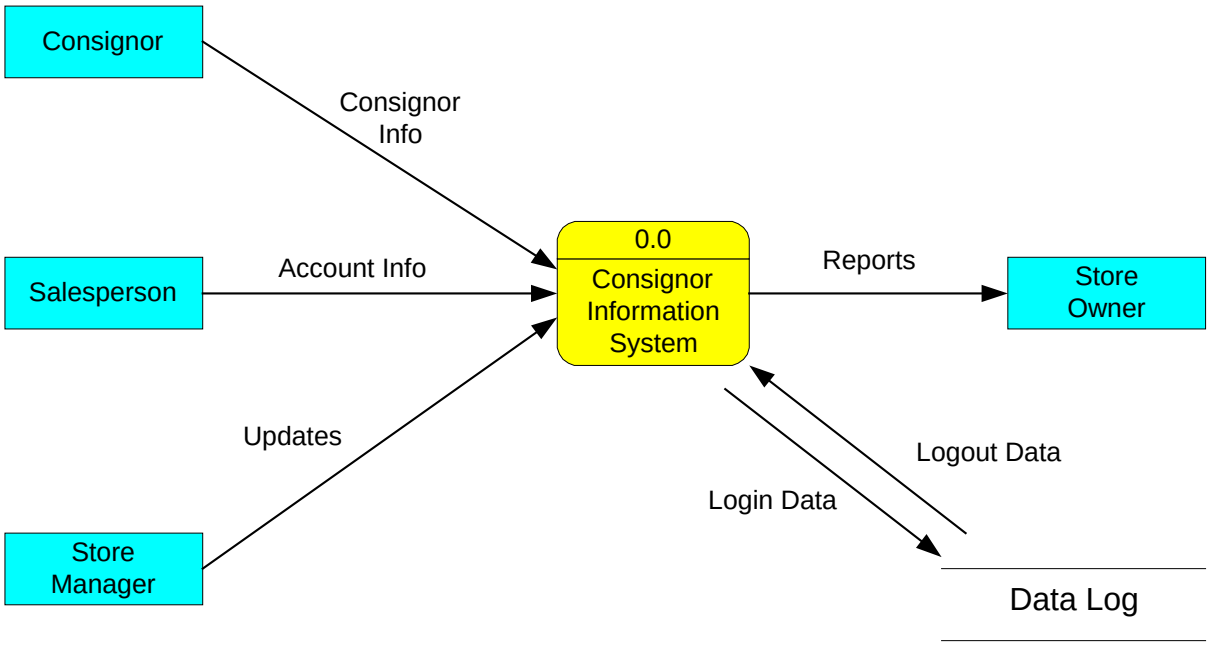
There are three main entities in our data flow diagram. They are the consignor, the salesperson, and the store manager. In the context diagram, all of these entities are providing some sort of input to the Consignor Information System that will be implemented in our store. In order to enter the system, a person has to login. All of these login records will be stored in a database (as stated in the context diagram). The output of all of the activities that happen inside this system will be reports that will be sent to the owner of the store for analysis.

At the second level of the data flow diagram, things are broken down a bit further. Both salesperson and consignor have access to modifying the consignors' account in some way. The salesperson and store managers also have the ability to add and delete accounts wherever this is seem fit. The consignor can buy or sell an item to the consignment store. Once this happens, the inventory level must be adjusted to reflect the transaction. Inventory will have its own separate database, as will the consignor accounts.

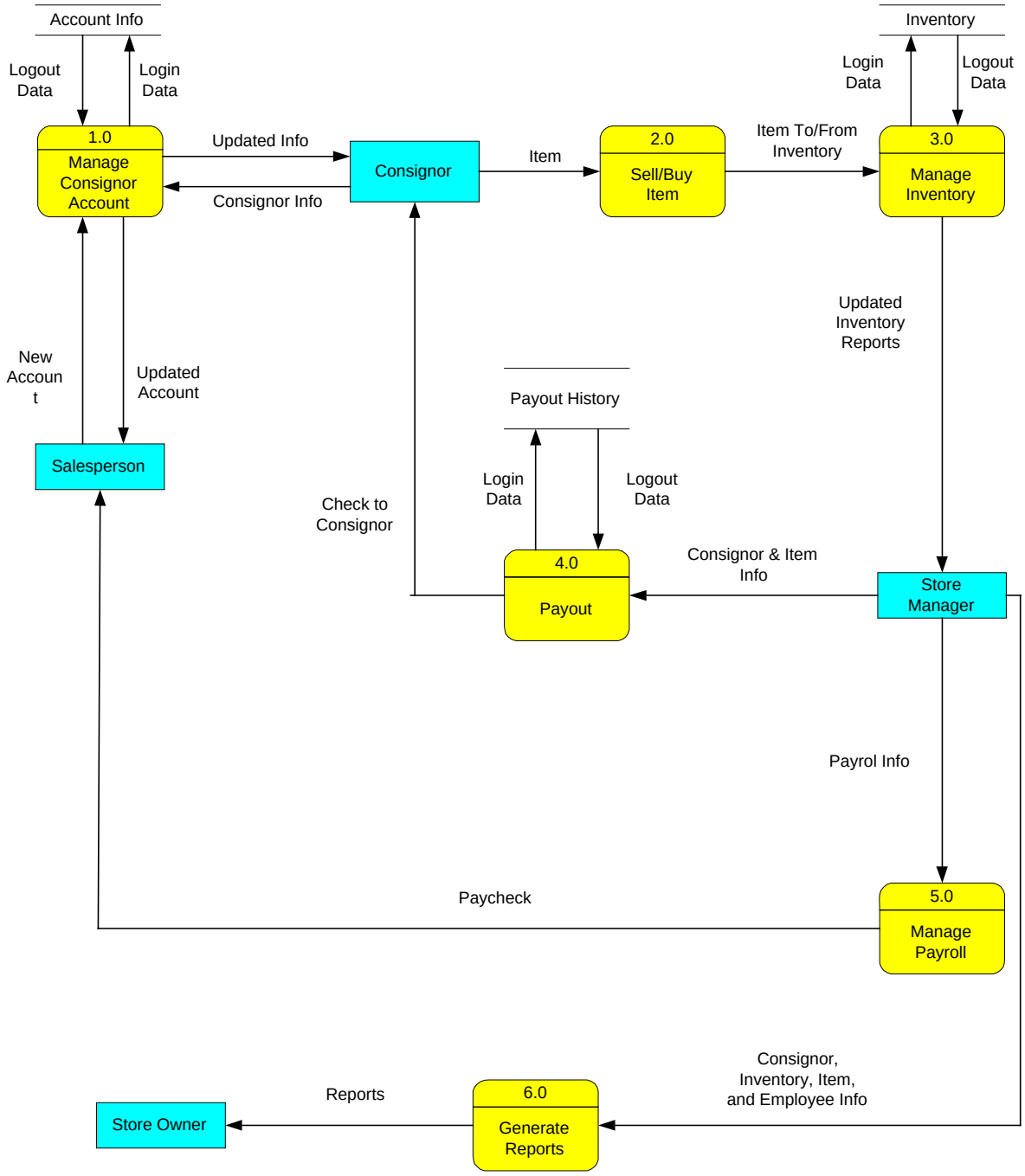
The store managers receive the updated inventory reports and then do three things: They will produce payout checks to consignors who have sold to the store, produce payroll checks to store employees, and will generate reports that will be sent to and analyzed by the owner of the store. Just like the inventory and consignor accounts, the employee information and payout history will also have their own separate databases.

After decomposing further you can see how we broke down the Manage Consignor Account, Manage Inventory, Manage Payroll, and Payout items. The decomposition are in plain English and fairly simple to follow along.

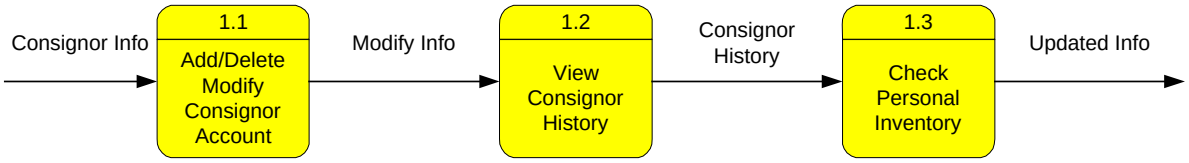
3.7.2 CONTEXT DIAGRAM

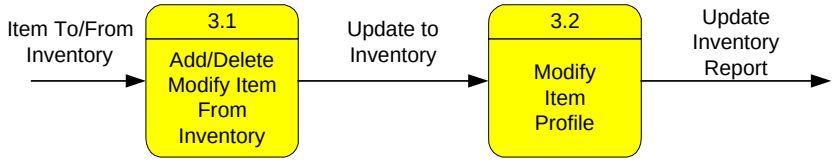


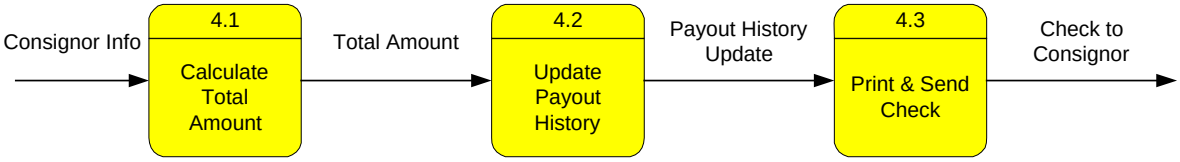
3.7.3 GENERAL DFD

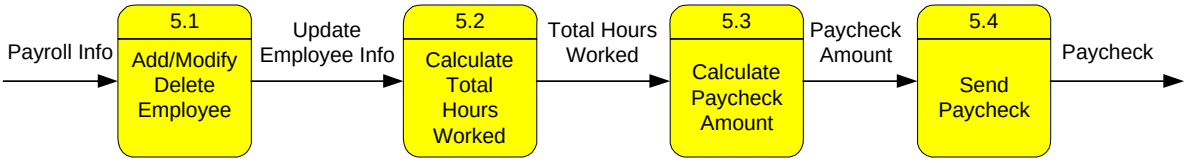


3.7.4 DECOMPOSITIONS









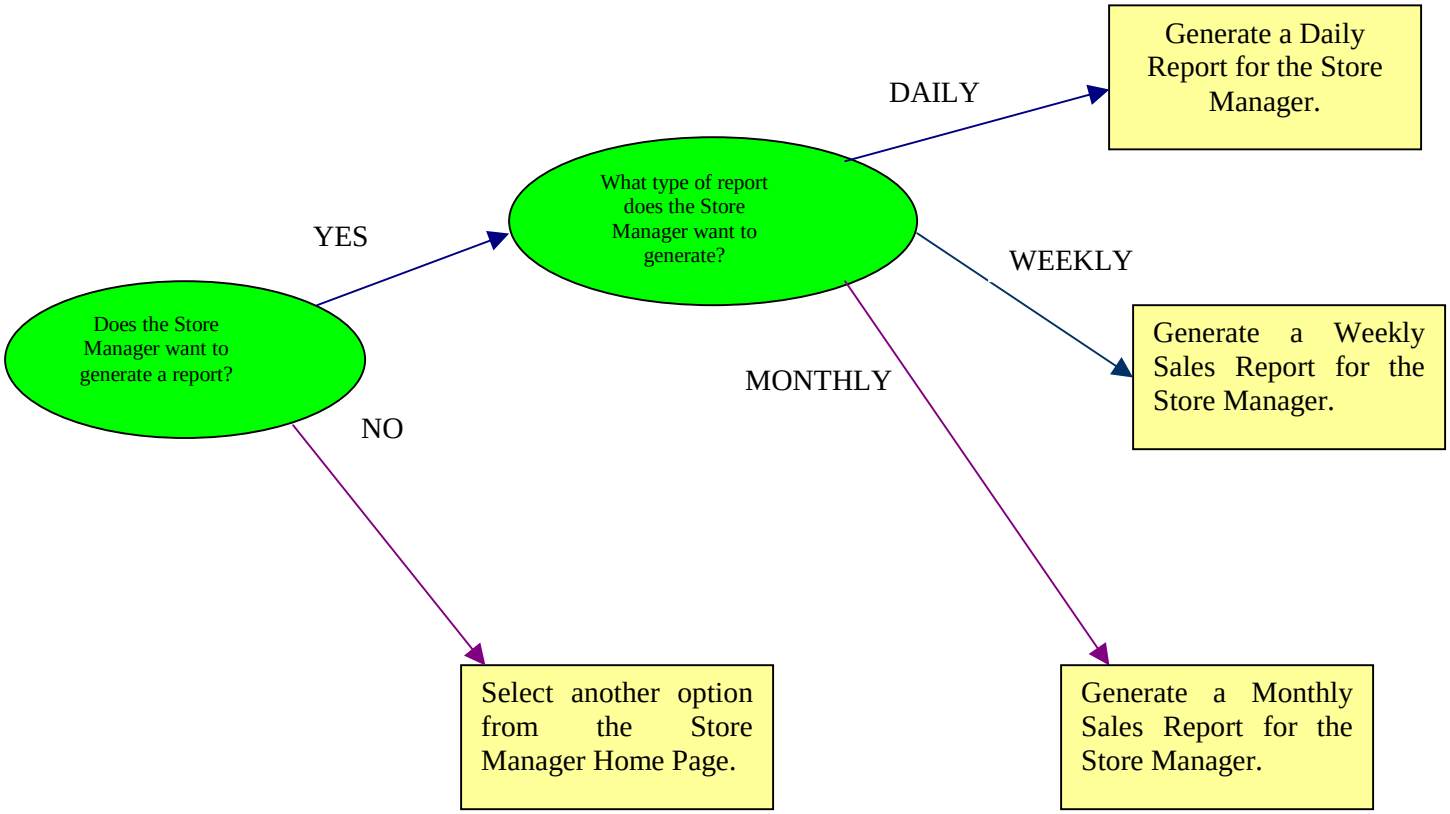
4.0 Process Specifications

4.1. Structured English

F*or all Access attempts by the Store Manager:*

1. Access Login Page and Enter Account Name and Password.
2. Read instructions on Online System Navigation.
3. Access Store Manager Home Page.
4. If the Store Manager wants to Generate Reports:
    4.1. Enter “Generate Reports” Page.
        4.1.1. If the Store Manager wants to Generate a Daily Report:
            4.1.1.1. Select “Daily Report”.
            4.1.1.2. Else, select another option.
        4.1.2. If the Store Manager wants to Generate a Weekly Report:
            4.1.2.1. Then select “Weekly Report”.
            4.1.2.2. Else, select another option.
        4.1.3. If the Store Manager wants to Generate a Monthly Report:
            4.1.3.1. Then select “Monthly Report”.
            4.1.3.2. Else, select another option.
        4.1.4. If the Store Manager wants to Print out a Report:
        4.1.5. Then select “Print Report”.
        4.1.6. Else, select another option.
5. Logout

4.2 Decision Tree (*Store Manager Generating Reports*)



4.3 Decision Table (*Store Manager Generating Reports*)

CONDITIONS	1	2	3	4	5	6
Does the Store Manager want to generate a report?	Y	Y	Y	N	N	N
What type of report does the Store Manager want to generate?	DA	WK	MO	DA	WK	MO
ACTIONS						
Select another option from the Store Manager Home Page.				X	X	X
Generate a Daily Report for the Store Manager.	X					
Generate a Weekly Sales Report for the Store Manager.		X				
Generate a Monthly Sales Report for the Store Manager.			X			

5.0 Data Dictionary

Consignor Personal Account

Personal Account = Consignor Name + Consignor Address + Consignor Identification Number + Consignor Telephone Number

Consignor Name = Consignor First Name + (Consignor Middle Name) + Consignor Last Name
Consignor Address = Consignor Street + Consignor Apartment Number + Consignor City + [Consignor State] + Consignor Zip Code
Consignor Identification Number = Consignor ID
Consignor Telephone Number = Area Code + Central Office Code + Number

Consignor Account Balance

Account Balance = Consignor Name + Consignor Address + Consignor Identification Number + Current Balance + Last Payout + Payout History

Consignor Name = Consignor First Name + (Consignor Middle Name) + Consignor Last Name
Consignor Address = Consignor Street + Consignor Apartment Number + Consignor City + [Consignor State] + Consignor Zip Code
Consignor Identification Number = Consignor ID
Current Balance = Total Amount of Sold Items
Last Payout = Check Number + Date Issued + Total Amount
Payout History = { Check Number + Date Issued + Total Amount }

Consignor Payout

Payout Receipt = Consignor Name + Consignor Address + Consignor Identification Number + Payout Total + Check Identification Number

Consignor Name = Consignor First Name + (Consignor Middle Name) + Consignor Last Name
Consignor Address = Consignor Street + Consignor Apartment Number + Consignor City + [Consignor State] + Consignor Zip Code
Consignor Identification Number = Consignor ID
Payout Total = { Quantity * Price }
Check Identification Number = Check Number

Consignor Personal Inventory

Inventory = Consignor Name + Consignor Address + Consignor ID + { Item }

Consignor Name = Consignor First Name + (Consignor Middle Name) + Consignor Last Name
Consignor Address = Consignor Street + Consignor Apartment Number + Consignor City + [Consignor State] + Consignor Zip Code
Consignor Identification Number = Consignor ID
Item = { Item Number + Item Description + Quantity + Price }

Sales Person Account

Sales Person Account = Name + Address + Sales ID + Pay Rate + Status

Sales Person Name = Sales Person First Name + (Sales Person Middle Name) + Sales Person Last Name
Sales Person Address = Sales Person Street + Sales Person Apartment Number + Sales Person City + [Sales Person State] + Sales Person Zip Code
Sales Person Identification Number = Sales Person ID
Pay Rate = [Hourly | Salary]
Status = [Part-time | Full-time]

Employee Payroll Management Page

Payroll = Name + Address + Employee Telephone Number + Employee Identification Number + Store Telephone Number + Earnings + Taxes + (Deductions)

Name = First Name + (Middle Name) + Last Name
Address = Street + (Apartment Number) + City + [State] + Zip Code
Employee Telephone Number = Area Code + Central Office Code + Number
Employee Identification Number = Employee ID
Store Telephone Number = Area Code + Central Office Code + Number
Earnings = Regular Pay + Holiday Pay + Personal Pay + (Retroactive Pay) + Hours Worked
Taxes = Social Security Tax + Medicare Tax + Federal Income Tax + State Income Tax + SDI/UC Tax
Deductions = (401K Deductions + Medical Deductions)

Consignment Store Invoice

Invoice = Consignor Name + Consignor Address + Consignor Identification Number + [Sales Person] + Store Telephone Number + { Item }

Consignor Name = First Name + (Middle Name) + Last Name
Consignor Address = Street + Apartment Number + City + [State] + Zip Code
Consignor Identification Number = Consignor ID
Sales Person = [Anna | Bill | Steve | Lucy]
Store Telephone Number = Area Code + Central Office Code + Number
Item = { Item Number + Item Description + Quantity + Price + Subtotal }

Consignment Store Sales Report

Report = Store Address + Store Telephone Number + {Item}+ Current Total Sales + Last Year Total Sales

Store Address = Street + City + [State] + Zip Code
Store Telephone Number = Area Code + Central Office Code + Number
Item = { Item Number + Item Description + Quantity + Price + Subtotal }
Current Total Sales = Gross Sales + Net Sales
Last Year Total Sales = Last Year Gross Sales + Last Year Net Sales

Consignor Payout History Store Form

Payout History = Store Address + Store Telephone Number + Consignor + Consignor Identification Number + Consignor Address + Check + {Payout History}

Store Address = Street + City + [State] + Zip Code
Store Telephone Number = Area Code + Central Office Code + Number
Consignor = First Name + (Middle Name) + Last Name
Consignor Identification Number = Consignor ID
Consignor Address = Street + City + [State] + Zip Code
Check = Store Address + Check Number + Check Amount + Consignor + Bank Routing Number + Bank Account Number

Consignor Login

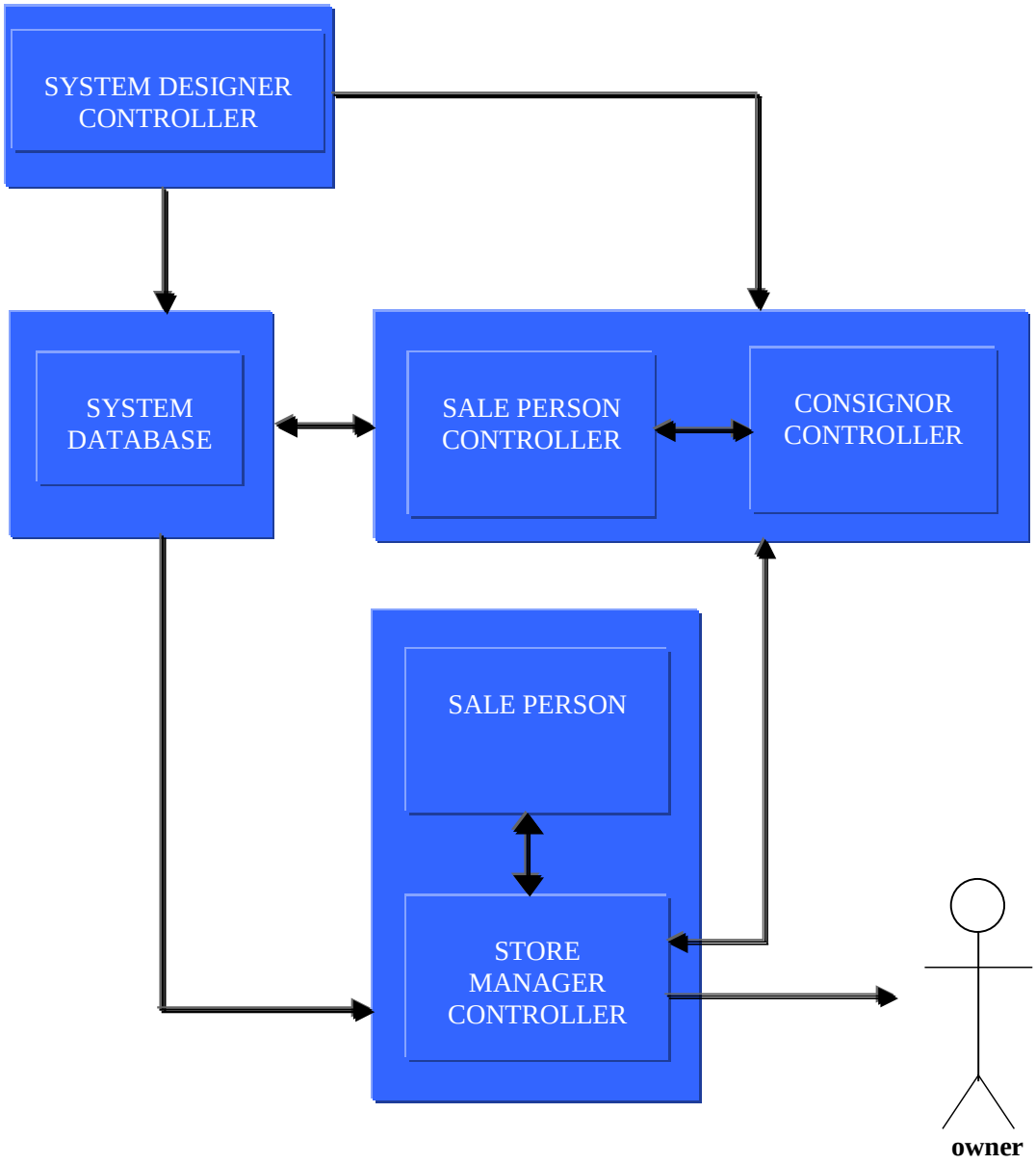
Login = Username + Password + PIN

Username = [Letters] + [Numbers]
Password = [Letters] + [Numbers]
PIN = [Numbers]

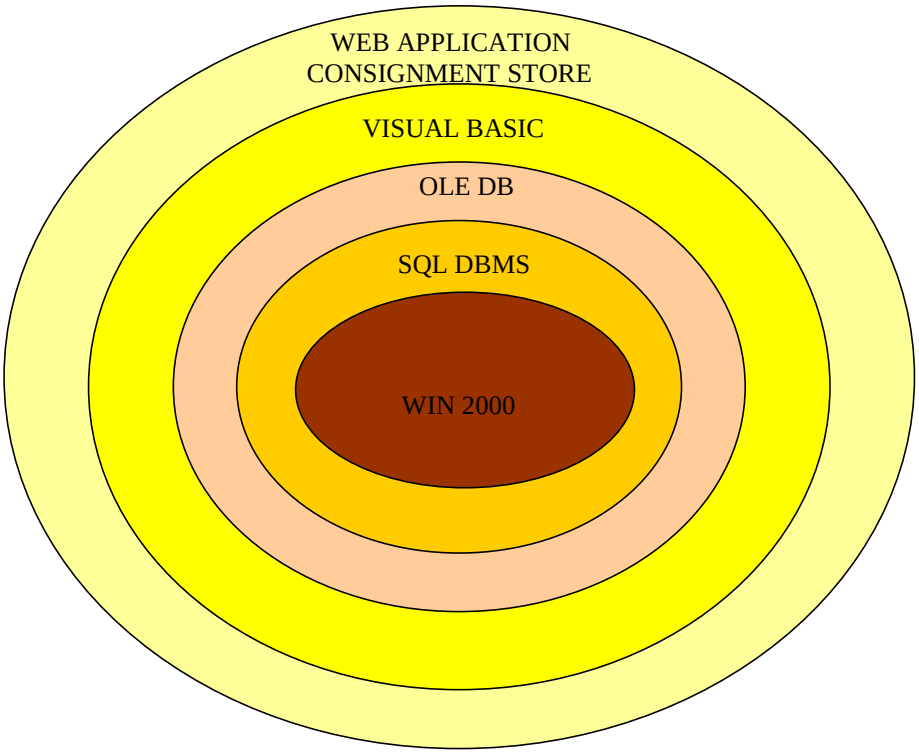
Letters = [A | B | C | … | Z | a | b | c | … | z]
Numbers = [0 | 1 | 2 | … | 9]

6.o System Design

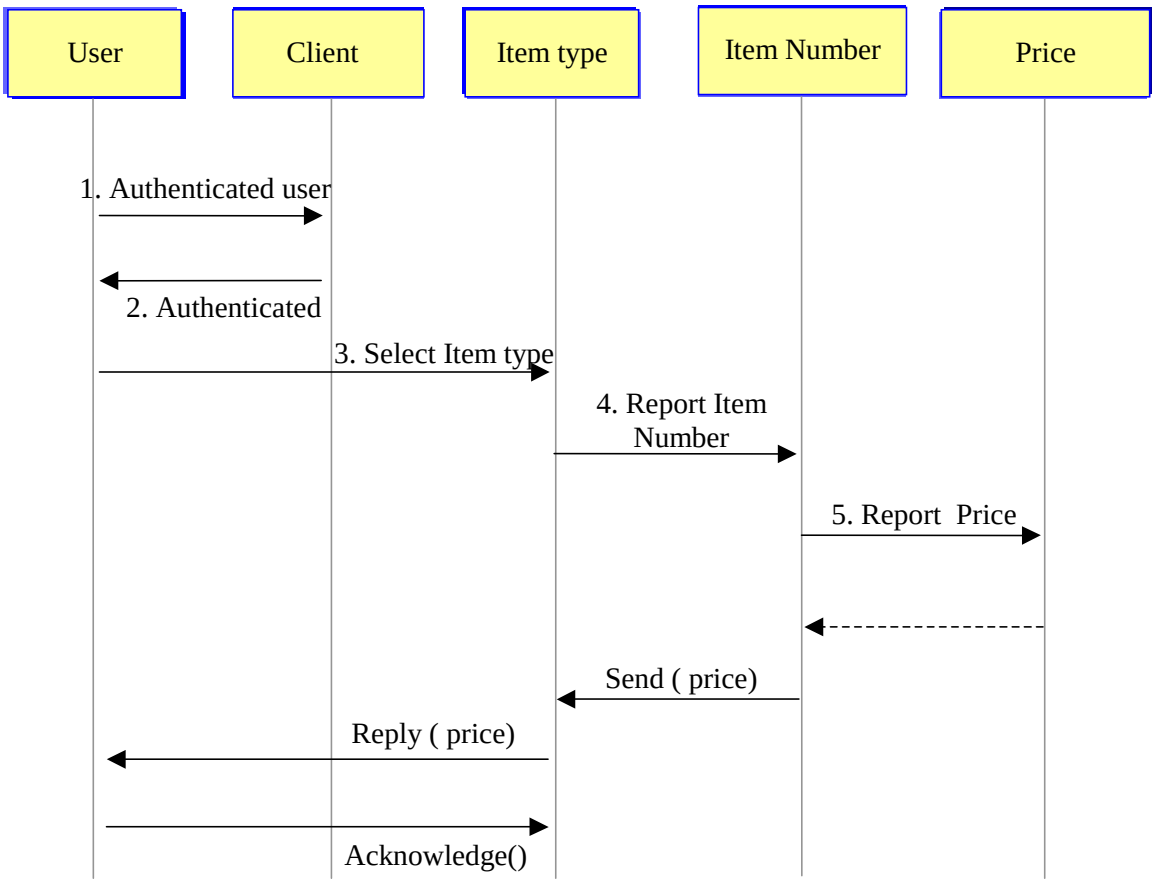
6.1 SYSTEM STRUCTURING



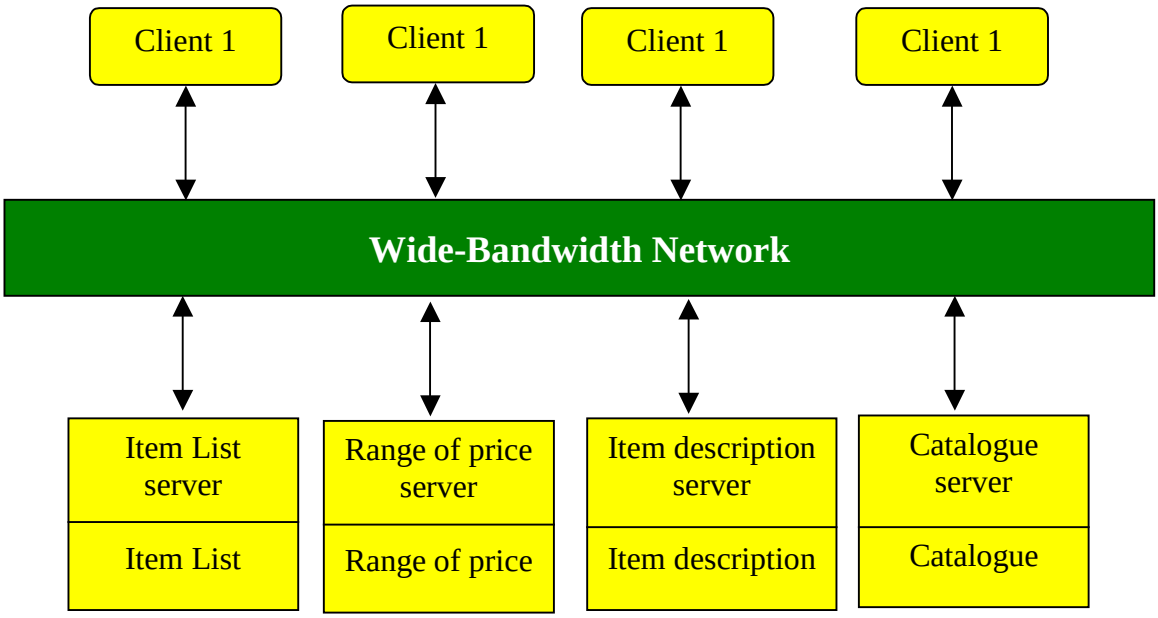
6.2 ABSTRACT MACHINE



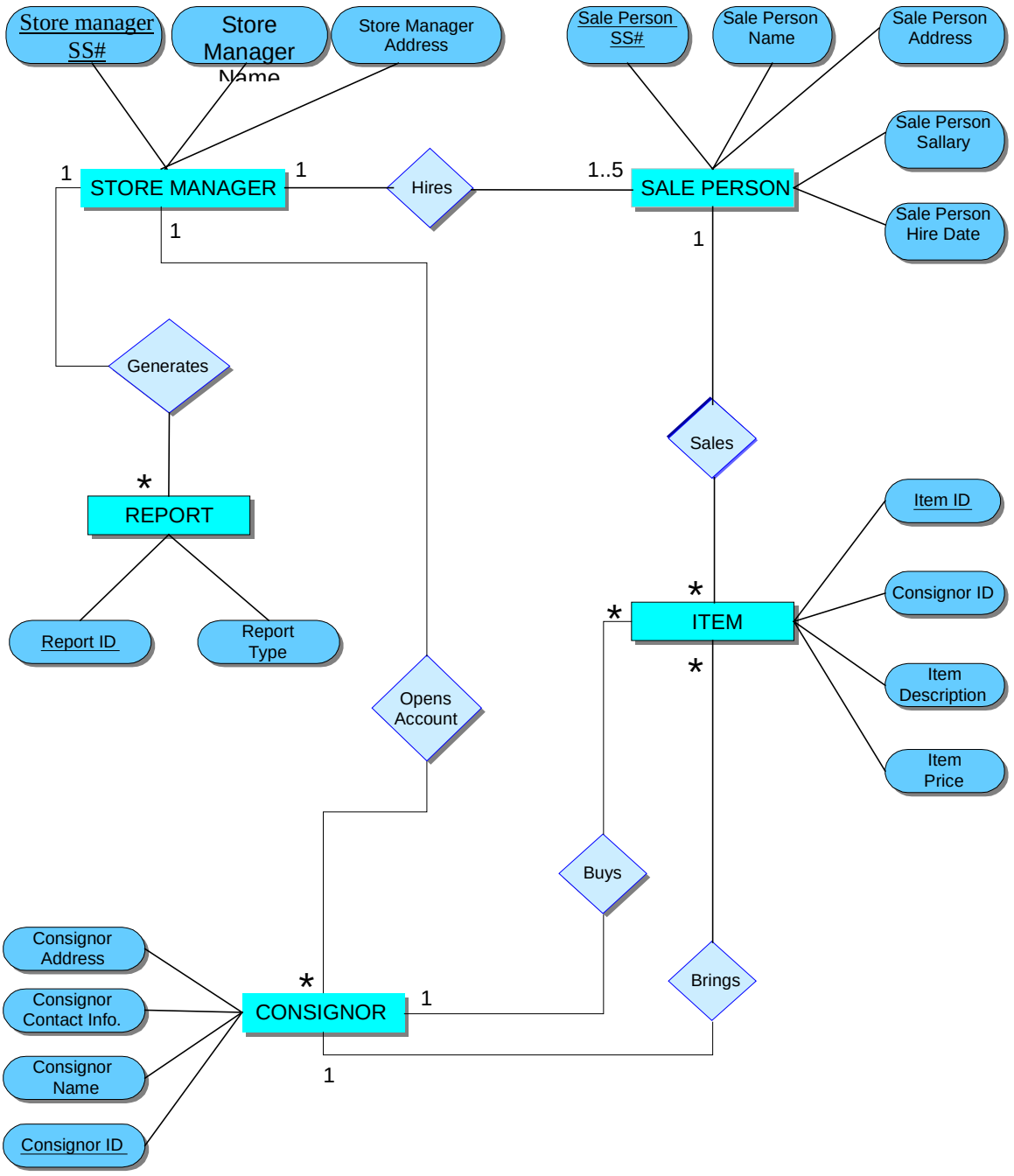
6.3 SEQUENCE DIAGRAM



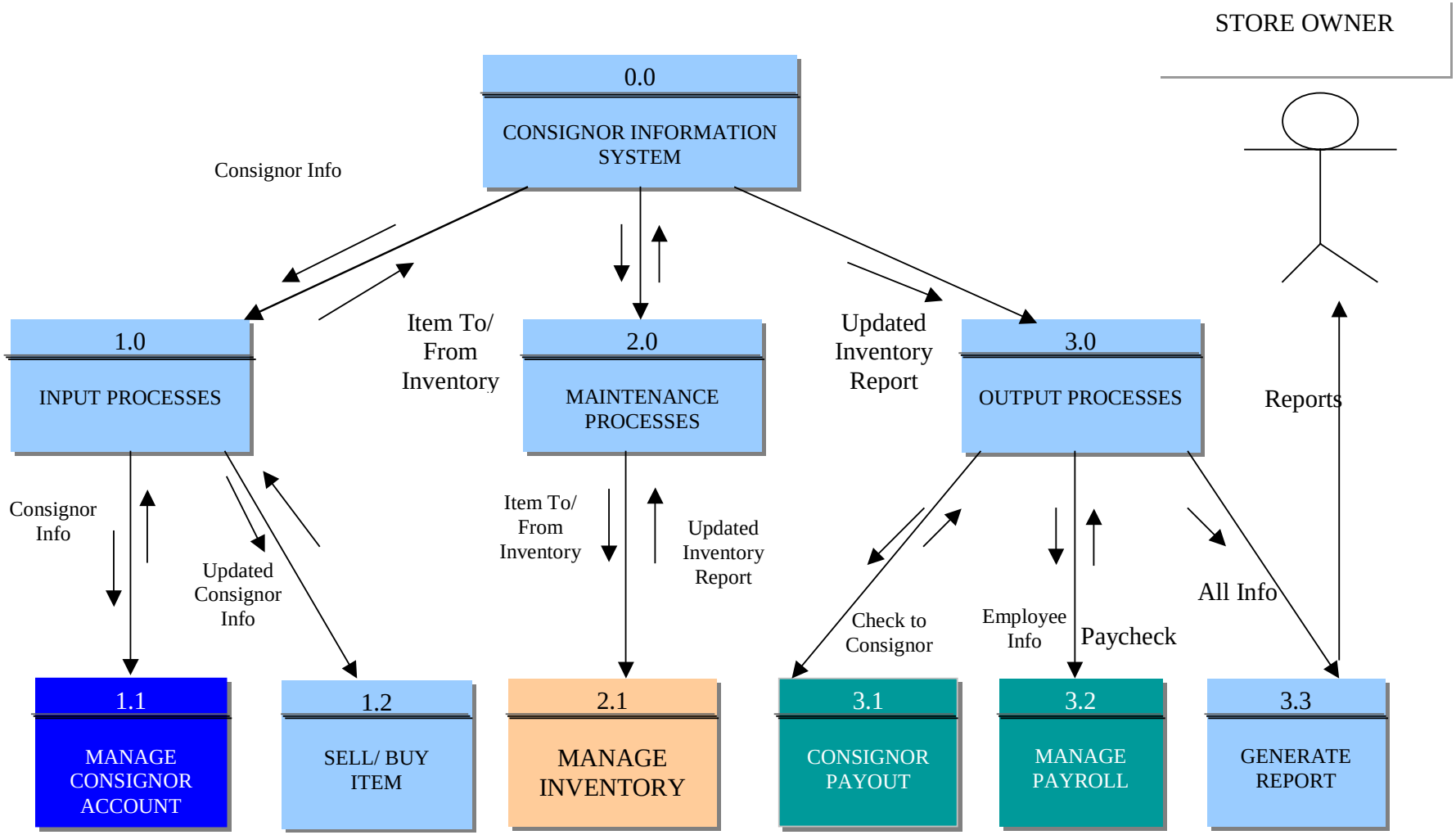
6.4 CLIENT- SERVER ARCHITECTURE



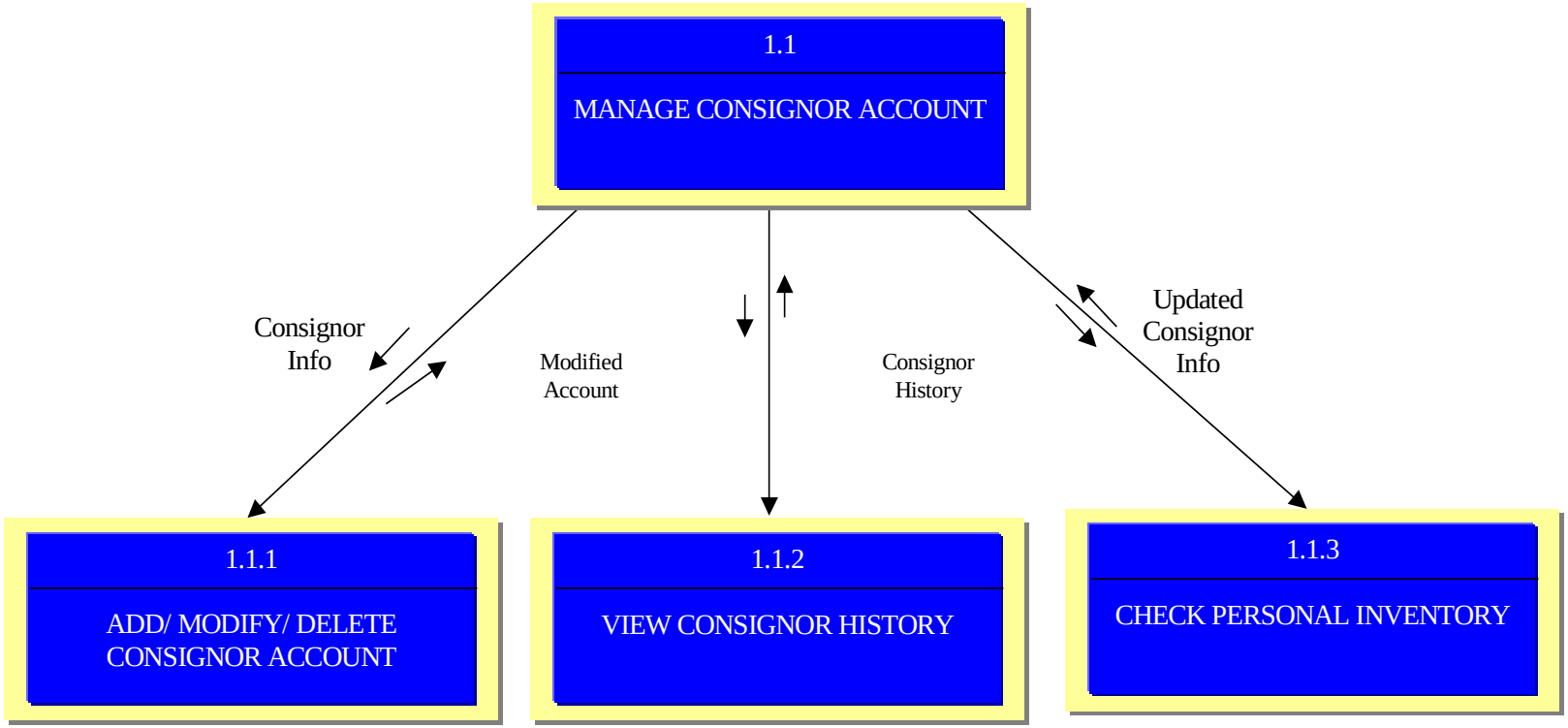
7.0 ERM MODEL


Store manager SS#
Store Manager Name
Store Manager Address
Sale Person SS#
Sale Person Name
Sale Person Address
Sale Person Sallary
Sale Person Hire Date
STORE MANAGER
Hires
SALE PERSON
1
1
1..5
1
1
Generates
Sales
*
REPORT
Report ID
Report Type
Item ID
Consignor ID
Item Description
Item Price
ITEM
*
*
*
Opens Account
Buys
Brings
Consignor Address
Consignor Contact Info.
Consignor Name
Consignor ID
CONSIGNOR
*
1
1

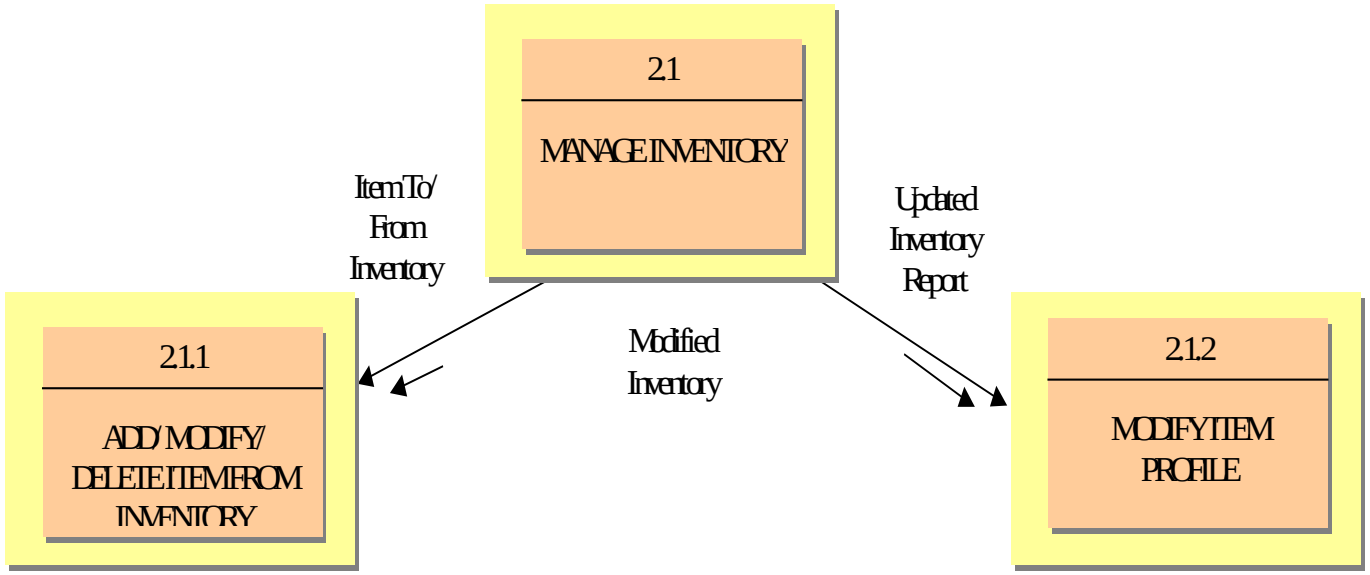
8.0 STRUCTURE CHART



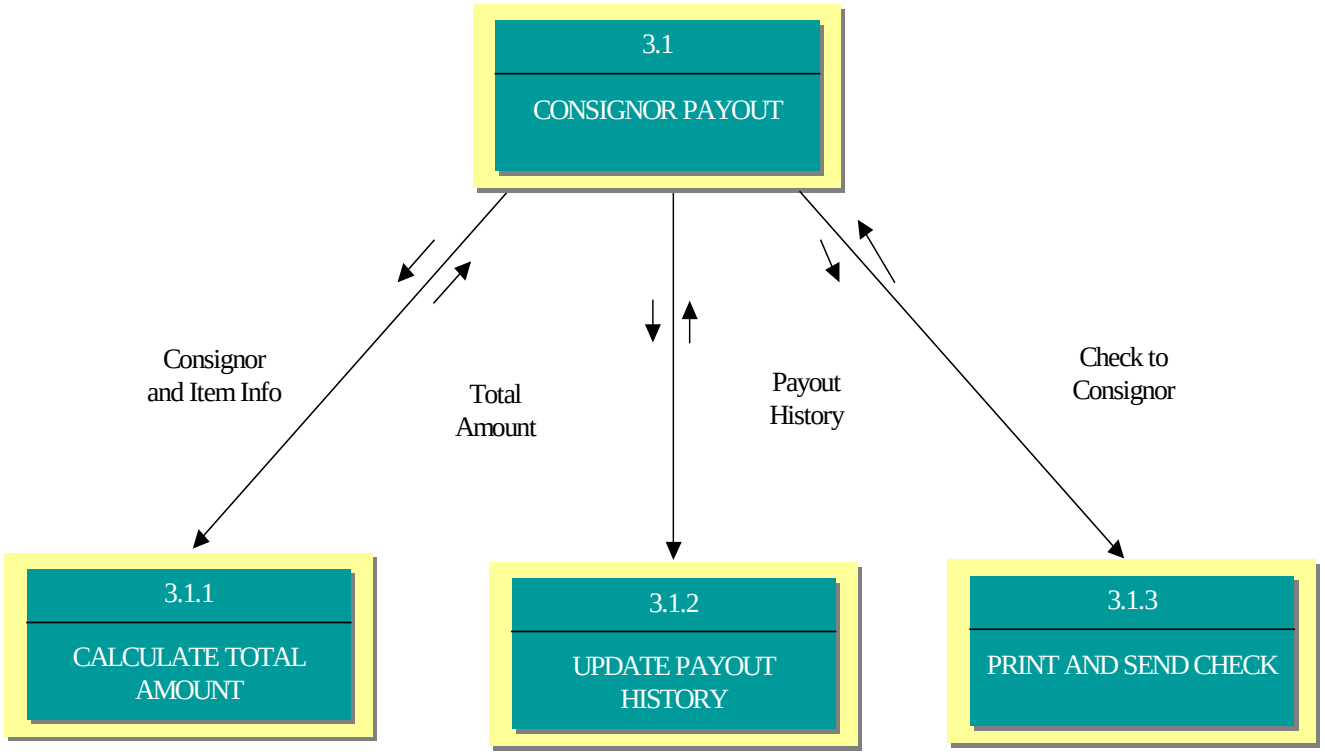
8.1 MANAGE CONSIGNOR ACCOUNT



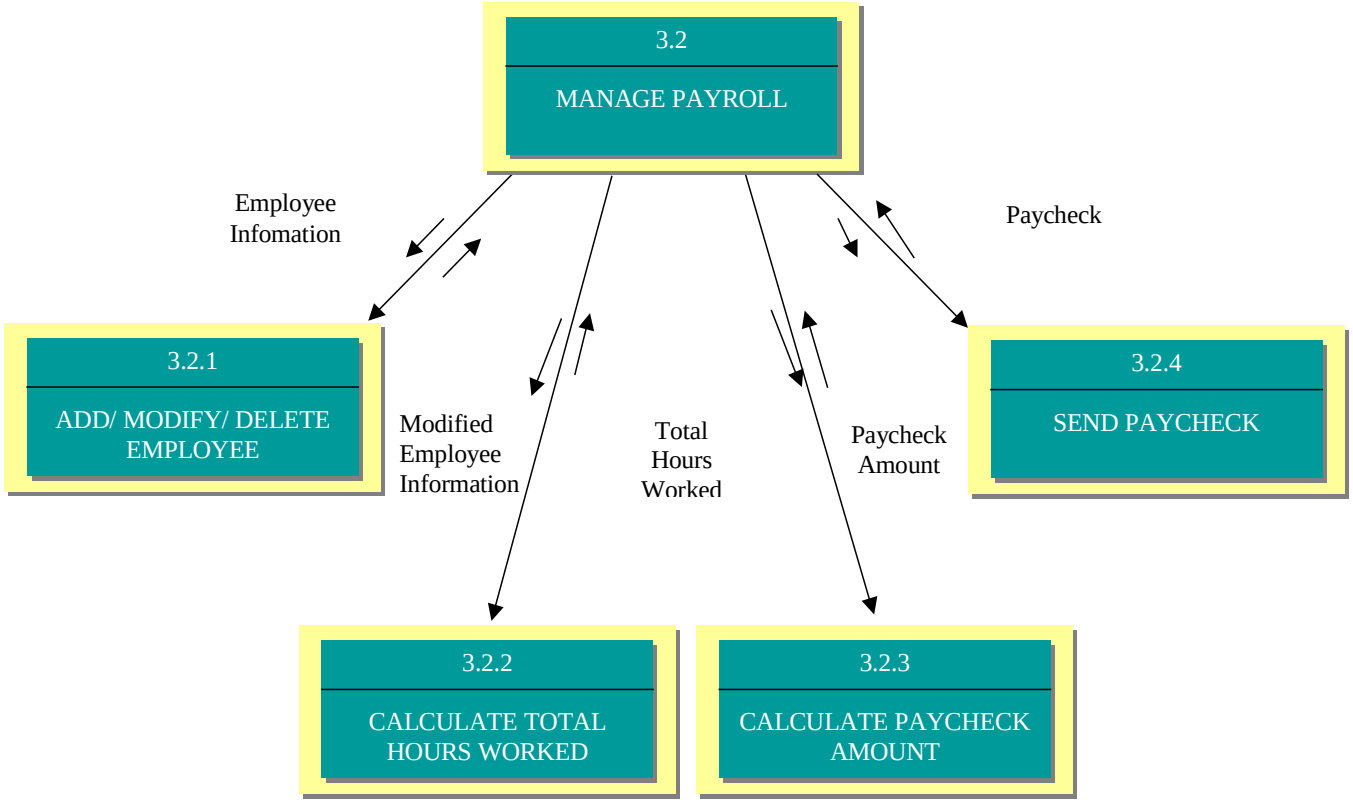
8.2 MANAGE INVENTORY



8.3 CONSIGNOR PAYOUT

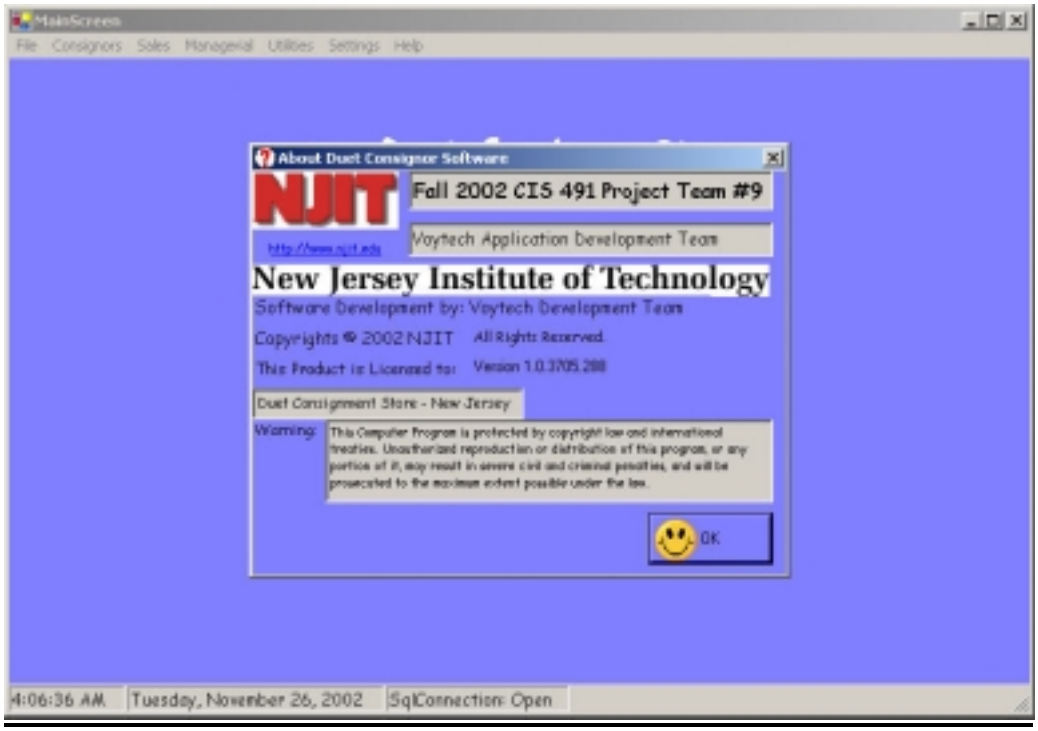


8.4 MANAGE PAYROLL

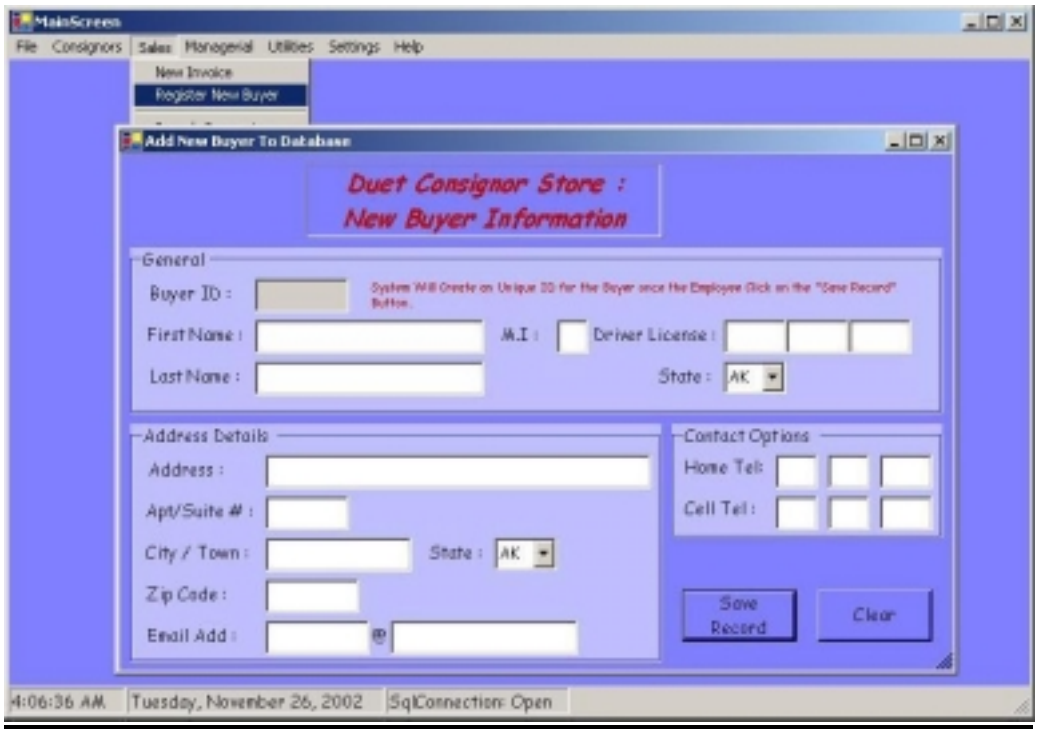


9.0 USER INTERFACE DESIGN (Screen shots of the In-Store TO-BE system)

About Duet Consignment System



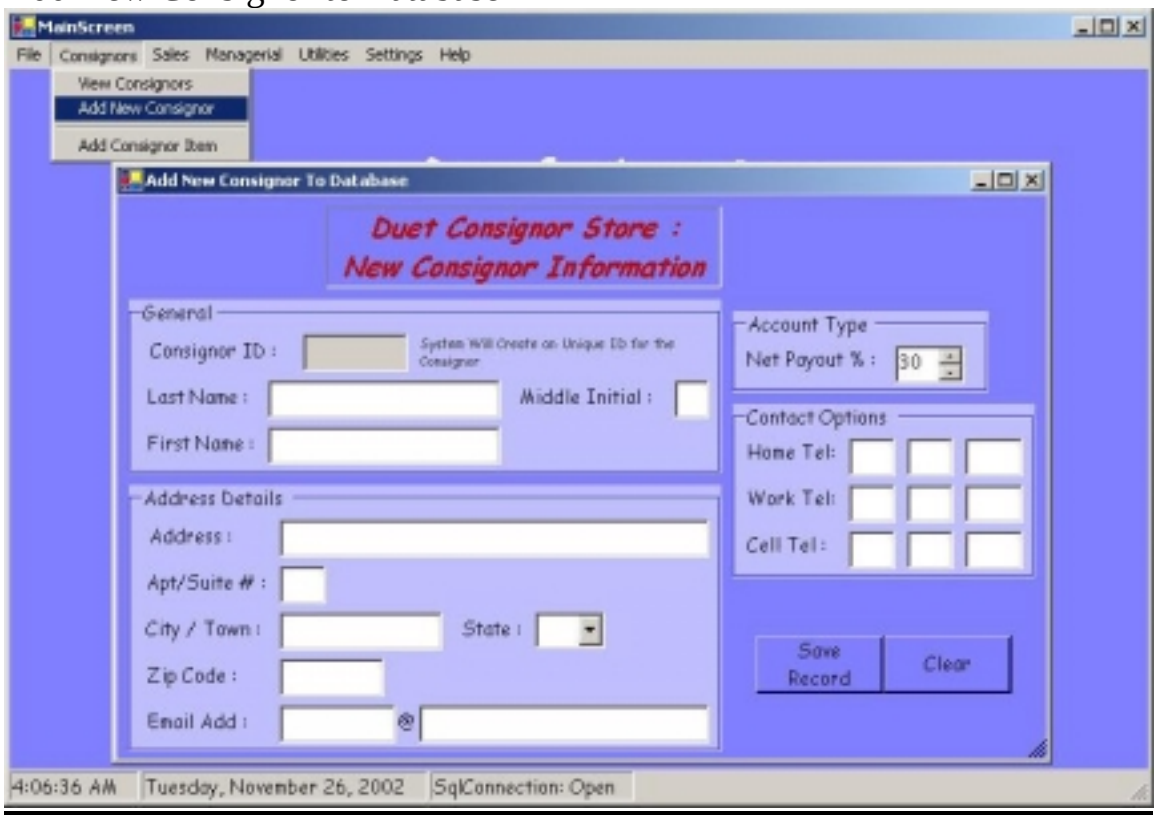
Add New Buyer Information



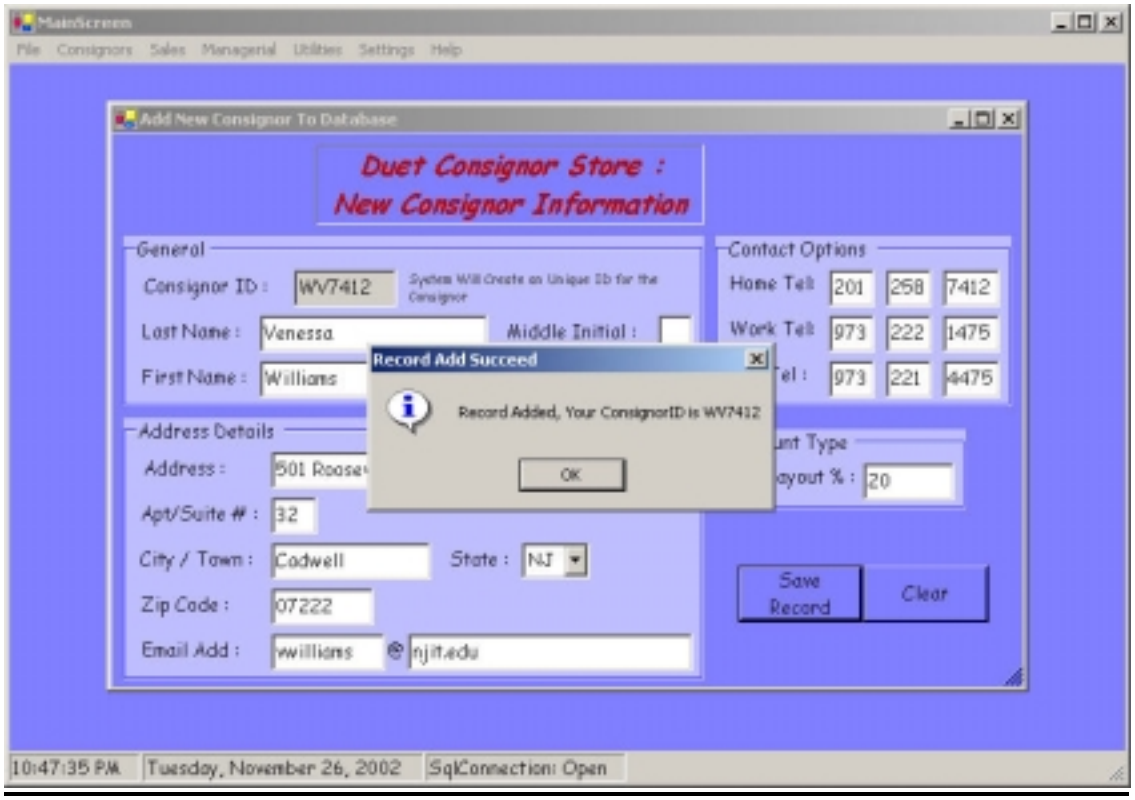
Add Buyer (continued)

Add Buyer (continued)

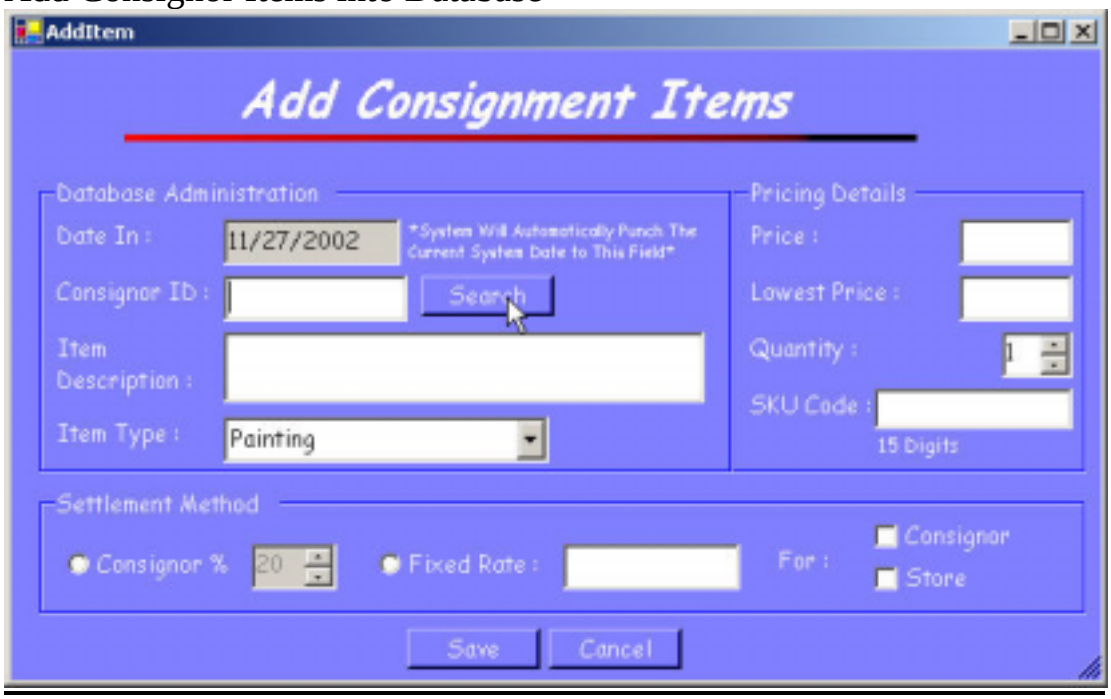
Add New Consignor to Database

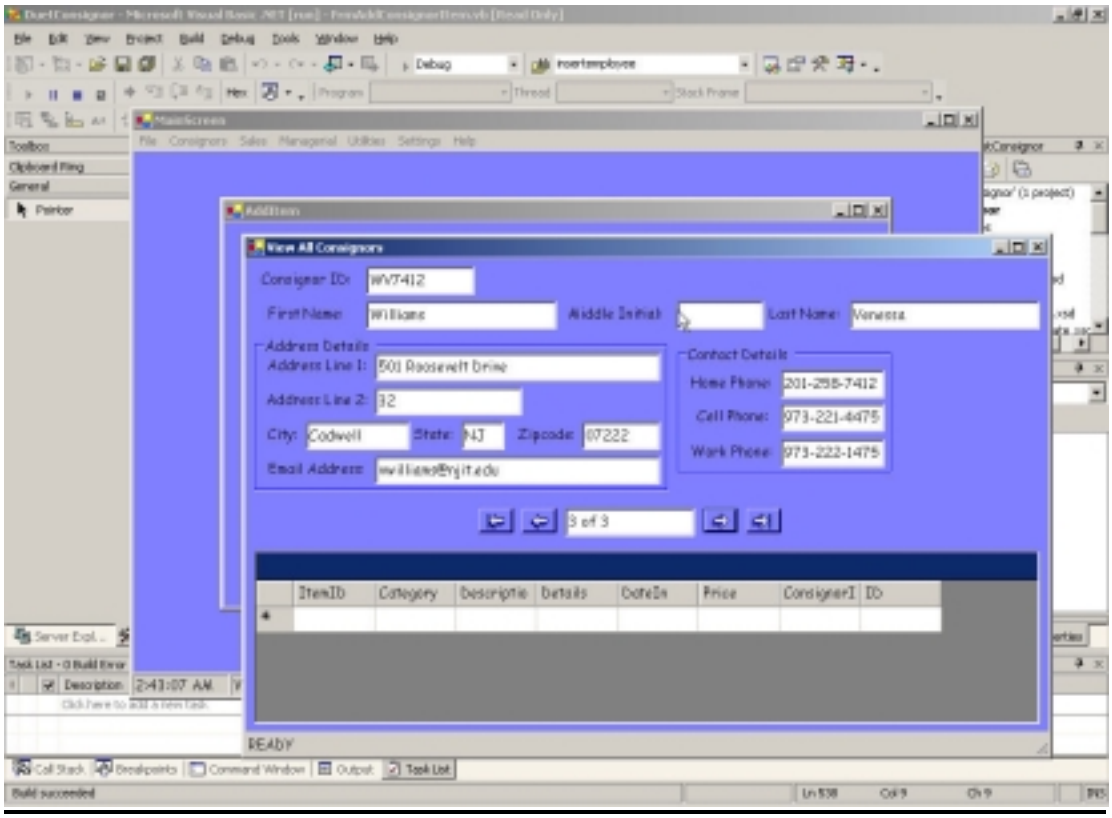


Add Consignor (continued)

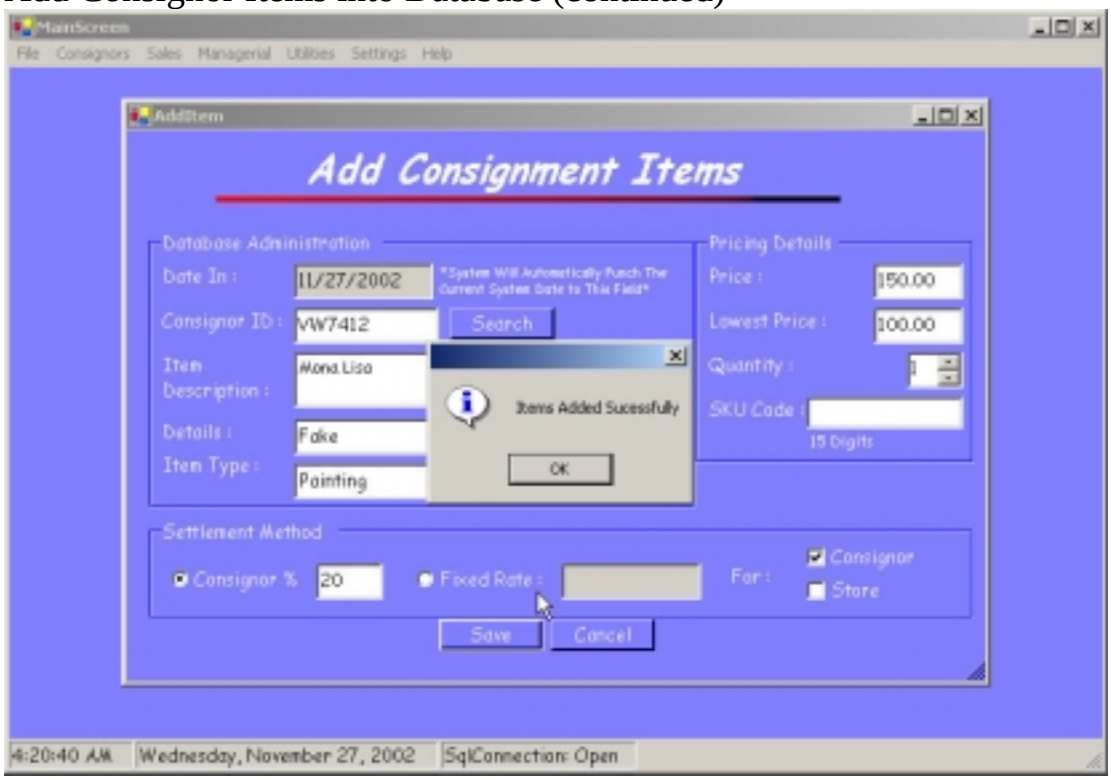


Add Consignor Items into Database



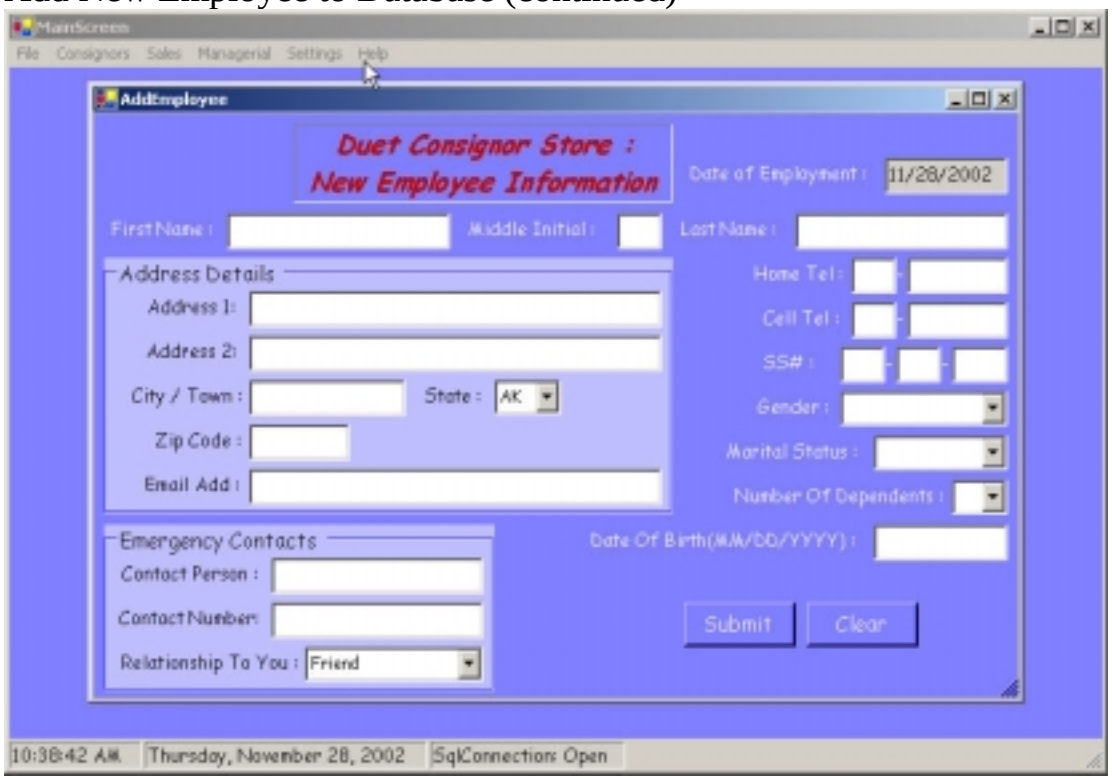


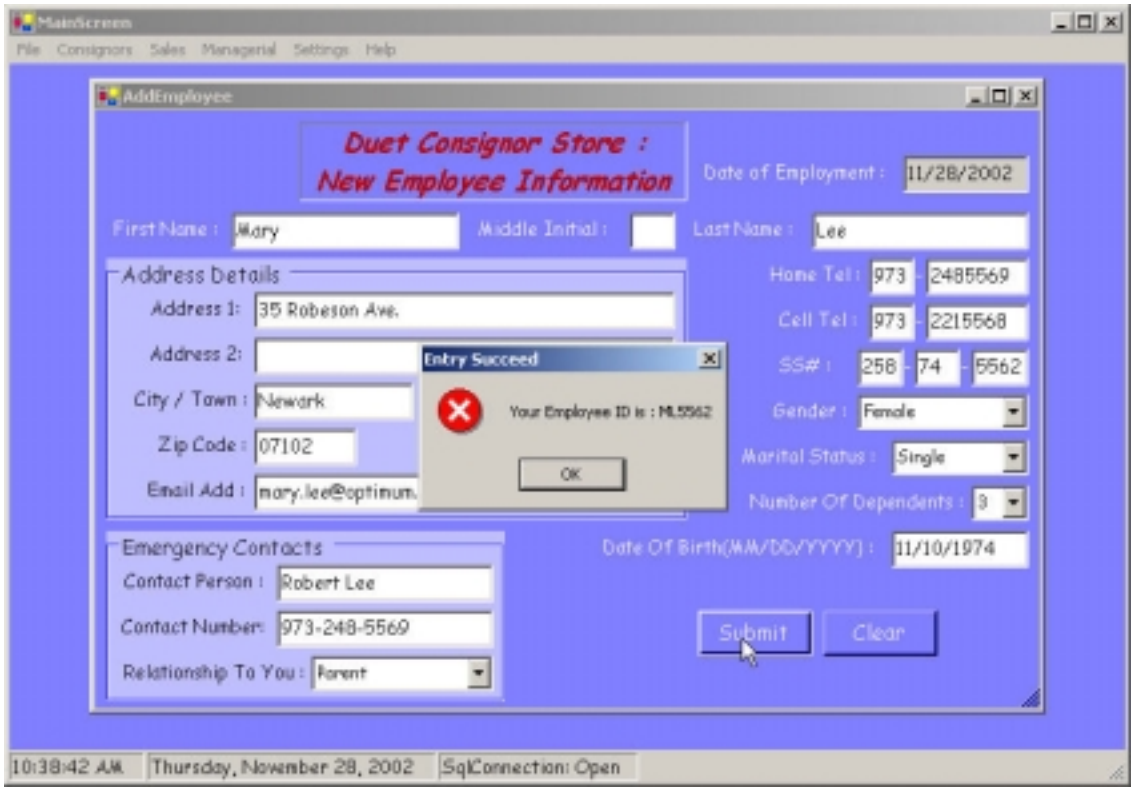
Add Consignor Items into Database (continued)



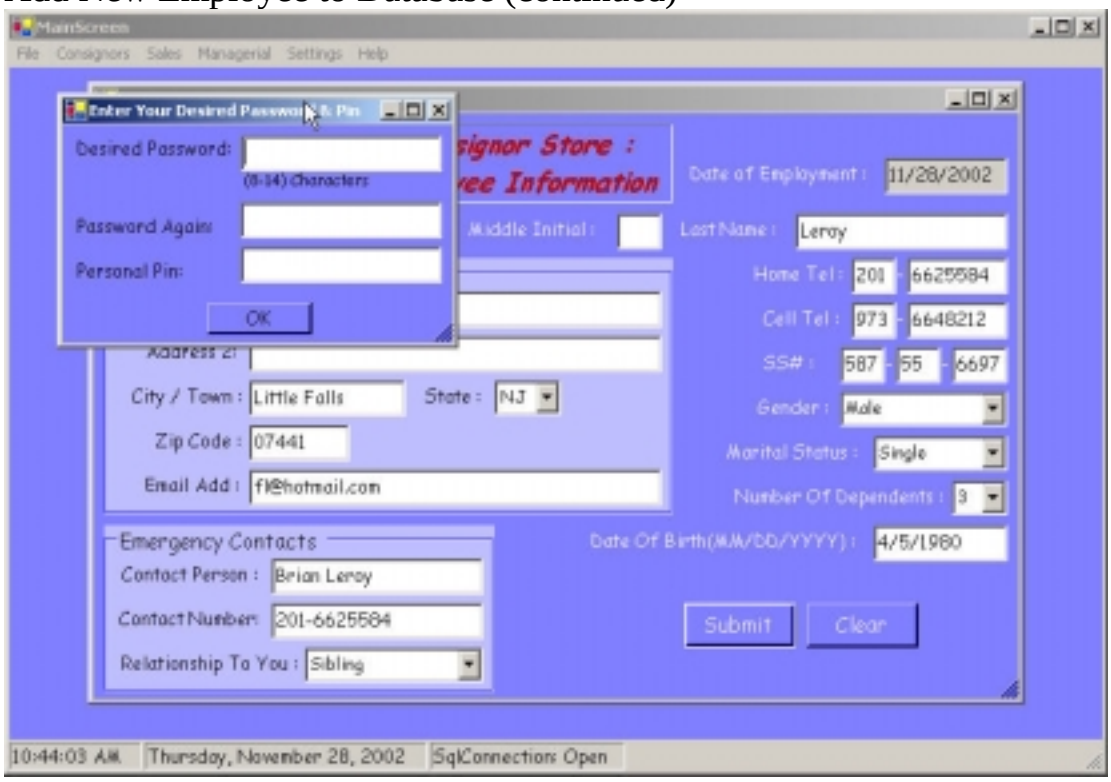
Add New Employee to Database

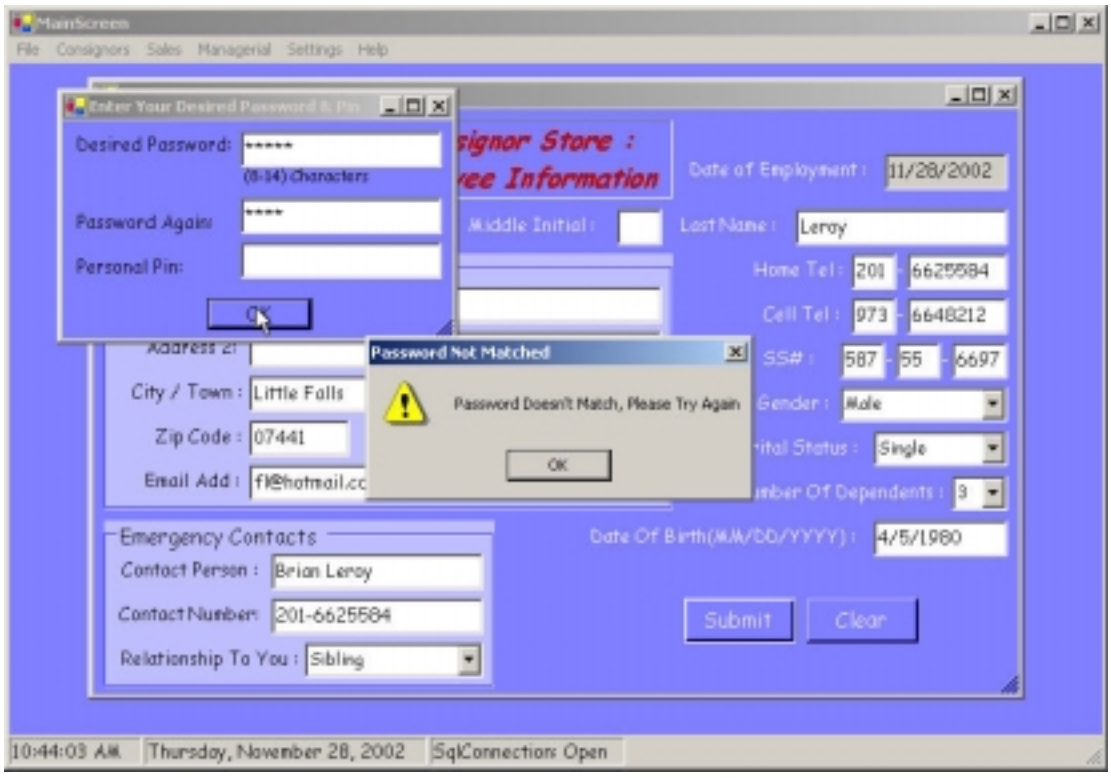
Add New Employee to Database (continued)



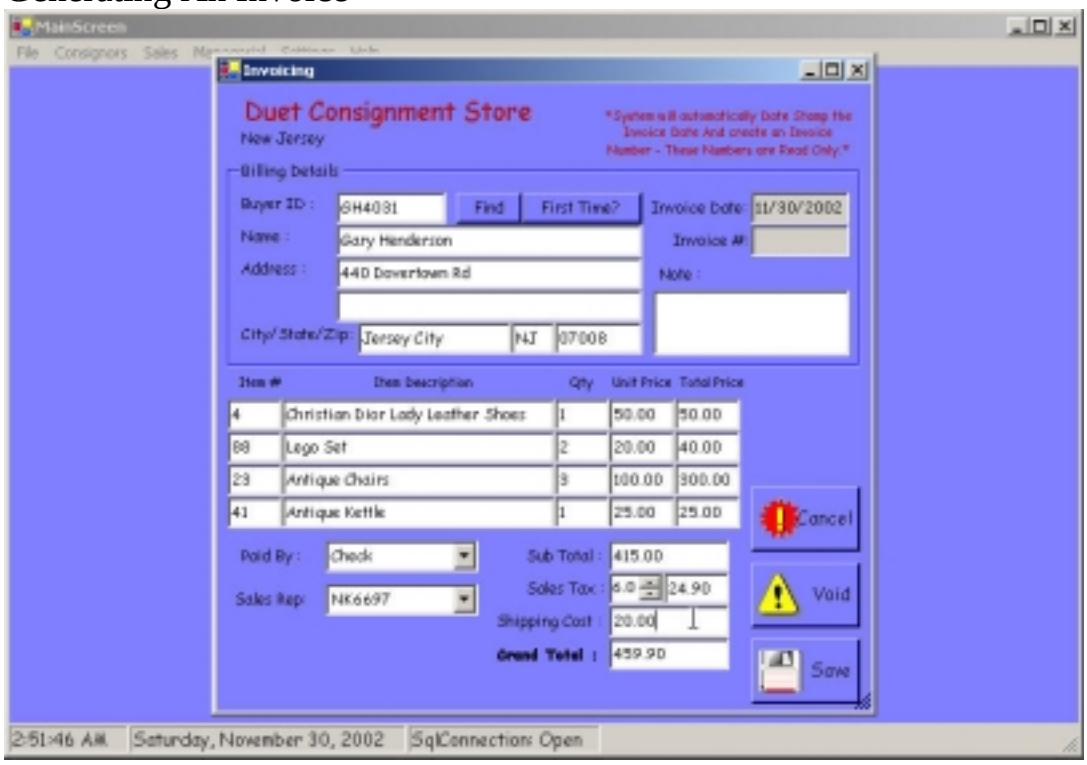


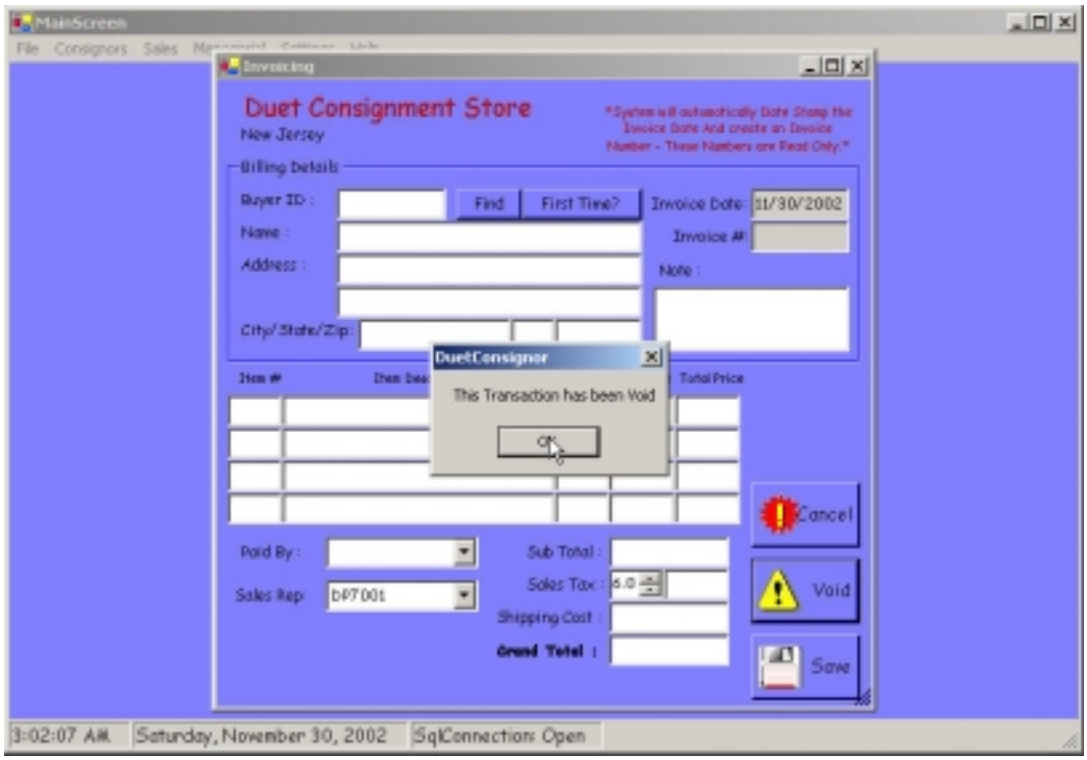
Add New Employee to Database (continued)



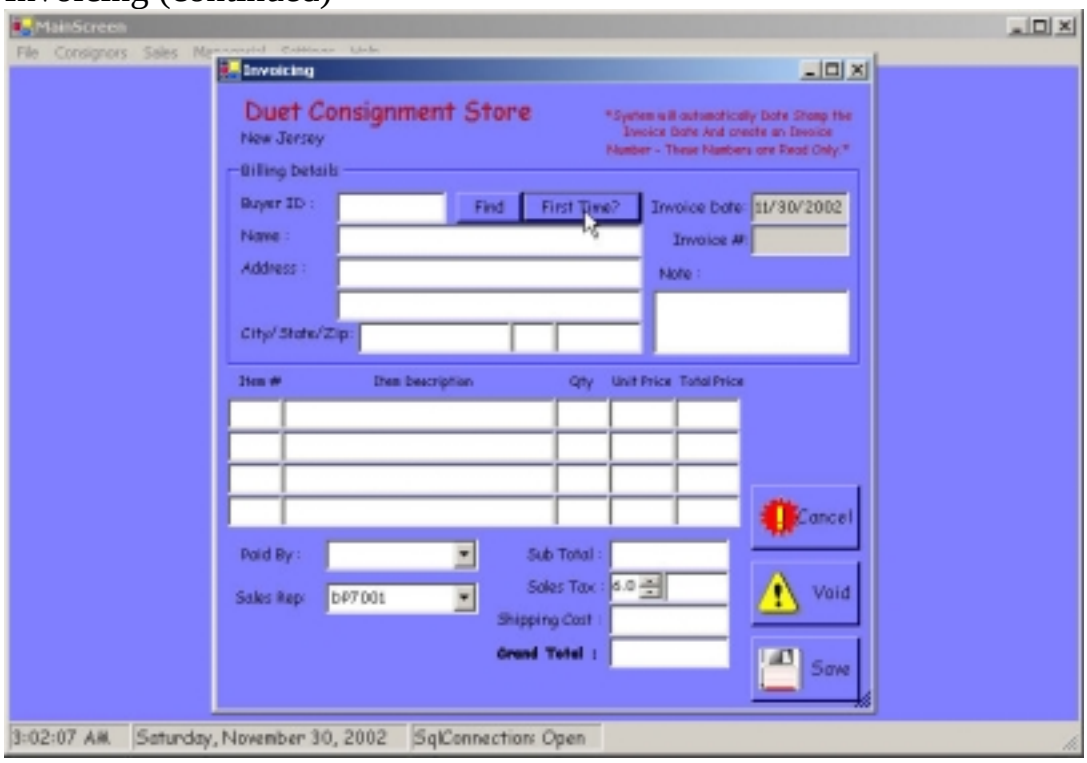


Generating An Invoice



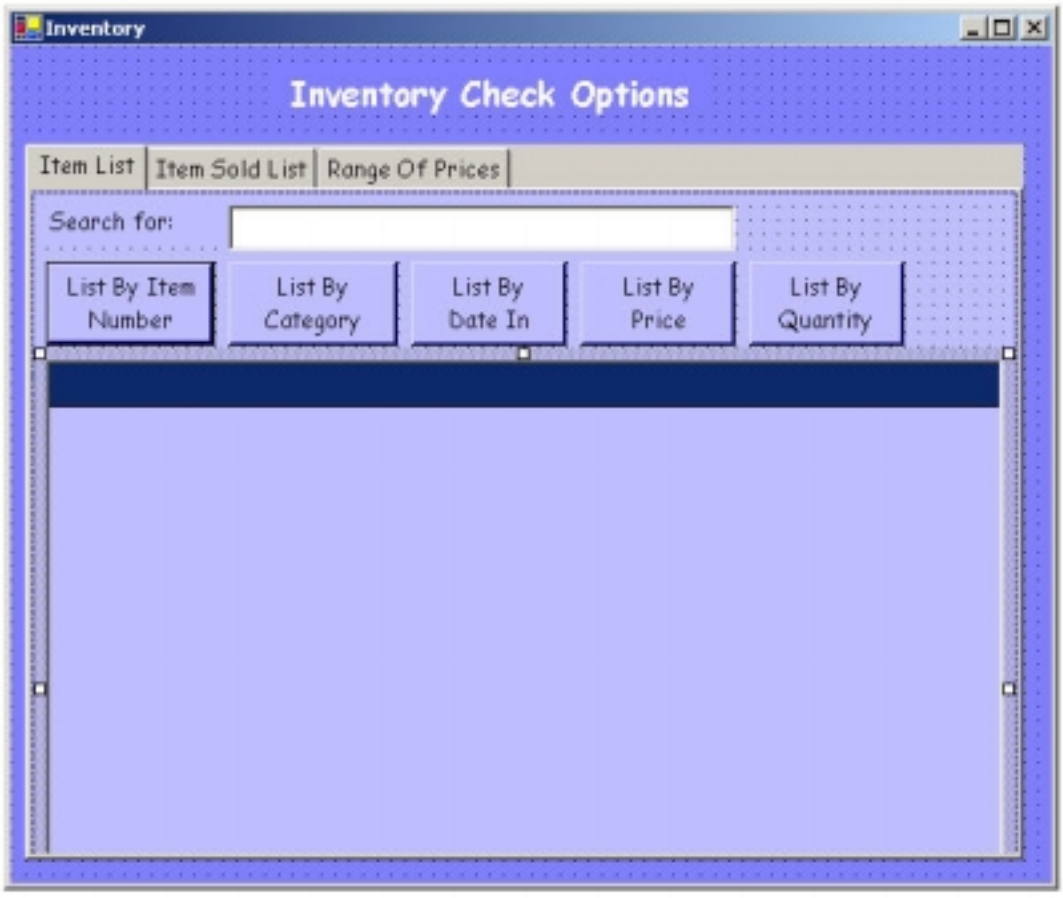


Invoicing (continued)

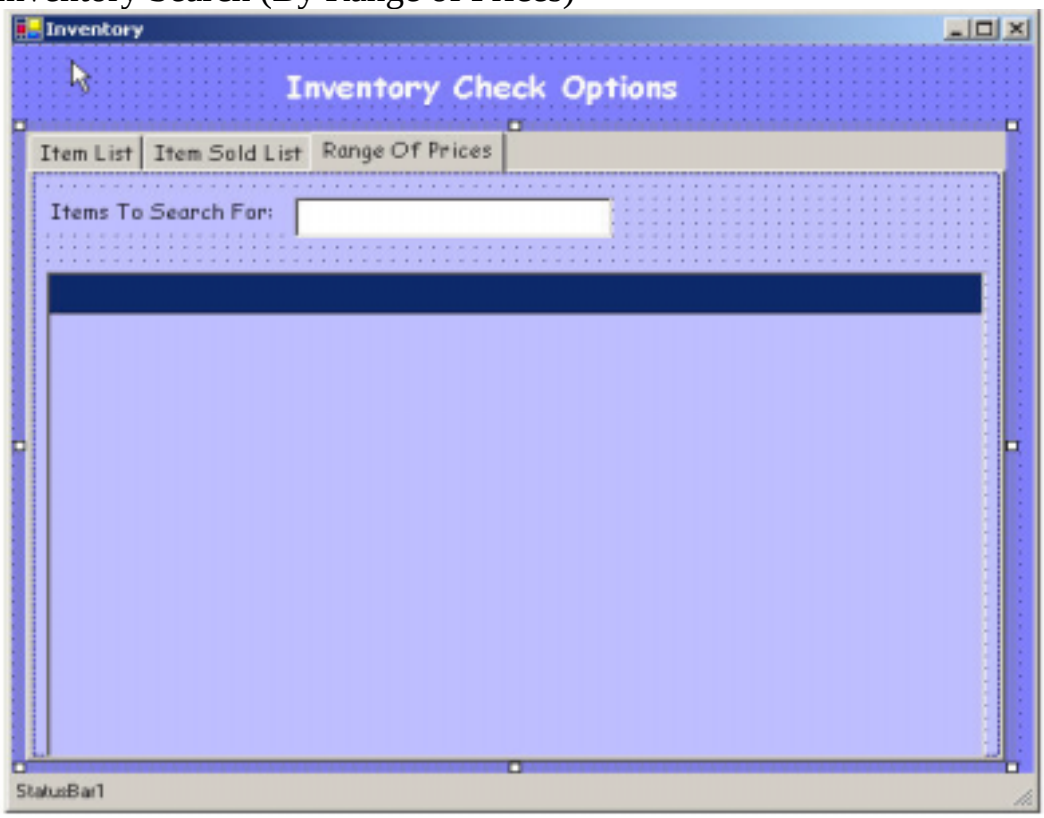


Invoicing (continued)

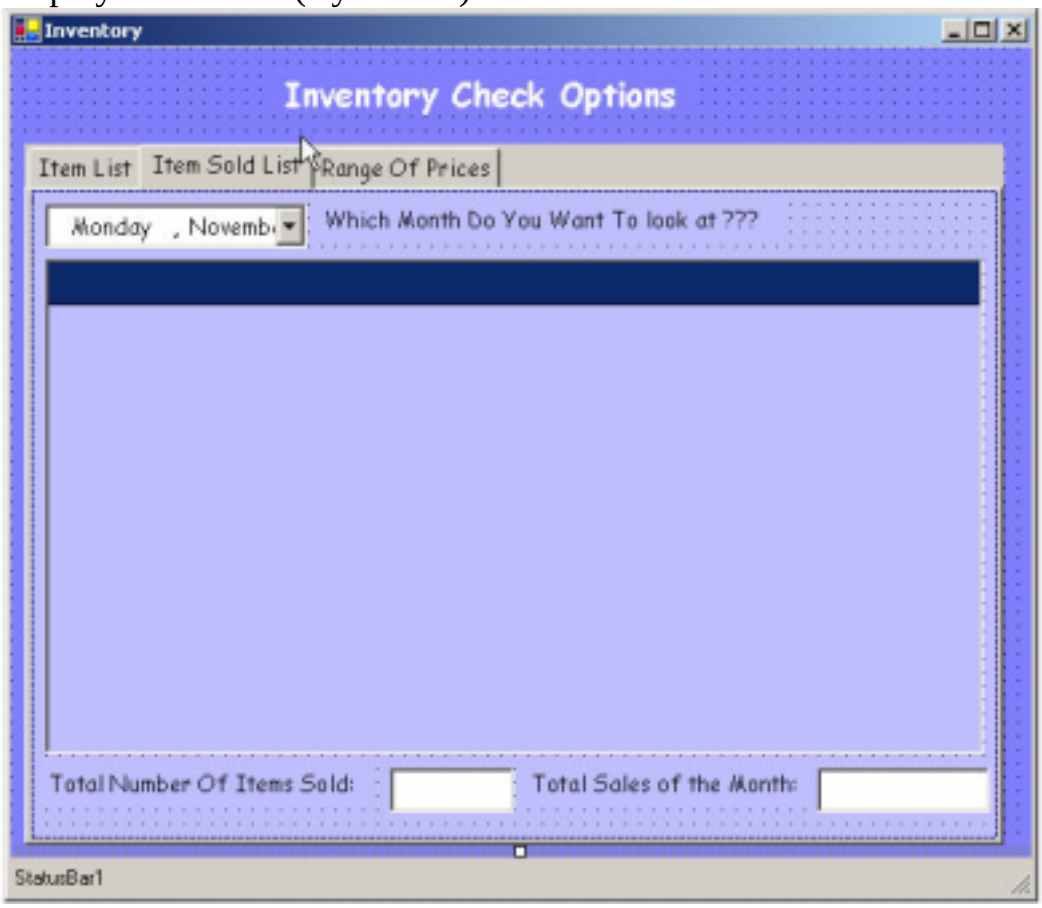
Inventory Search (Main Screen)



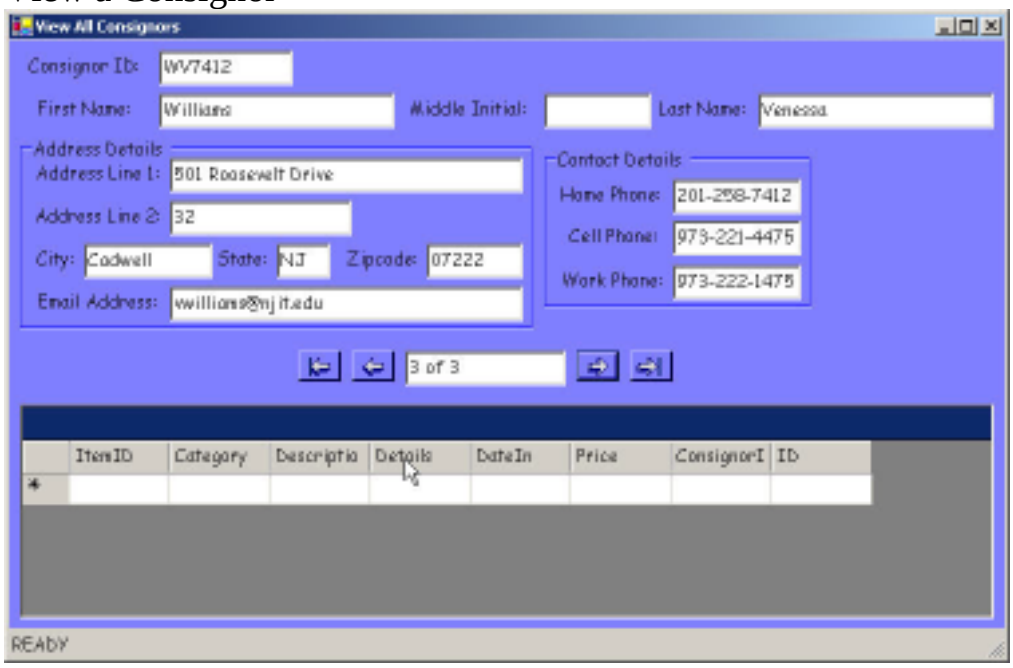
Inventory Search (By Range of Prices)

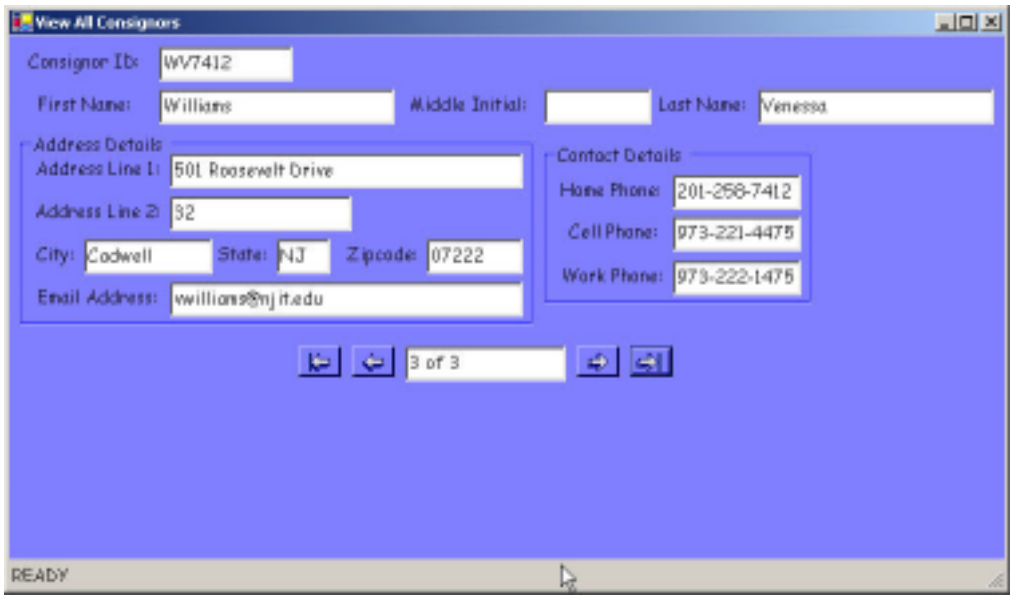


Display Items Sold (By Month)

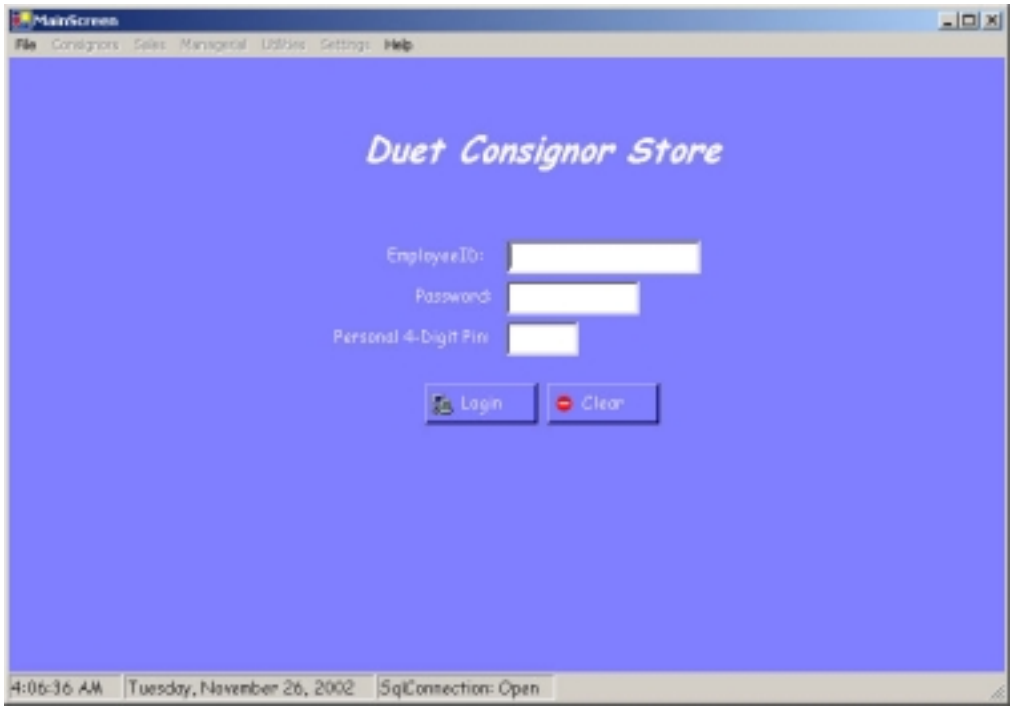


View a Consignor

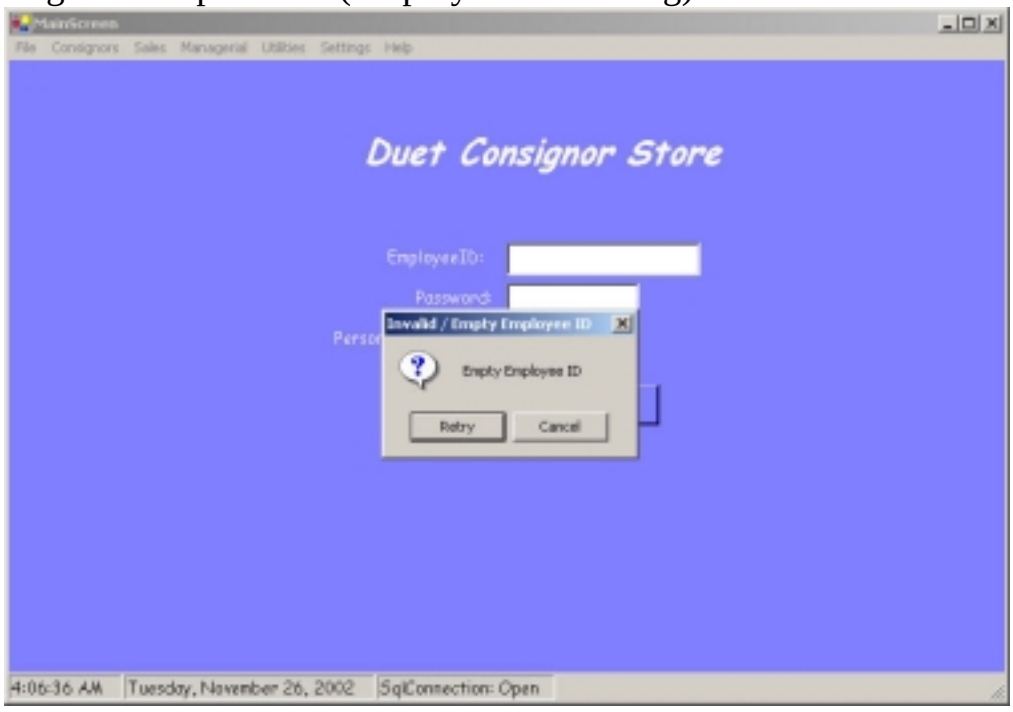




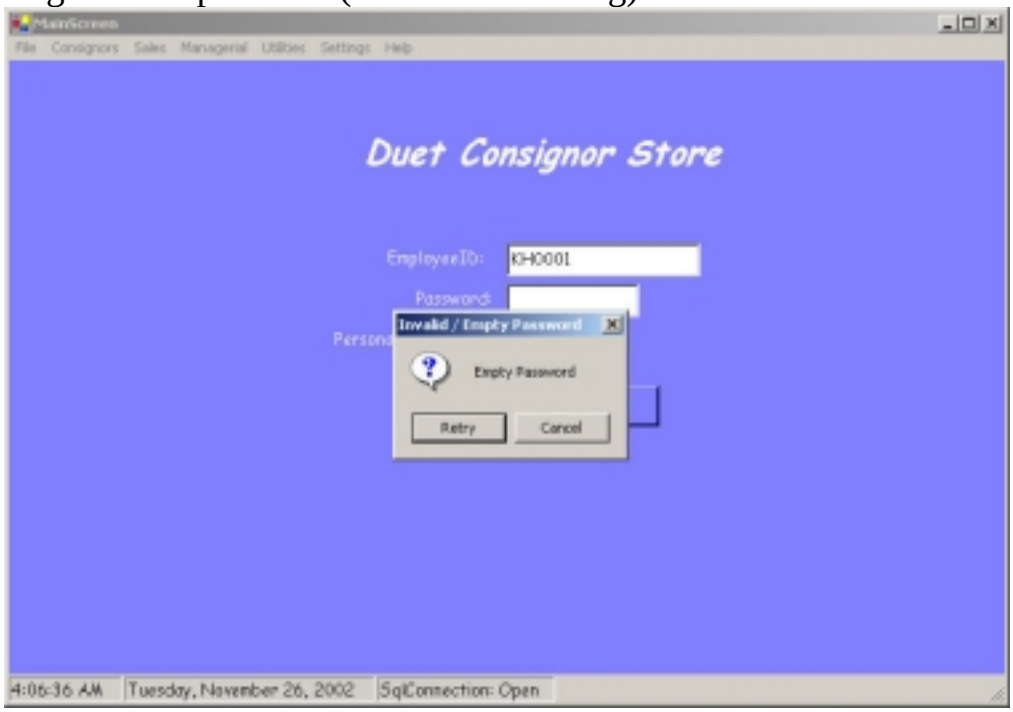
Main Screen to Duet Consignment Store



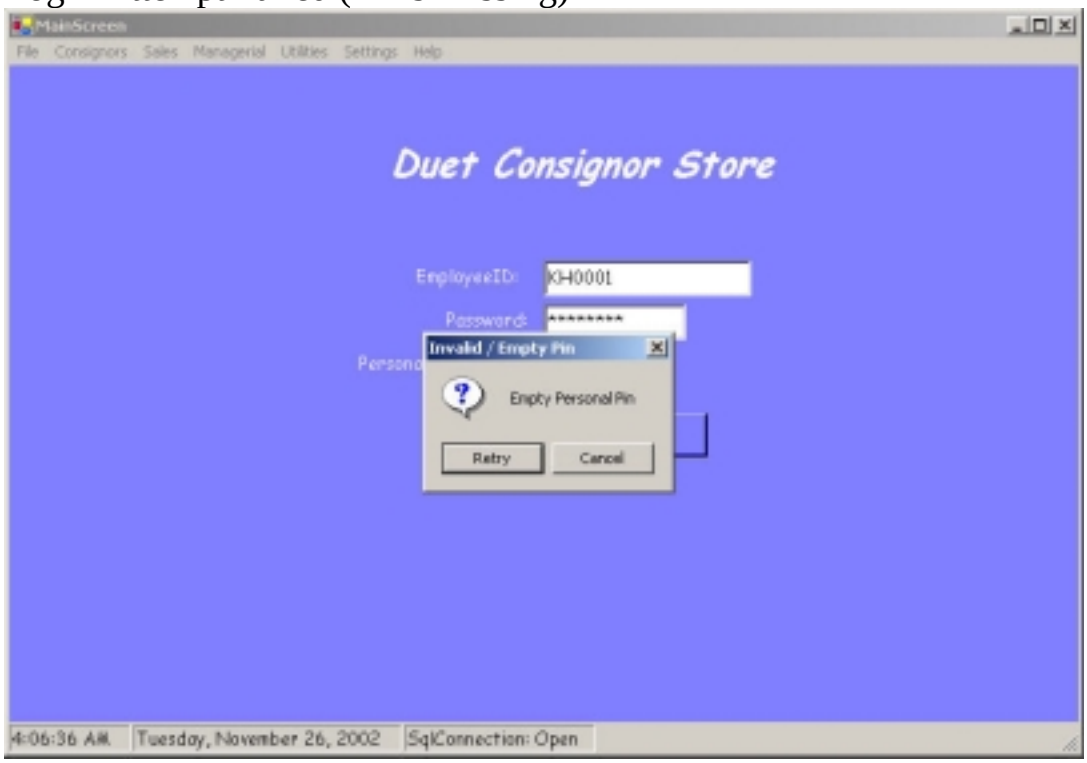
Login Attempt Failed (Employee ID Missing)



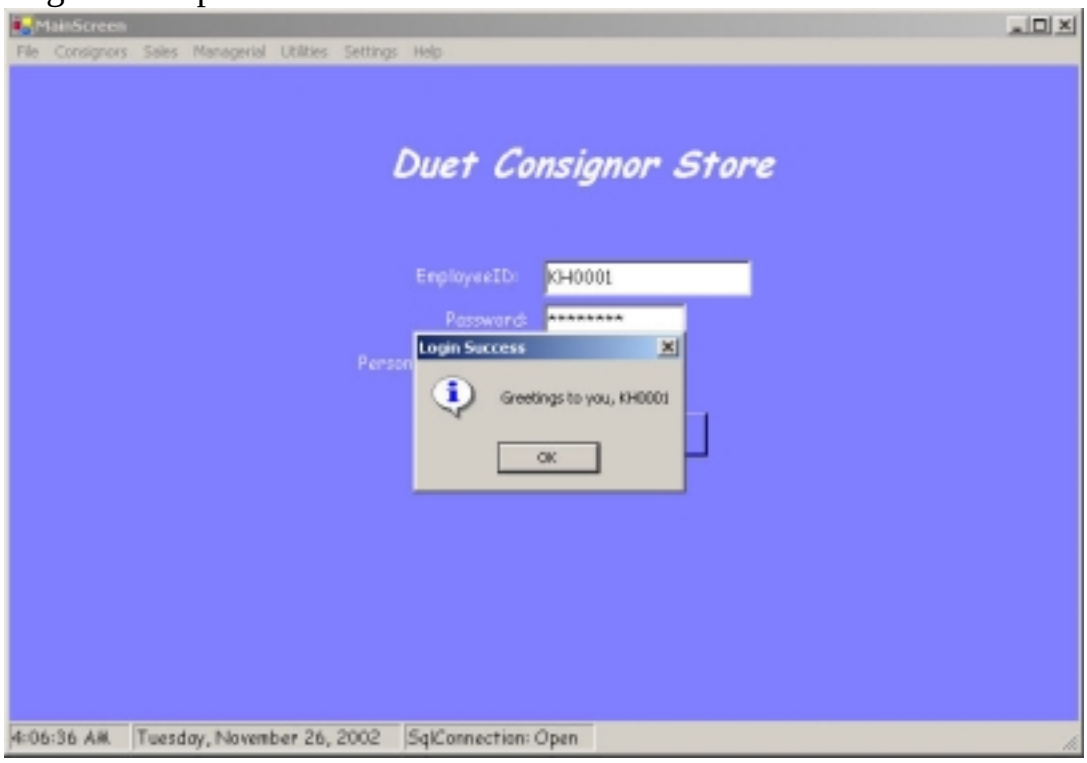
Login Attempt Failed (Password Missing)



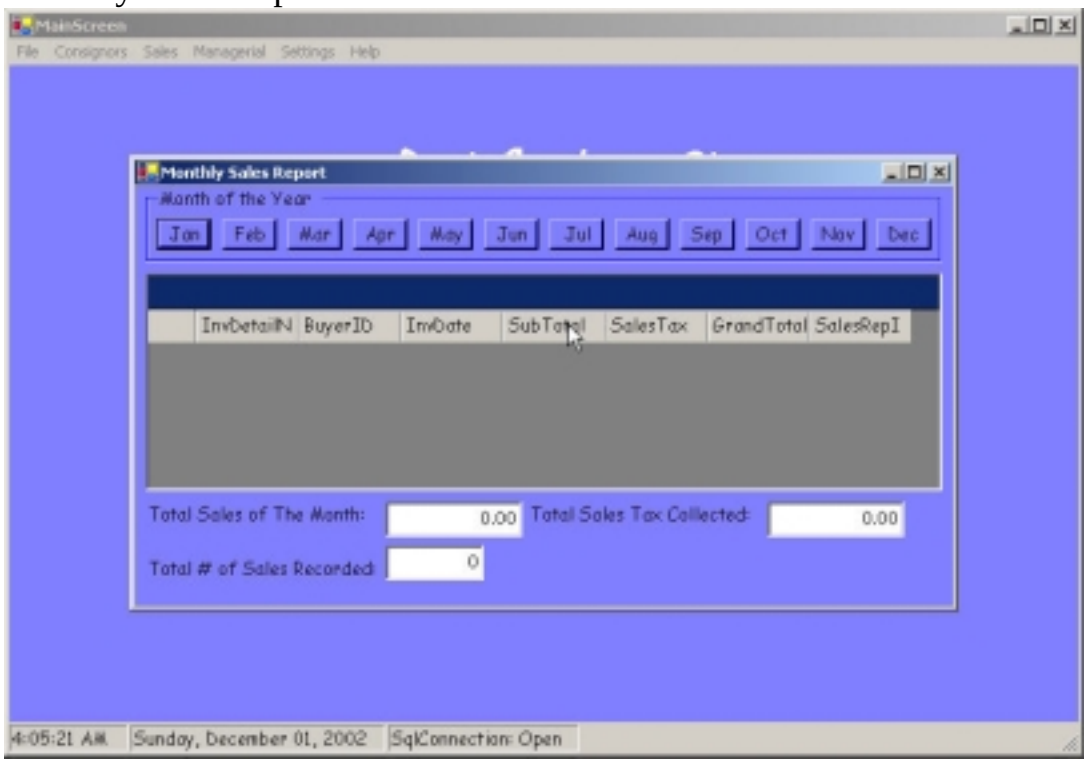
Login Attempt Failed (PINs Missing)



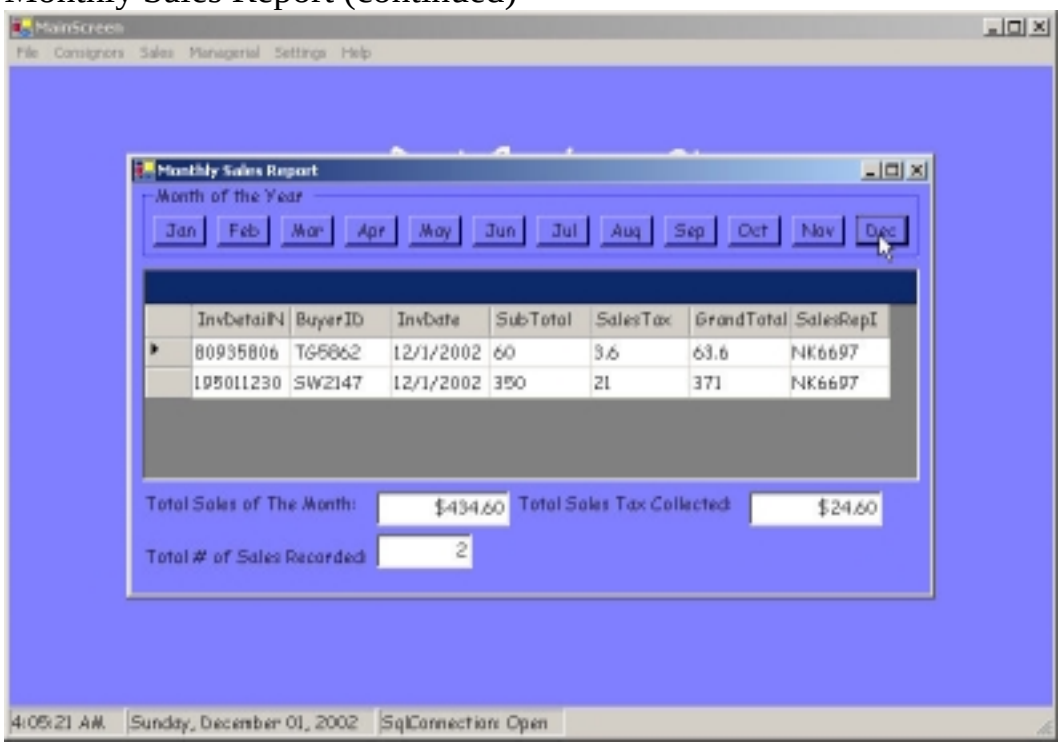
Login Attempt Successful

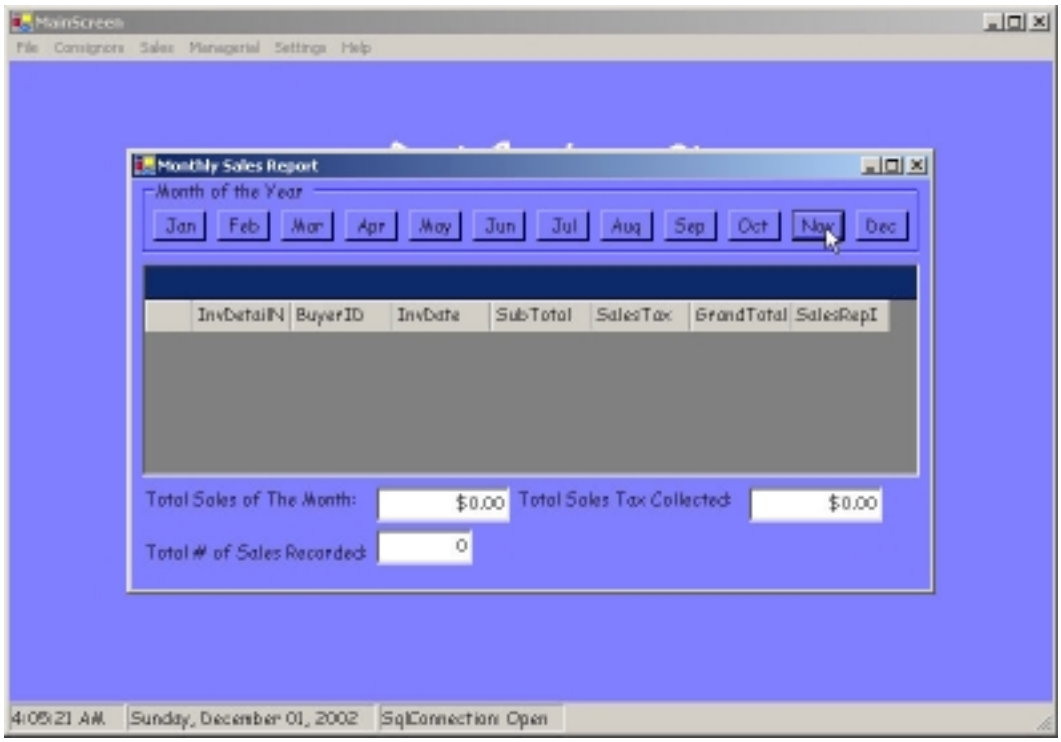


Monthly Sales Report

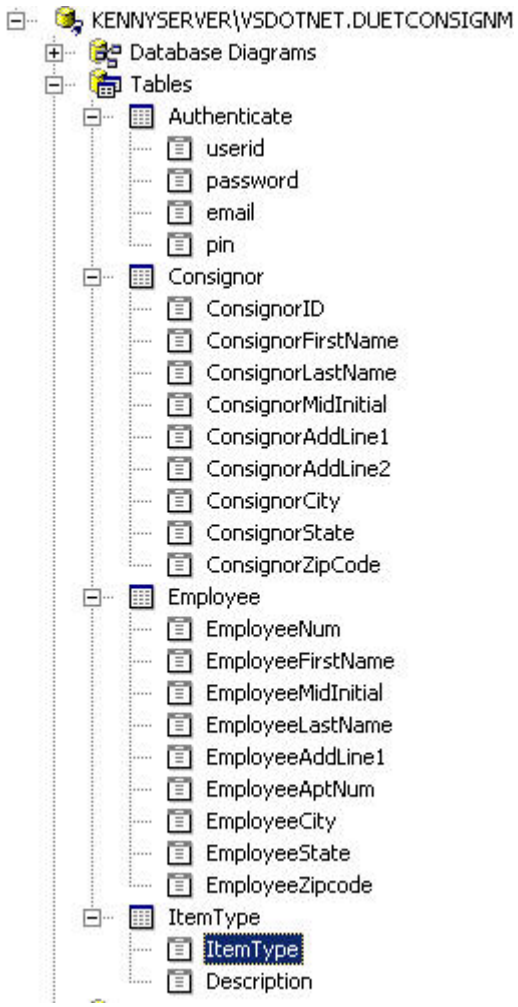


Monthly Sales Report (continued)





Snap Shot of MSDE Database



(Screen shots of the Online TO-BE system)

LOGIN SCREEN

Login Attempt Failed (Insufficient Parameters)

Login Attempt Failed (Username does not exist)

Forgot Password (Username does not exist in database)

Forgot Password (Username exists in database)

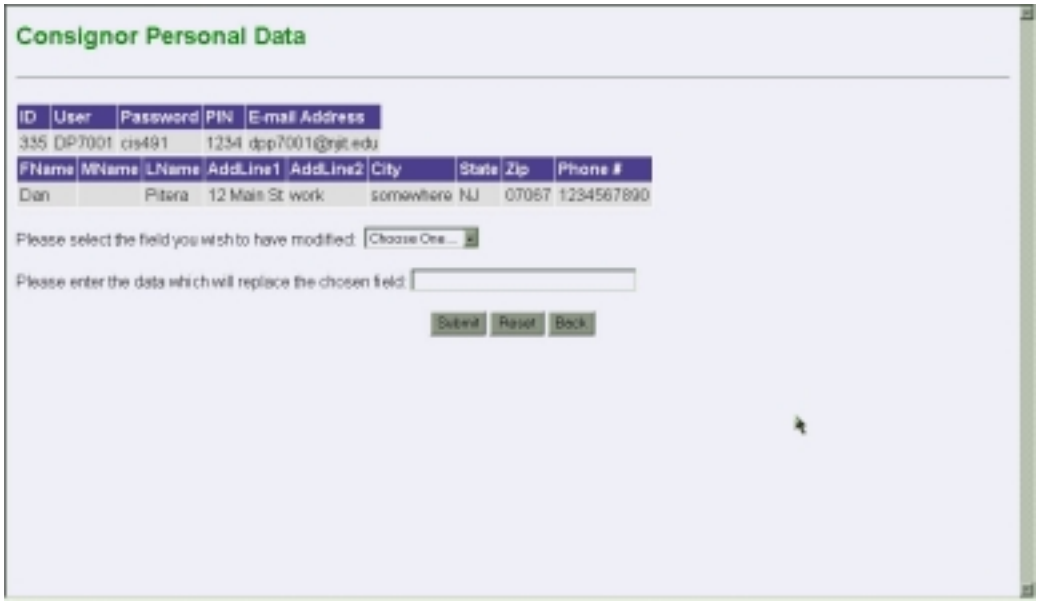
Received E-mail Containing Requested Information (For testing purposes, sent to designer's e-mail address)

Successful Login

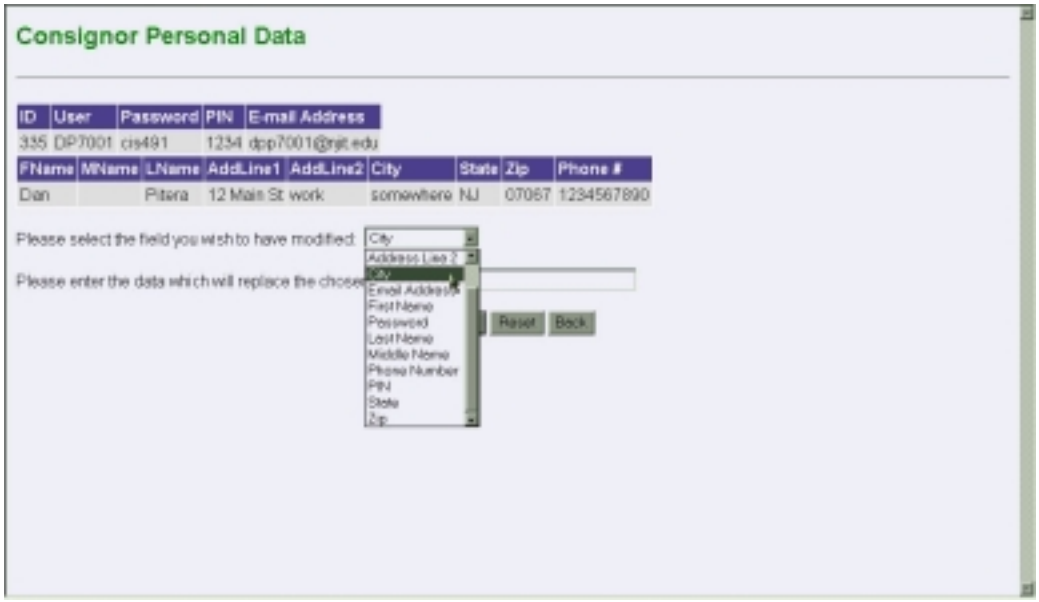
Consignor Account Balance

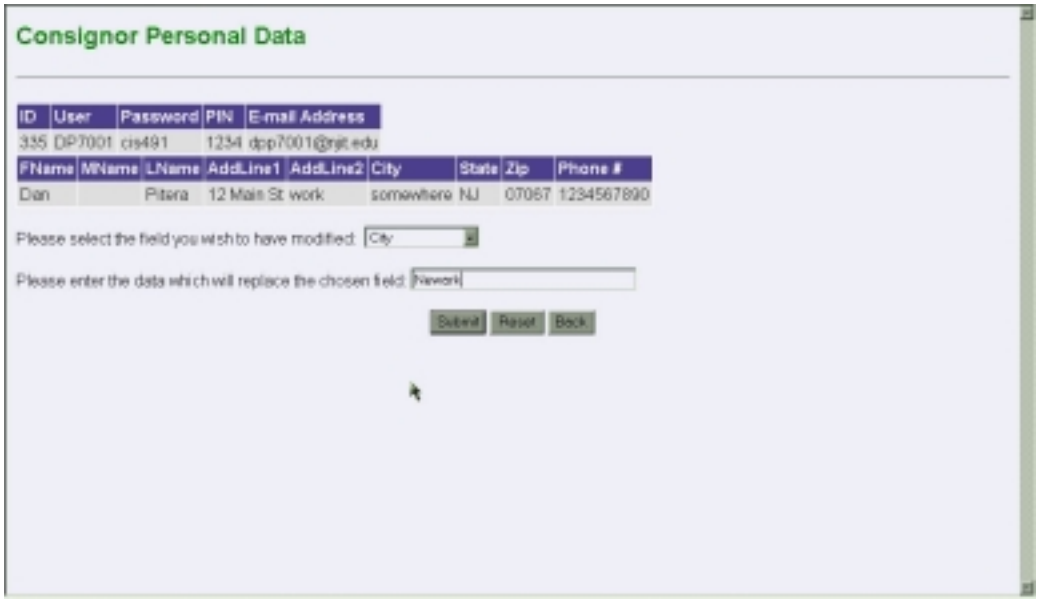
Consignor Payout History

Consignor Personal Information

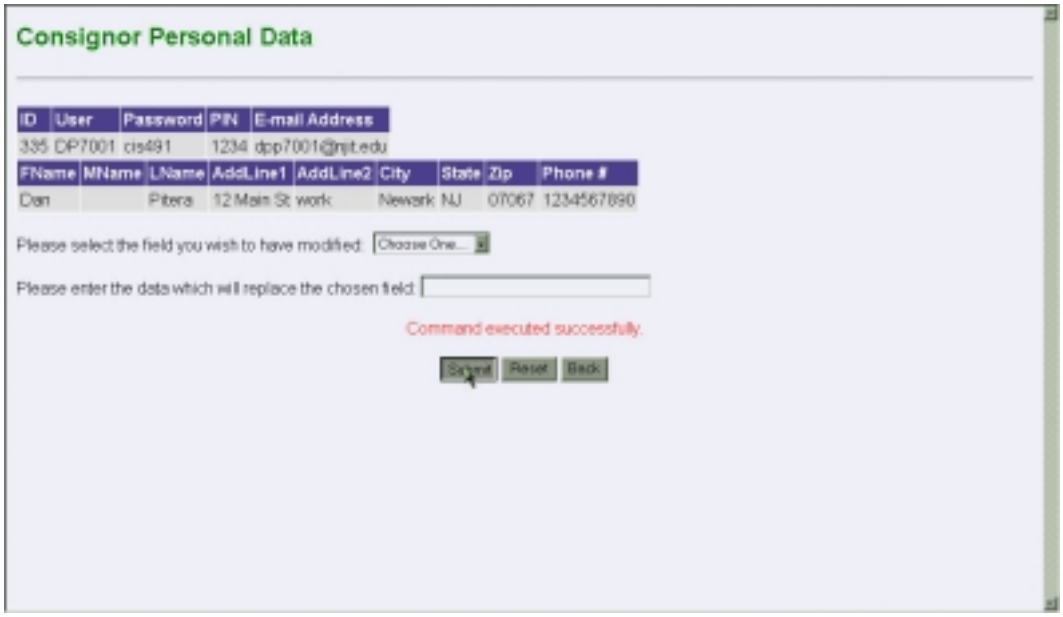


Consignor Personal Information (Change City)





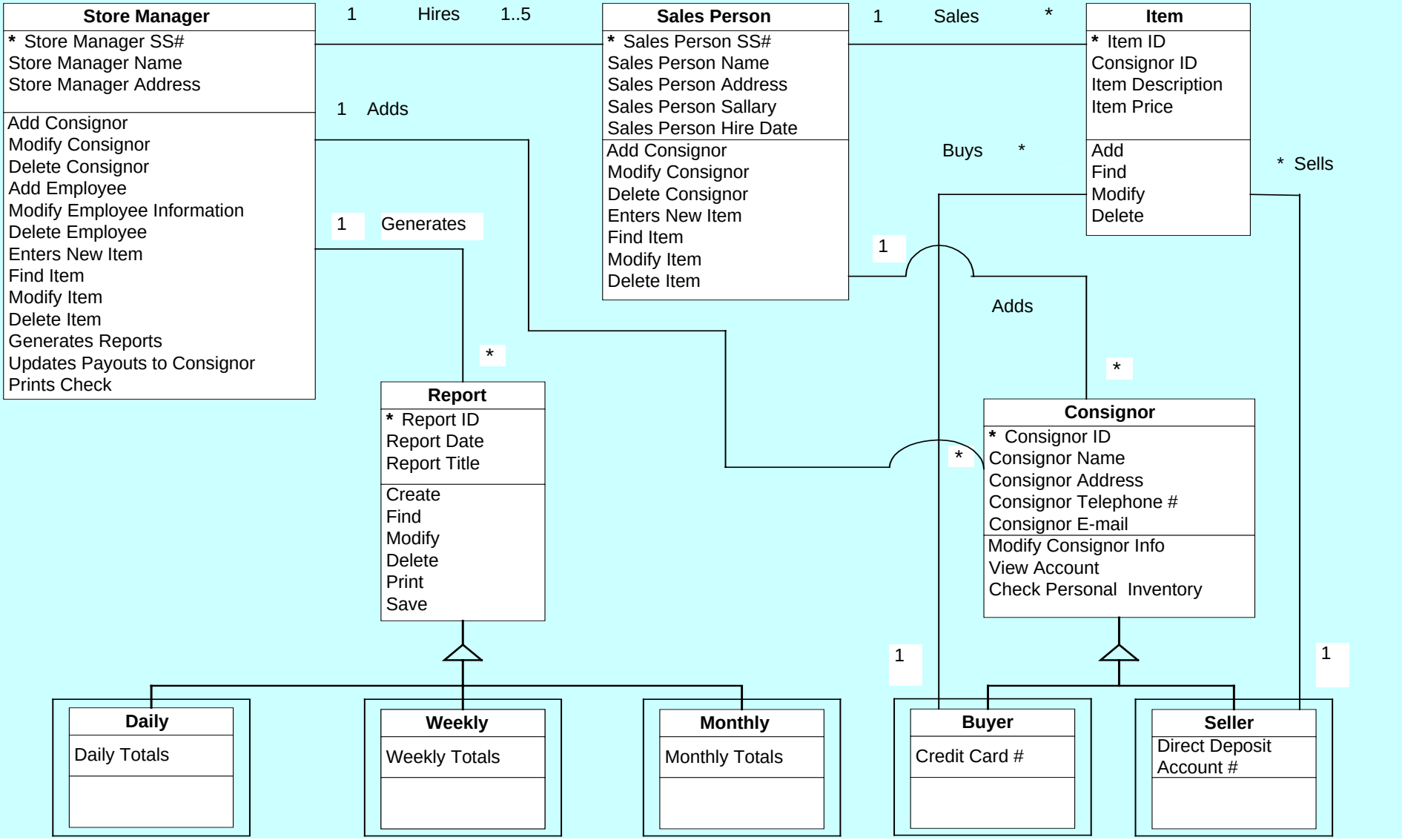
Consignor Personal Information (Change City) *Continued*



Logout Screen

Successful Logout

10. STATIC OBJECT MODEL DIAGRAM



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