Point of Sales Final Report

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**1. Overview**

This Point of Sales system will enable any size business to utilize the latest technologies without having to buy high-end hardware. Utilizing Java and an online SQL database, the software can be run on any operating system and almost any computer with internet access. The software can scale to many different applications. This project will create a Point of sales system that can perform transactions while allowing users to modify the database to add users/items/etc.

The GUI will consist of multiple components for the user to interact. The software will support login, customer point of sales operations and an administrative part to manage users and inventory, as well as to process reports

**2. Project Plan**

A. Will Holl

* Leader: ensures all due dates are met, and project stays on track
* Developer: Write Java Code to add backend functionality that performs the tasks shown in the GUI.
* Database Administrator: Ensure Online SQL database is online, format SQL tables to ensure efficiency while adding functionality.

B. Adam Lakomy

* Developer: Write Java code to display reports and data formatting for printing receipts.
* Database Administrator: Write stored procedures and develop views for reports.

C. Jeff Holloway

* Tester: Ensures proper functionality of application
* Documenter: Creates Documentation such as User manual, Testing plan, Design plan

D. Rene Alvarado

* GUI Design: Creates look and feel for application
* Developer: Write code to enable GUI (I.E., Code for an on-screen keyboard for example/Add buttons to screen)

E. Jacob Wiese

* Developer: Help develop Java Backend for main screen, transaction storage, and settings screen which allows users to input new items/etc.
* Designer: Help design SQL Tables/columns to provide proper storage of data

**3. Requirements Specification**

The login component will be managed by a database and have users added and removed from an administration console. Once the user is logged into the session, they will be able to go to any screen upon which they have permissions. There will be two different roles for users, an admin role, and a user role. The user will have permissions to add and remove sales, and customers. The admin will have all the access that a user has, plus they will be able to add and manage inventory, as well as users of the application.

The admin component will consist of multiple screens for the administrator to manage permissions and inventory within the software. The admin will be able to add and remove users from the application, and the admin will have the ability to reset any [G16] [G17] users password. The admin will also be able to add and remove items from the existing inventory and price items. The admin component will also be able to track reports such as how much stock was sold for a day, and how much is owed in sales tax.

**4. System Specifications**

a. Java JDK 8 installed on the workstation

b. (Optional) Barcode Scanner (To add ability to scan product barcodes)

c. (Optional) Printer (To print receipts / Kitchen order slips)

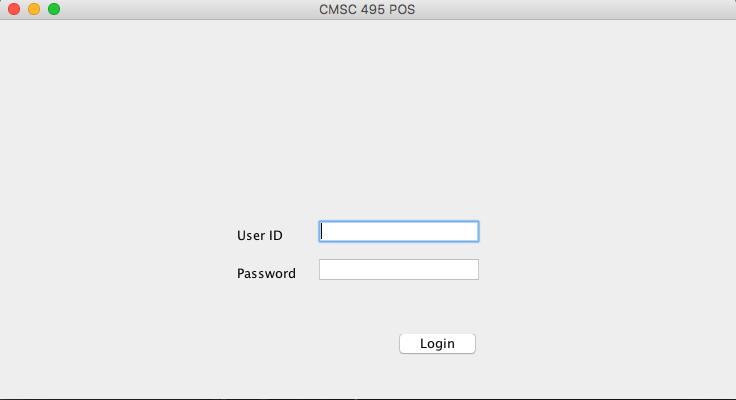
**5. Users Guide**

1. **Overview**

This Point of Sales system will enable any size business to utilize the latest technologies without having to buy high-end hardware. Utilizing Java and an online SQL database, the software can be run on any operating system and almost any computer with internet access. The software can scale to many different applications. This Point of sales system can perform transactions while allowing users to modify users/items/etc. There are a series of reports that will allow the users to identify sales trends.

**2. User Login**

The user login page is used as a secure method of allowing only approved users to access the POS and sales information. The login page uses a high-level encryption to prevent user information to be stolen.

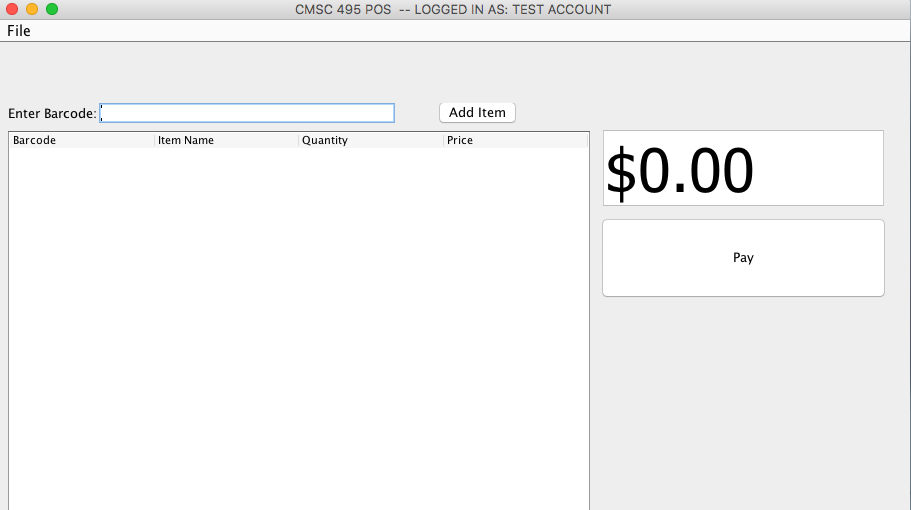


Please use the following username and password.

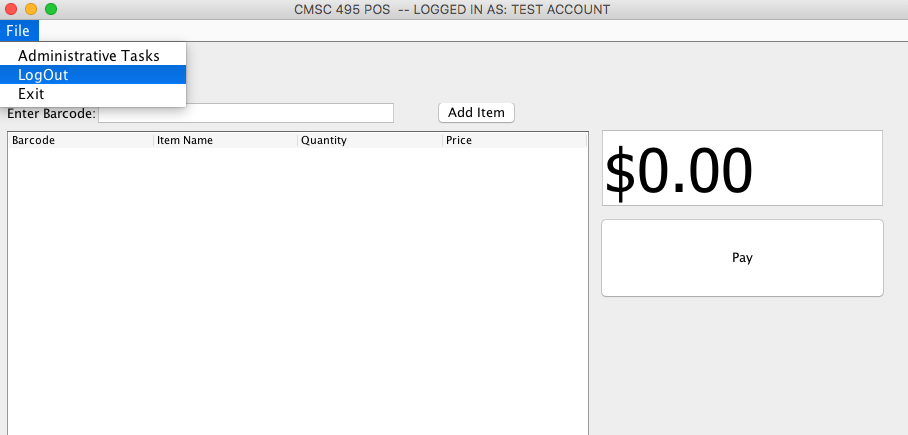
**Username: 2**

**Password: cmsc495**

**Once logged in, you will be at the Main POS screen where all transactions are managed.**

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**To Log out of the program and return to Login screen click “LogOut”**

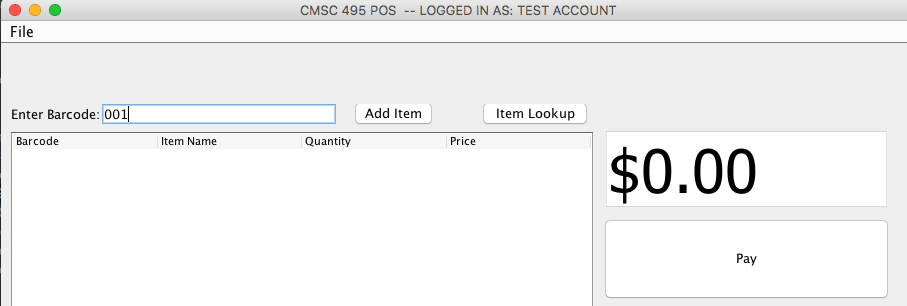
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**3. Orders *(Currently under construction)***

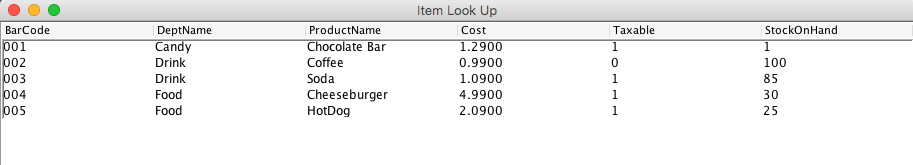
Users are able to create orders to calculate the total bill for the customer without having to manually calculate the tax or change of the transaction.

1. Search Item - Area can be used to search items in inventory.
2. Item Inventory - Area lists all current items in the inventory.
3. Add - Adds item from Item inventory or searched items to the cart.
4. Delete - Removes item from the cart.
5. Complete Order - Calculates total.

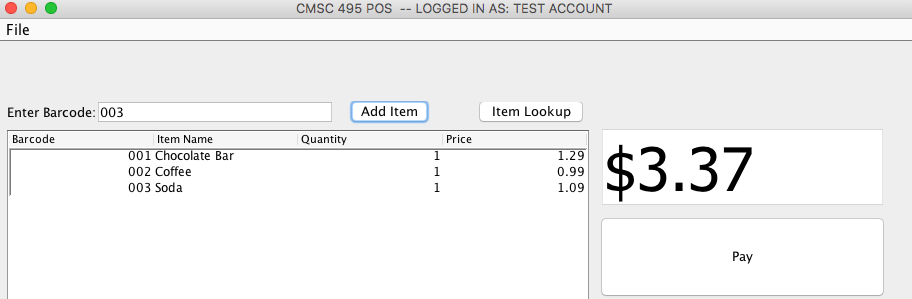
**To complete orders enter Barcode number and click “Add Item”**

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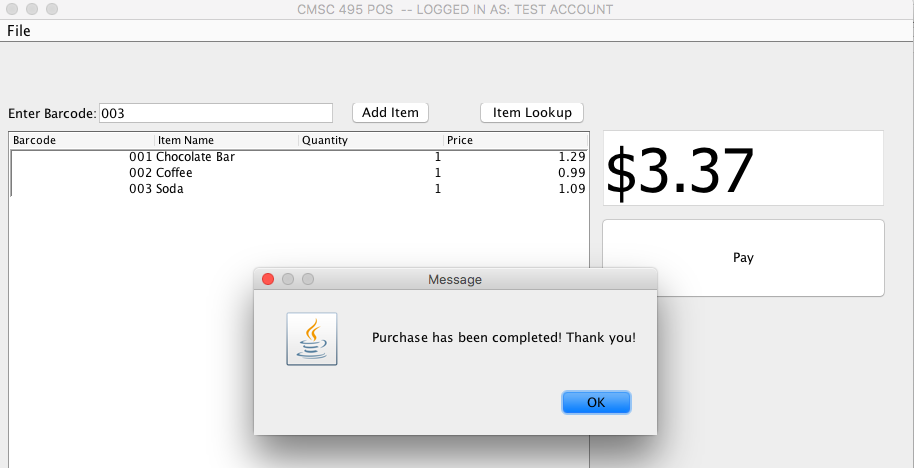
**The current list of Barcodes in inventory are listed below**



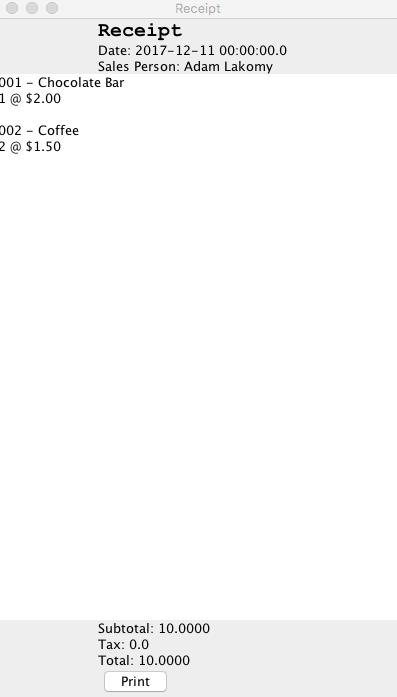
**As items are added the purchase amount will update automatically**

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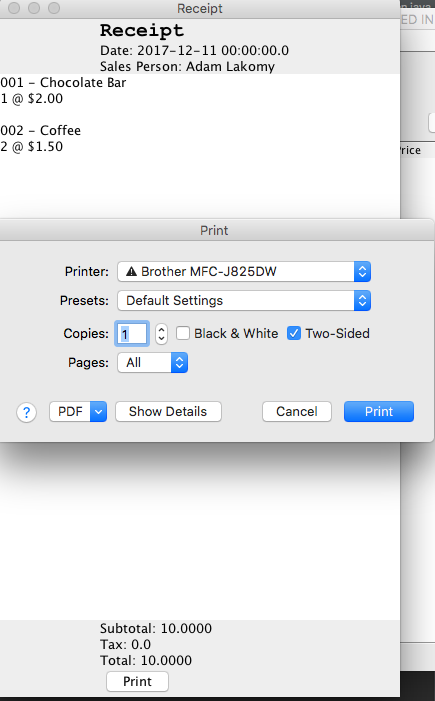
**Once all items have been inputted click “Pay” the following Message will appear**

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**Click “OK” to create a receipt**

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**Click “Print” to print the receipt**

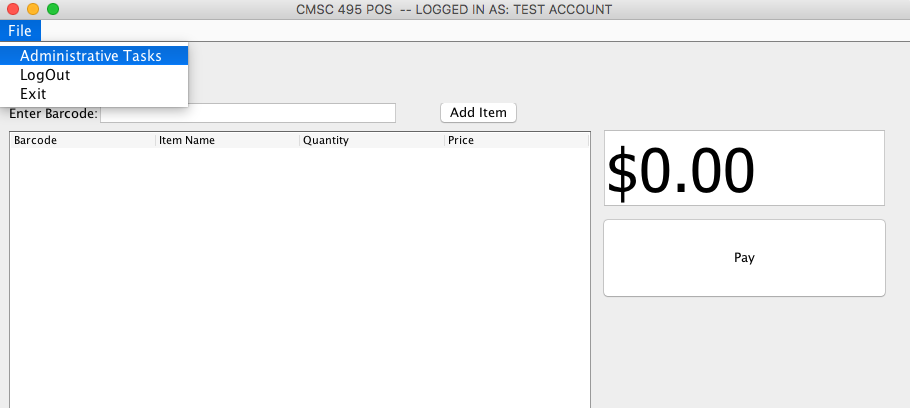
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**4. Inventory**

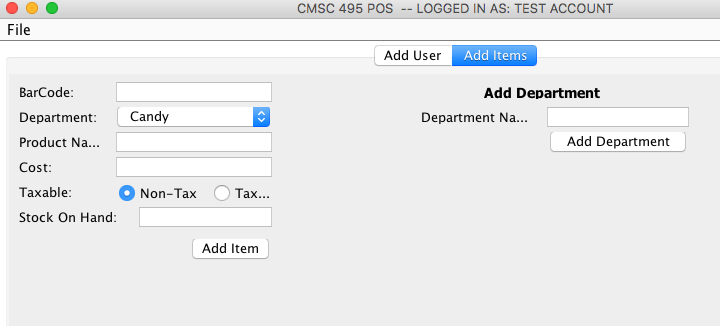
Users are able to add, modify or remove inventory to the POS. This area is where the prices and type of inventory that are available are edited.

1. Edit - Allows approved users to edit the price charged of an item.
2. Delete - Removes item from inventory.
3. Add - Adds new item to inventory.

**To perform administrative tasks such as inventory management click “Administrative Tasks**”



**To perform inventory management click “add items”**



**Enter the necessary info and click “Add Item”**

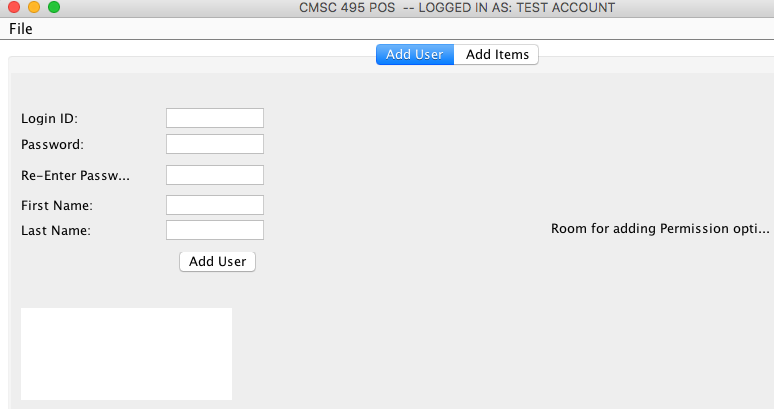
**Additionally, if you need to add a Department fill out the new department name and click “Add Department”**

**5. Admin**

This area allows for user accounts to be created or removed. User accounts are able to be updated to give permissions to specific areas of the POS.

1. Add - Allows a new user to be added.
2. Edit - Allows users permissions to be changed.
3. Delete - Removes user.

**To perform Administrative functions such as user management click “Add User”**

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**Enter the necessary information and click “ Add User”**

**6. Reports**

Reports have been developed to display data about the sales that will give the user an understanding of the current trends for items purchased in their business.

1. Sale Report - Shows all sales that have been completed between two dates.

**6. Test Plan and Results**

# Test Cases

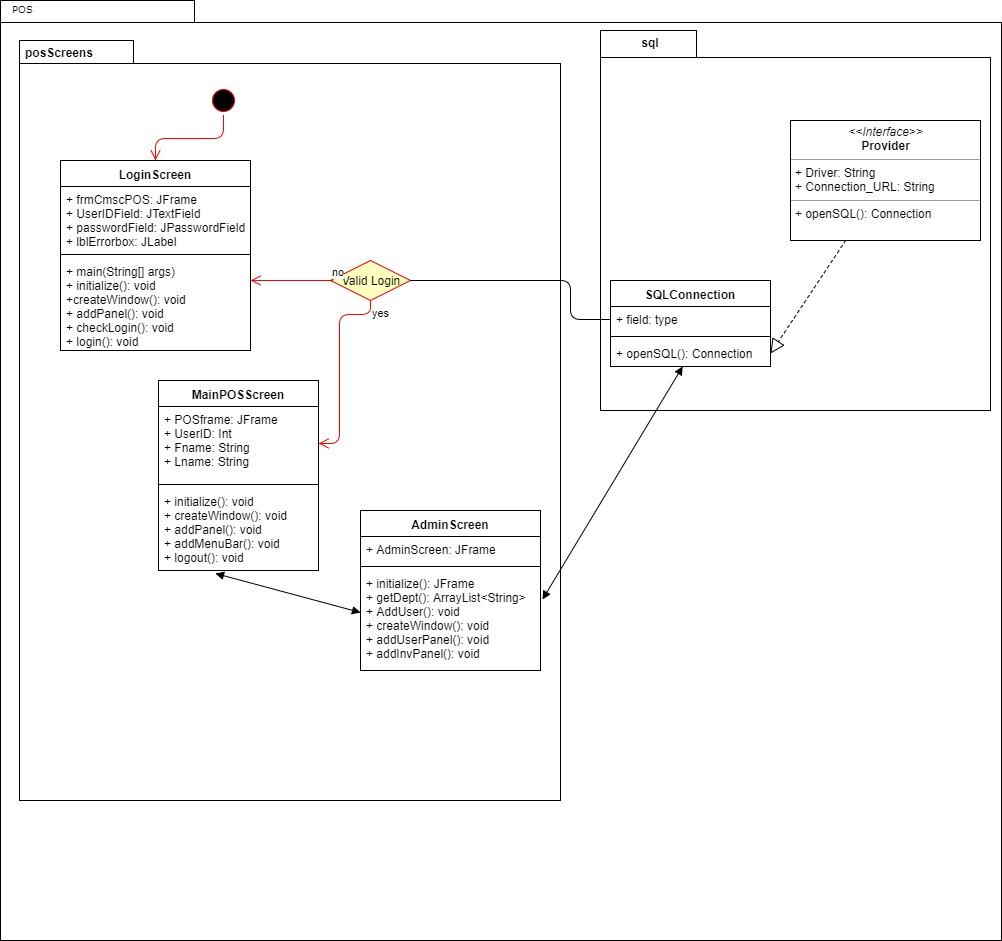
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Case | Input | Expected Output | Actual Output | Pass/Fail |
| 1 | User Login | User can Login | User can Login | Pass |
| 2 | Add Item | User can add | User can add item | Pass |
| 3 | Process Sale | User can process a sale | User can process a sale | Pass |
| 4 | Print Receipt | User can print a receipt | User can print receipts | Pass |

# Summary

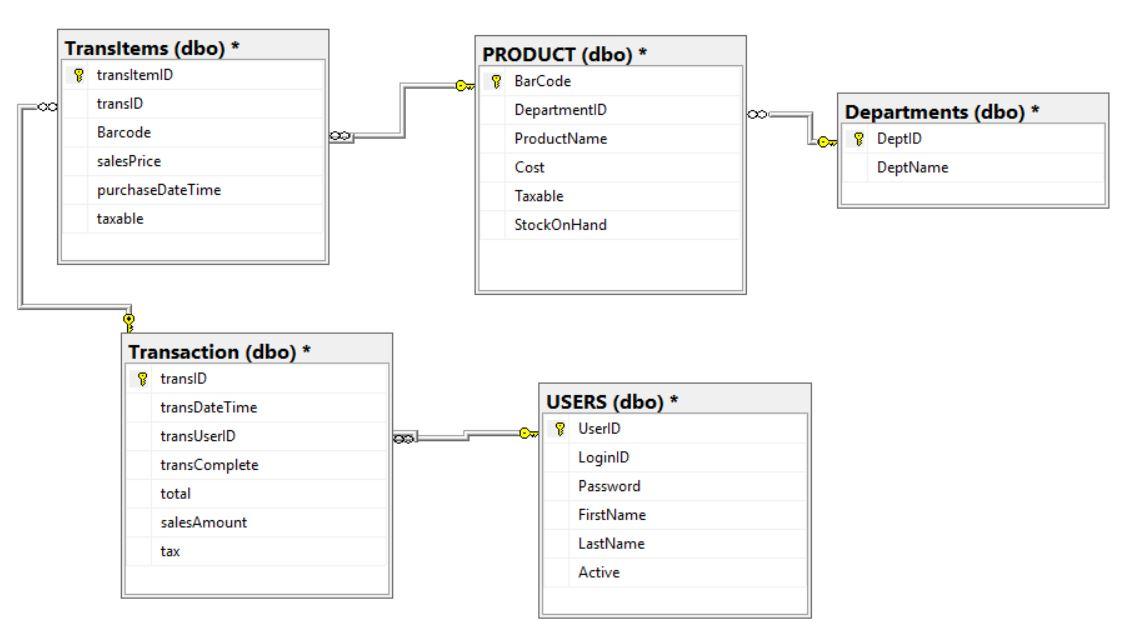
# The Point of Sale system test showed several areas of improvement over the original system. I believe that using this system will enhance efficiently and productivity. Using cloud based technology business owners can monitor cash flows from anywhere. This test proved the system can manage users, update inventory, and process sales.

**7. Design**

# **Java Class UML Diagram**



# **SQL UML Diagram**



# **Summary**

Team Charlie's class project features modernizing a classic point of sale (POS) system. This project will use the Java programming language to create the user interface for all user input such as sale processing, new user creation, and inventory management. Additionally, The program will point to a Microsoft SQL database. Microsoft SQL will manage the POS database. The database will contain departments, inventory items, transactions, and user management. User management will feature login id’s, passwords, and if the user is active or inactive. Modernizing the POS system will not only help businesses efficiently manage operations, but having an updated graphical user interface will enhance usability.

Installation will include downloading the latest distribution of the POS jar. The software will require an active internet connection so that it can connect to SQL Server on the cloud. The computer will also require the latest version of the Java 8 JRE or later. It is the user’s responsibility to ensure they are running the latest version of the POS jar to ensure software runs properly.

**8. Development History**

**Week 8 –** Added Sales report

**Week 7 –** Added Option to choose taxable, added ability to add items to table, added ability to finish sales

**Week 6 –** Fixed bugs where options saved under adding items/adding users resulted in incorrect backend data

**Week 5 –** Added menu to add items/departments to the SQL database in app

**Week 4 –** Users can add new users from in app

**Week 3 –** Added ability to log into app, added menu to open admin screen if admin

**Week 2 –** Created SQL Tables and columns, optimized database tables to speed up searching

**Week 1 –** Hosted SQL online to reduce end user requirements, created GitHub to allow for developers to easily update code.

**9. Conclusions**

The POS project was very eye opening for us. Our development experience thus far was individual projects not large group projects as this one. We all worked together very well, and the result was a great java project that can be used as a functional Point of Sales system. The project showed us all how the power of groups can help advance programs, if we would have had to do this individually it would have not turned out the same. The program can still use some improvements in the future, we would like to add more reports to be able to give managers a better picture of their company’s financial picture. We love that the SQL server is hosted online, requiring companies to install less software and requires less resources from the site. In hindsight, the program we created far exceeded any of our individual goals and we are all proud of each other for our accomplishments.