

California State University Fullerton

CPSC 254



Object Oriented Software Design

Use Case Model

for the

Tax Shopping Calculator

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Kenneth Carbonell	k3nshiro@csu.fullerton.edu	<ul style="list-style-type: none"> - Programmer - Tester - Meeting Manager - Artifact Assistant 	<p>The feature responsible is making sure the County/State that is being inputed by the user is process correctly in which it chooses correct tax rate to be utilized</p> <ul style="list-style-type: none"> - As a tester, they are responsible for testing each other's code for bugs, vulnerabilities, and making sure the code functions properly and according to the product's features
Devin Tran	trandevin@csu.fullerton.edu	<ul style="list-style-type: none"> - Programmer - Artifact Manager - Configuration Manager 	<p>The feature responsible is making sure the calculations is being done correctly with the correct price and correct tax rate.</p> <ul style="list-style-type: none"> - For Artifact Manager, I will be responsible for creating and maintaining UML diagrams, Class Models, and System Level Use Cases for the project. - For Configuration Manager, I will be responsible for helping other members setting up our environment and setting up necessary back end settings and GUI settings

Project Detail

A. Purpose:

The purpose of this application is to calculate the grand total of a transaction including tax. This would include the objects in a transaction and figuring which items does tax apply. To elaborate, grocery items do not have tax applied to them but General Merchandise does. Furthermore, the percent of tax will depend on the location or city since different cities have different tax rates.

B. Background

This Idea was created based on the experience of being a cashier at a retail store. A common scenario that is seen is people asking why the total comes out to a different amount than listed on the tag and forget that tax is also included. For those who know, they often question the sales tax if its correct. Oftentimes these calculations are done by hand to demonstrate that the amount is correct and accurate. Another dilemma is that customers often underestimate the total thinking that they have enough but afterwards they realize they don't. This causes some time to be wasted since they often have to go through all they items and choose what to leave. This causes some headache especially since there are other customers waiting. Some have less patience than others. With this idea, it would save time on the register due to seeing if they have sufficient funds or not before reaching the cashier. They won't be in a rush and under pressure to choose what to leave, they can budget correctly and save them from a headache.

C. Case Tools

a. Draw.io

- i. We are using Draw.io because it is simple, easy to use and accessible for everyone. It has a wide selection of figures and diagrams to be able to do our design.

D. GUI

a. Qt

- i. We decide to use Qt because of its simplicity to use
- ii. Open-source

E. High Level Language

a. C++

- i. C++ is a language we are all familiar with since it was a language that was used in the beginning of our college programming careers. Additionally, Qt is a C++ application so it makes sense to use it.

F. Communication with Group

a. Discord

- i. We are using discord because it is the application that we all have and are familiar with. Its functions include messaging, sharing files and even having virtual meetings where we can share our screen and have group discussions.

G. Contribution to the Code Base

a. Github

- i. All our code is going to be stored in Github. It will keep track our progress, who contributed, keep version controls.

H. Documentation

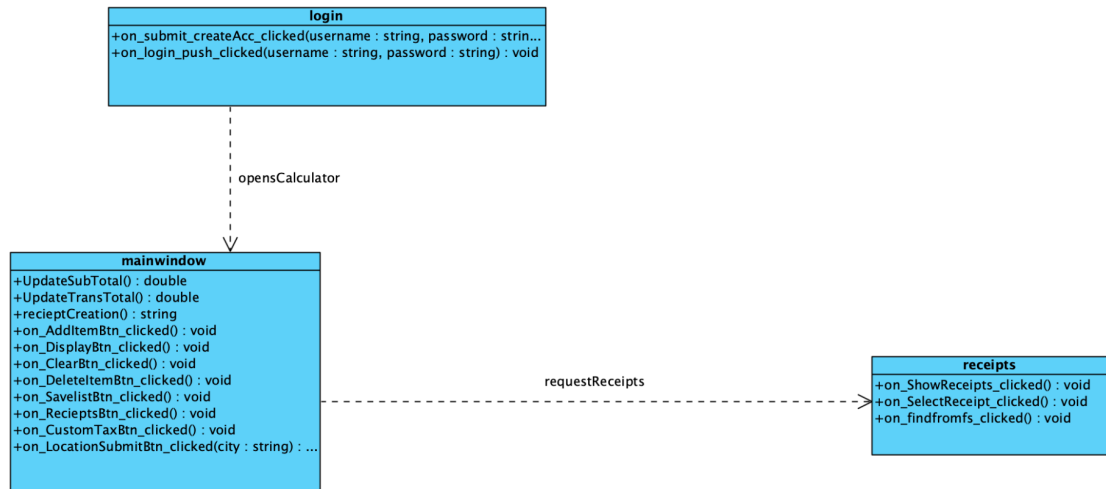
a. Outline

- i. This document will contain all the project information such as details, features, roles and other vital details about the project
- ii. Design
 1. The designs which are found in this document are done through Draw.io
 2. It shows all of our design and if there are any changes or improvements to it

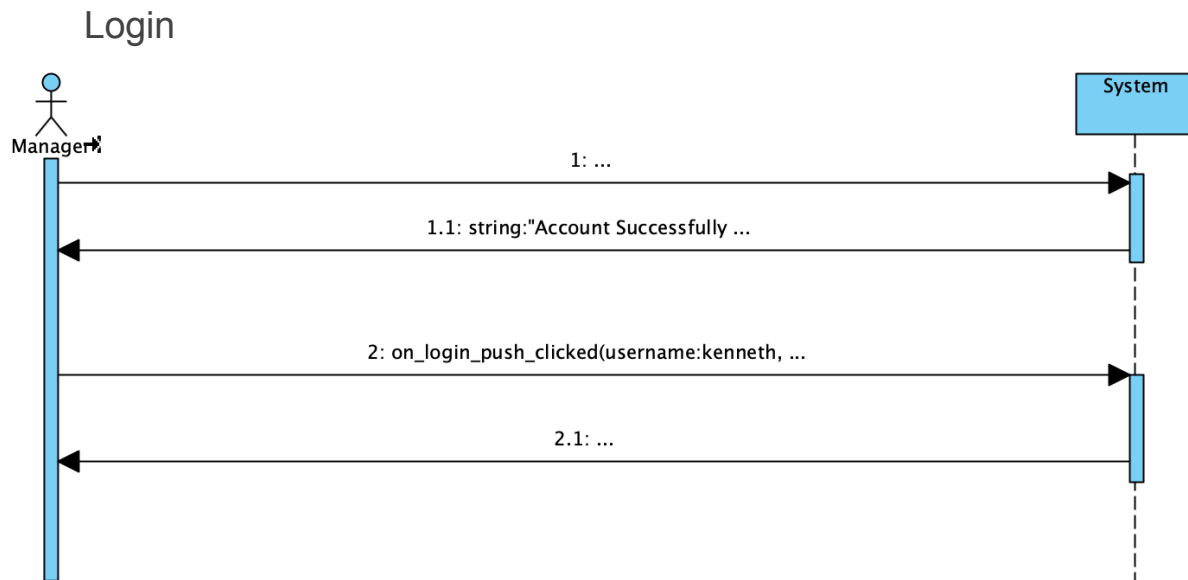
Feature List

Feature Title	Feature Description	Responsible Engineer	Draft Due Date	Final Due Date
Login/Create Account Page	The user logs into their account with existing credentials. If they don't have the account, the user can create an account	Kenneth Carbonell	November 15, 2022	November 27, 2022
Calculator Page	The user enters location to determine sales tax rate, and adds items to receive a total of how much their transaction is going to be. The user can delete items, clear their list and save their current transaction	Andy Vera	November 15, 2022	November 27, 2022
Receipts Page	The user selects a receipt from the saved ones and views it. The user selects the receipt locally or manually	Devin Tran	November 15, 2022	November 27, 2022

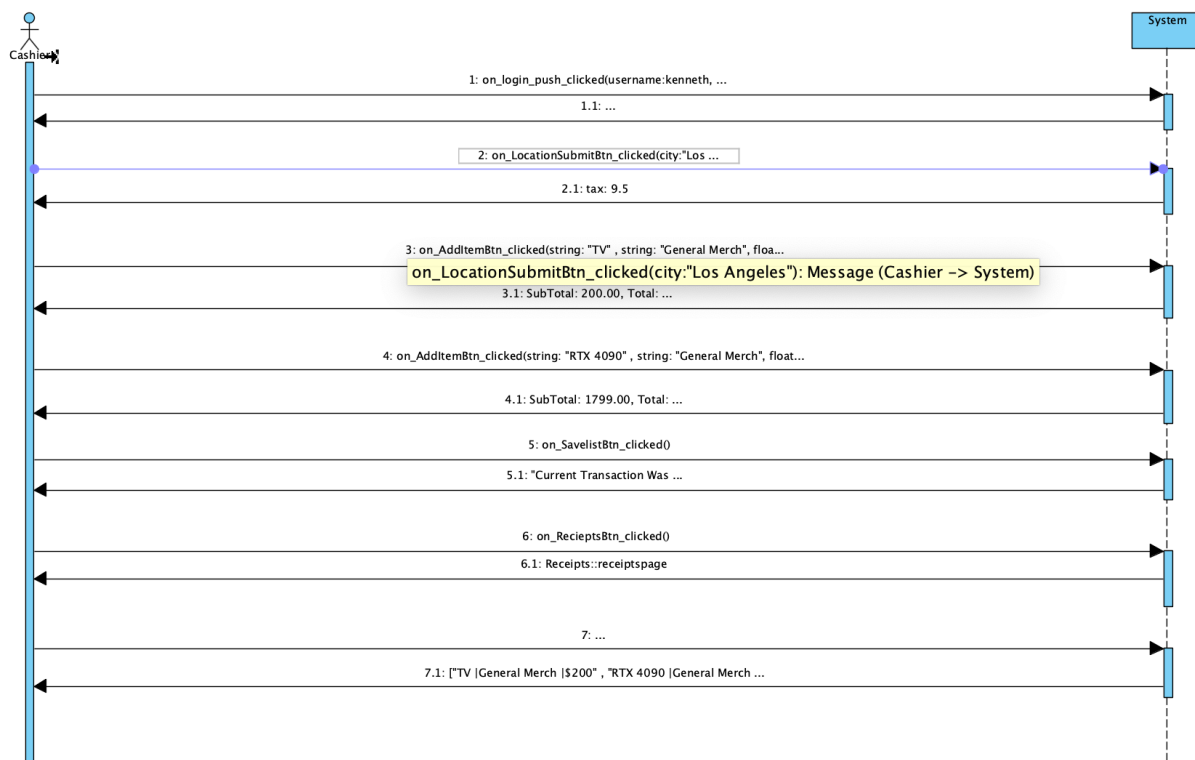
Class Design Model



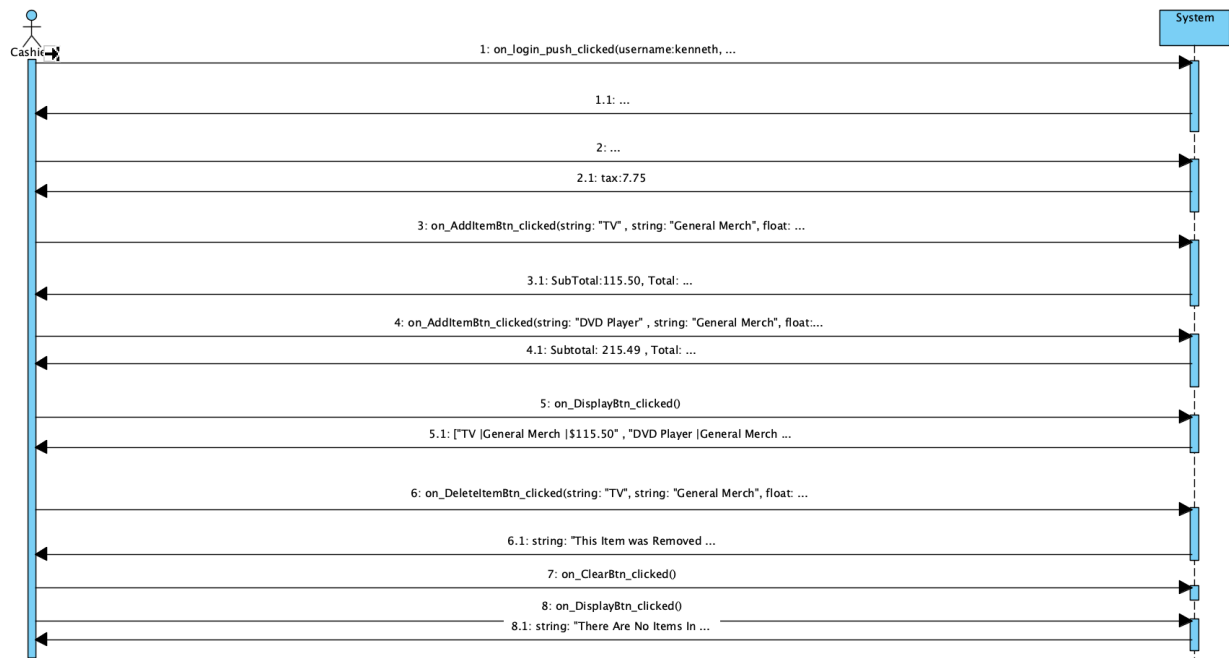
System Sequence Diagram



Shopping Calculator

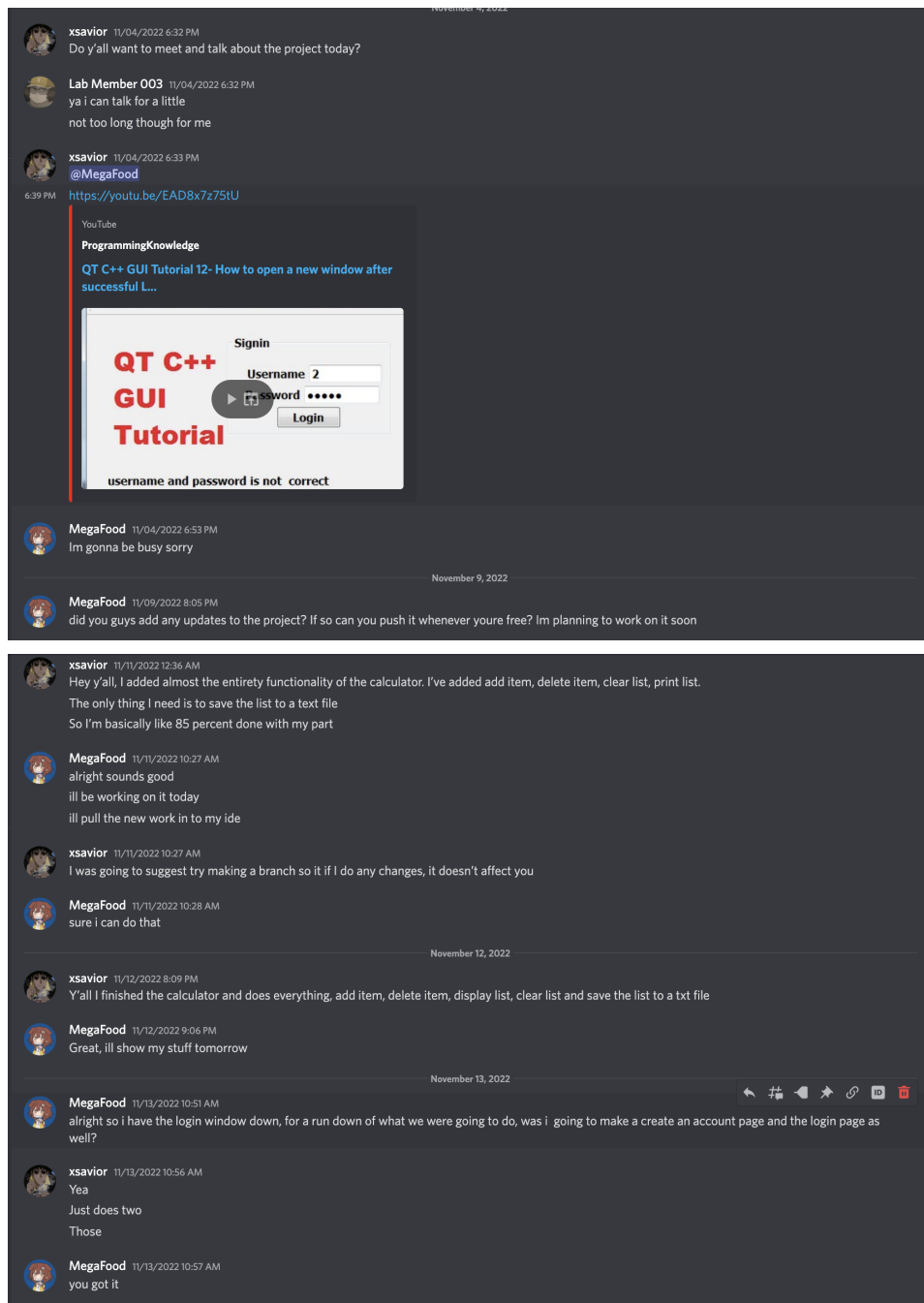



Receipt





Effective Communication Logs


The following are screenshots of our group's communication throughout the lifetime of this project. For context and clarification, we used Discord as our way to communicate with each other. Thus, aliases were used instead of our real names in which “xsavior” is Andy Vera, “Megafood” is Kenneth Carbonell and “Lab Member 003” is Devin Tran. Not only was Discord used for sending messages to each other but as well to live chat.





 **Lab Member 003** 11/23/2022 12:54 PM
if u guys are free today ima be in the discord to work on the project
might need some help if you guys are available


 **xsavior** 11/23/2022 1:14 PM
I'll be on around 5 if you need any help


 **Lab Member 003** 11/23/2022 1:14 PM
k


 **xsavior** 11/23/2022 4:43 PM
How's it going?


 **Lab Member 003** 11/23/2022 4:43 PM
going kinda good
i figured out how to bring up a menu to load files
within the receipt class


 **xsavior** 11/23/2022 4:44 PM
Nice
So you're able to select a file?


 **Lab Member 003** 11/23/2022 4:44 PM
ya but i need to figure out how to display it


 **xsavior** 11/23/2022 4:46 PM
It's similar to my display function (edited)
To read from a file is similar to the Save function from calculator

 **Lab Member 003** 11/23/2022 4:48 PM
hmm ok ill take a look at that
ty

 **xsavior** 11/23/2022 4:52 PM
What did you use to select a file?
Combo box?

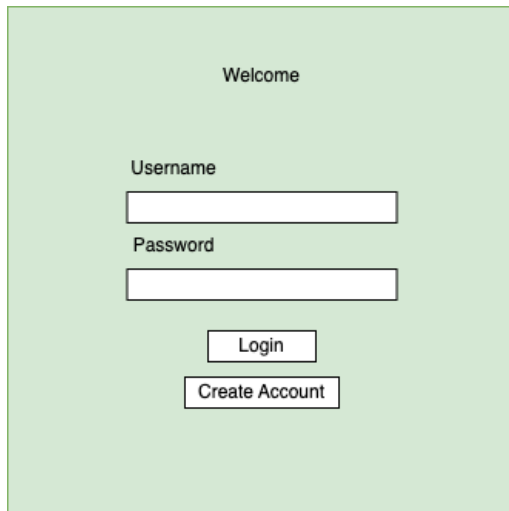
 **xsavior** 11/23/2022 5:04 PM
are you able to hop on a call?

 **Lab Member 003** 11/23/2022 5:04 PM
ya soonish
in like 10 min

 **xsavior** 11/23/2022 5:04 PM
kk

GUI Designs

Login Page



Wellcome

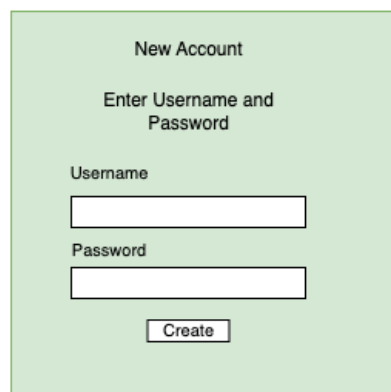
Username

Password

Login

Create Account

This is a login page design. It features a light green background. At the top, the word "Wellcome" is centered. Below it, the label "Username" is followed by a white text input field. Underneath, the label "Password" is followed by a white password input field. At the bottom, there are two buttons: "Login" and "Create Account".



New Account

Enter Username and Password

Username

Password

Create

This is a new account creation page design. It features a light green background. At the top, the text "New Account" is centered. Below it, the instruction "Enter Username and Password" is centered. Underneath, the label "Username" is followed by a white text input field. Below that, the label "Password" is followed by a white password input field. At the bottom, there is a single button labeled "Create".

Calculator Page

Tax Shopping
Calculator

Enter Location To Set Tax Rate

Submit

Tax Rate is:

Item Name

Type of Item

Price

Add Item

Delete Item

Display List

Clear List

Receipt Page

Previous
Receipts

No Receipts

Refresh

Select