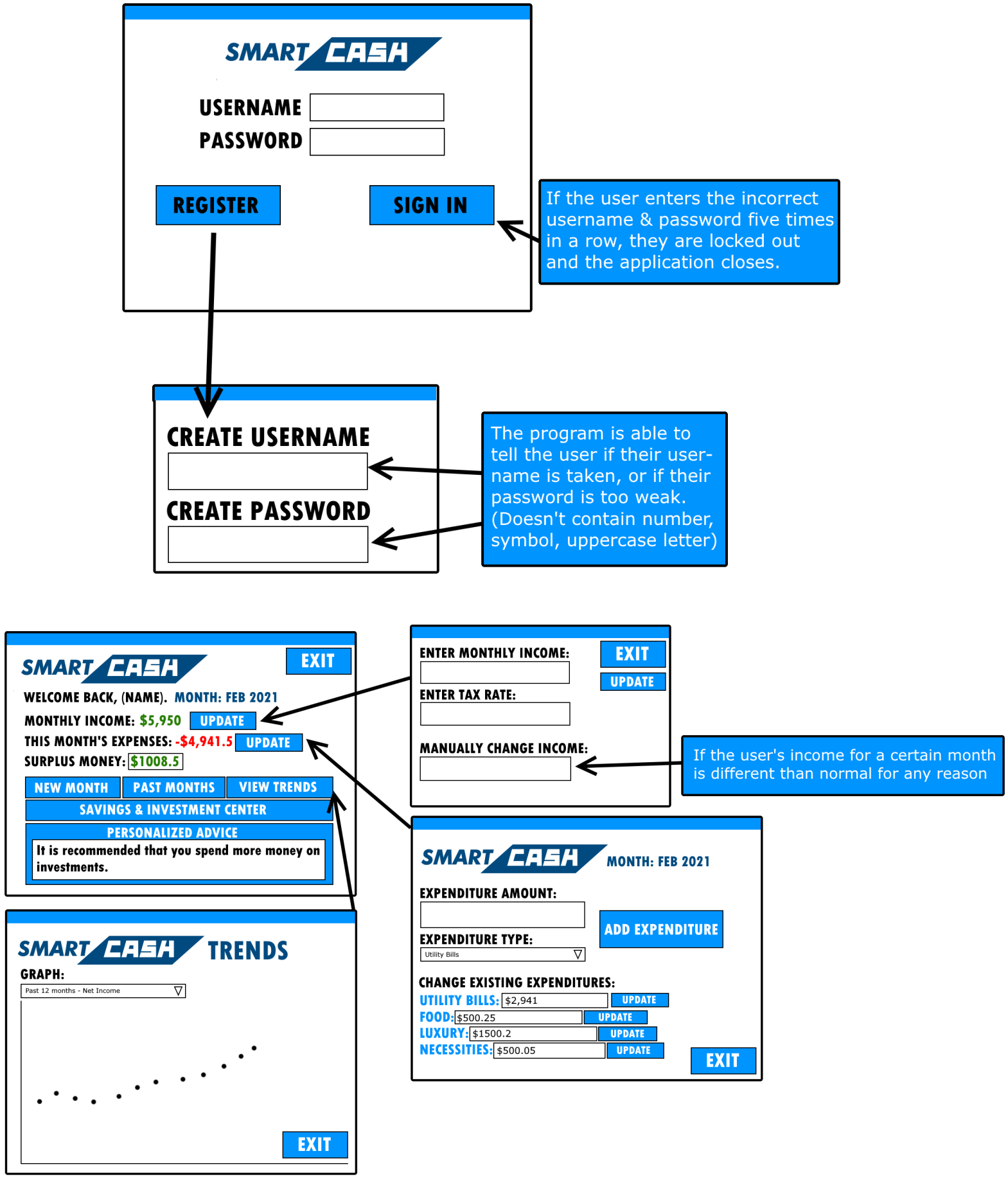
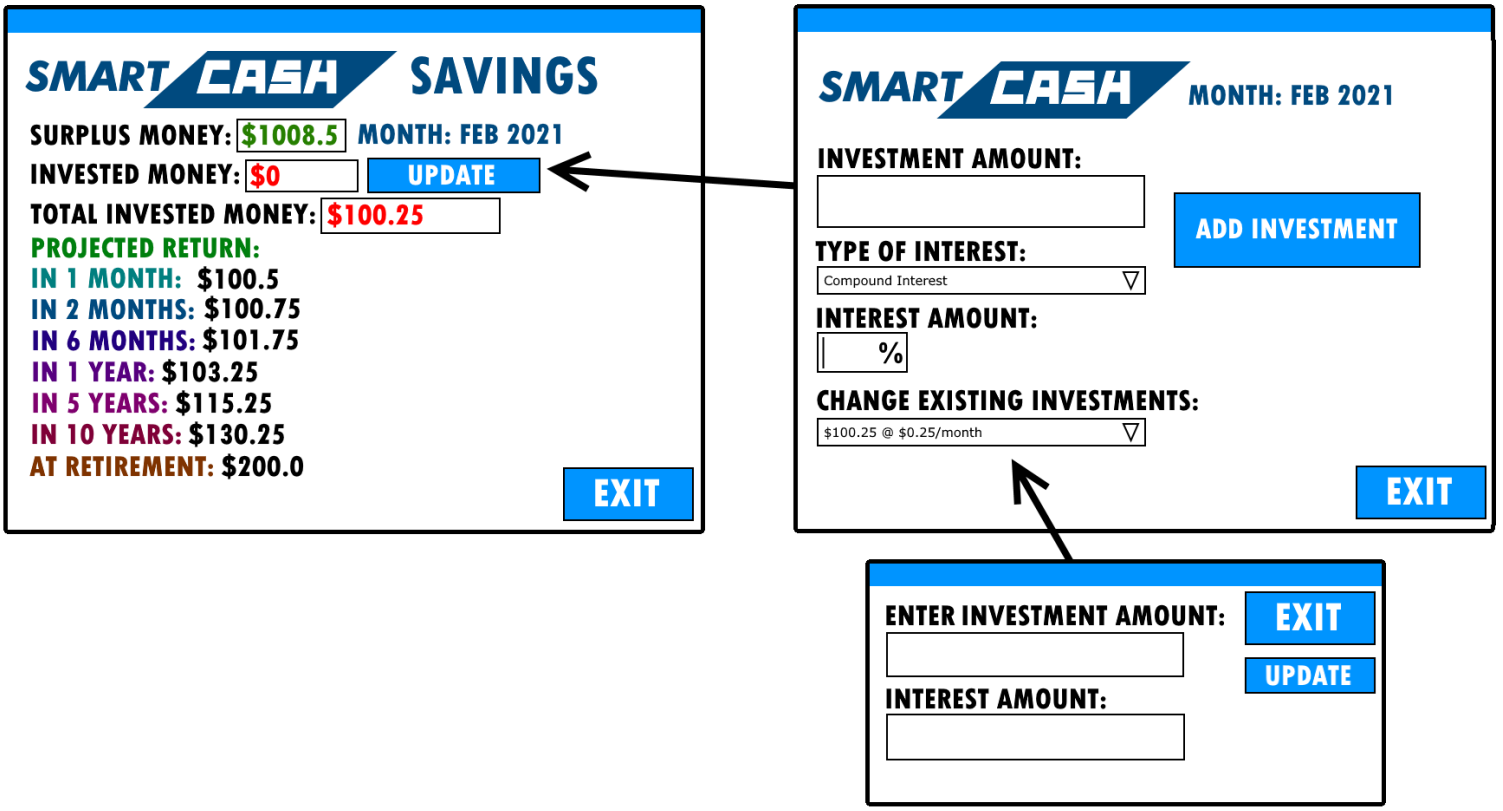
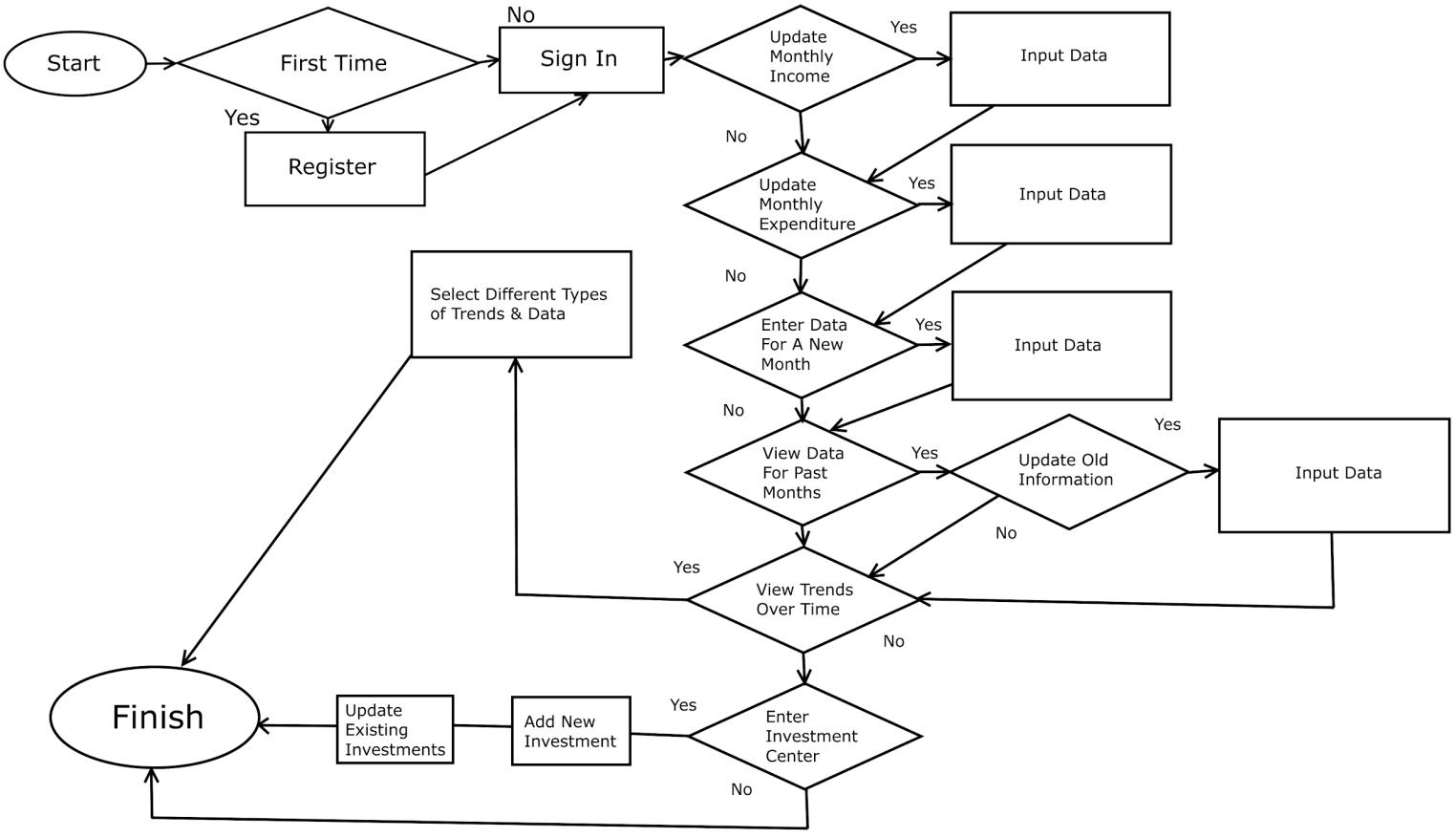
Criterion B: Design

Initial Software Design





Initial Flow Chart - Program's Working Plan



Product Development Plan:

Function	Comments
Main Menu - 0.5 weeks Includes: User information input	The user must log in, and functionality of having multiple users will be implemented in order to increase the versatility of the program.
Input/Output Functions - 2 weeks Includes: Inputting money/investment information, reading saved information from text files	Inputting information: When the user inputs information, the program will write to a text file. Reading saved information: The program will read the information previously written in allocated text files.
Additional Functions - 0.5 weeks Includes: Revisiting history of data, altering past information	Graphing data: The program will draw dots at coordinates depending on the numerical values of the data. For example: month on the x-axis, net income on the y axis. Java will draw points using those values as coordinates Revisiting history of data: The data in the text files will be formatted with a time value so that the program can organize and revisit past information
Graphical User Interface Functionality - 1 week Includes: Buttons, frames, backgrounds	The graphical user interface will help the program be as smooth and professional as possible.

Input Data

Data 1: User Information The client inputs their username and password.	Comment The username must be unique since multiple users can use this program. The user will not be allowed to create a user with a non-unique username. The password must be complex and contain two of at least one symbol, one uppercase character, and one number.
Example: username password	Location The username and password of all users will be stored in a text file. These will be stored in separate files.
Data 2: Income/Expenditure Data The client inputs their monthly income, tax rate, and their expenditure data.	Location The income data will be stored in a single text file alongside the tax rate. The expenditure data will be stored in its own

<table>
<tr><td>Example:

Monthly income ($): 5950
Tax rate (%): 30
Monthly expenditure ($): 2300
Luxury: $1100
Food: $500
Utility Bills: $500
Necessities: $200</td><td>text file.</td></tr>
<tr><td>Data 3: Investment Projections

The client inputs the amount they are willing to invest as well as the type of interest/return.</td><td rowspan="2">Location

The data will not be saved since the program is only meant to give the user a projection on what their return for a hypothetical investment would be.</td></tr>
<tr><td>Example:

5000 - 3 - simple
$5000 invested - 3% simple interest</td></tr>
<tr><td>Data 4: Creating New Months

The client changes the month and adds new data for that month.</td><td rowspan="2">Location

The data will be stored alongside the income and expenditure data in their respective text files.</td></tr>
<tr><td>Example:

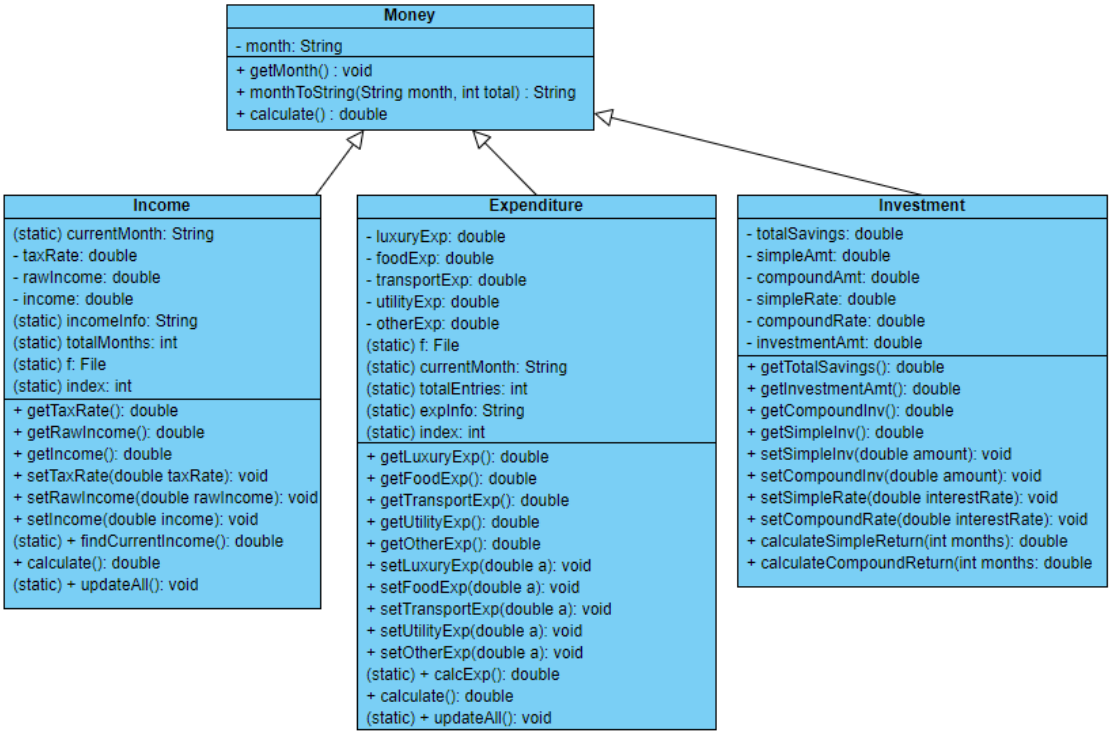
January 2021</td></tr>
</table>

Output Data:

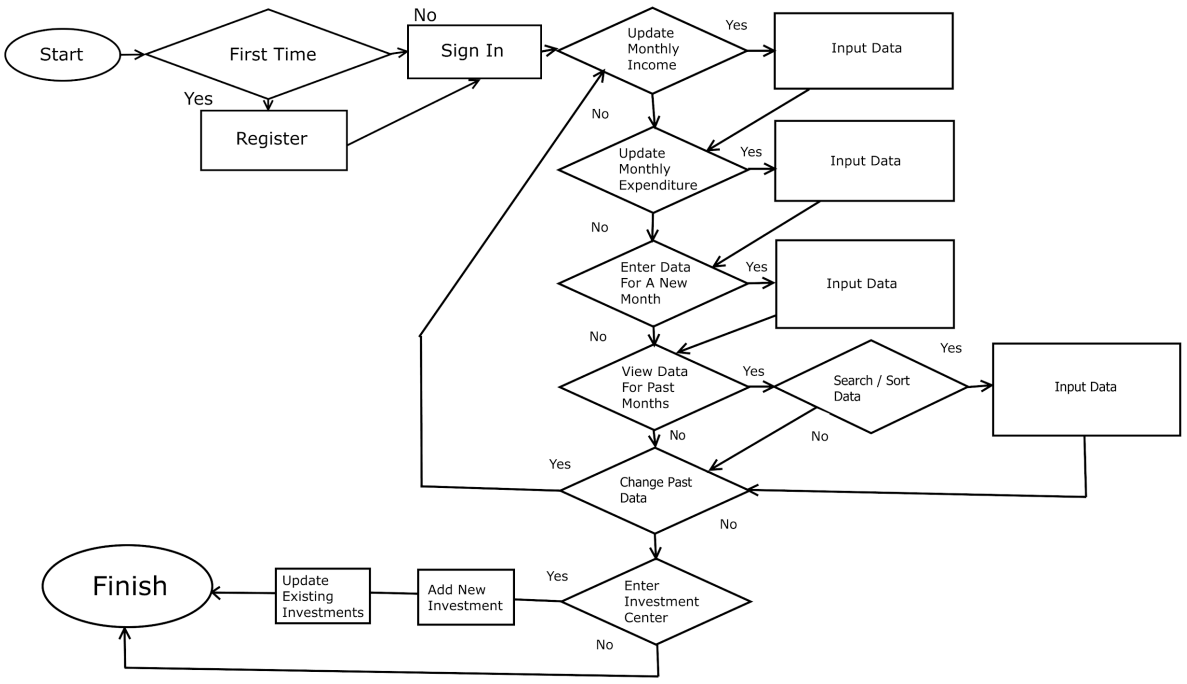
- Income & expenditure information will be outputted into a text file (.txt)
- Account data will also be outputted into a text file (.txt)
- Searching and sorting for income & expenditure data will output it on screen
- User input information regarding income & expenditure will be outputted on screen

Final Design:

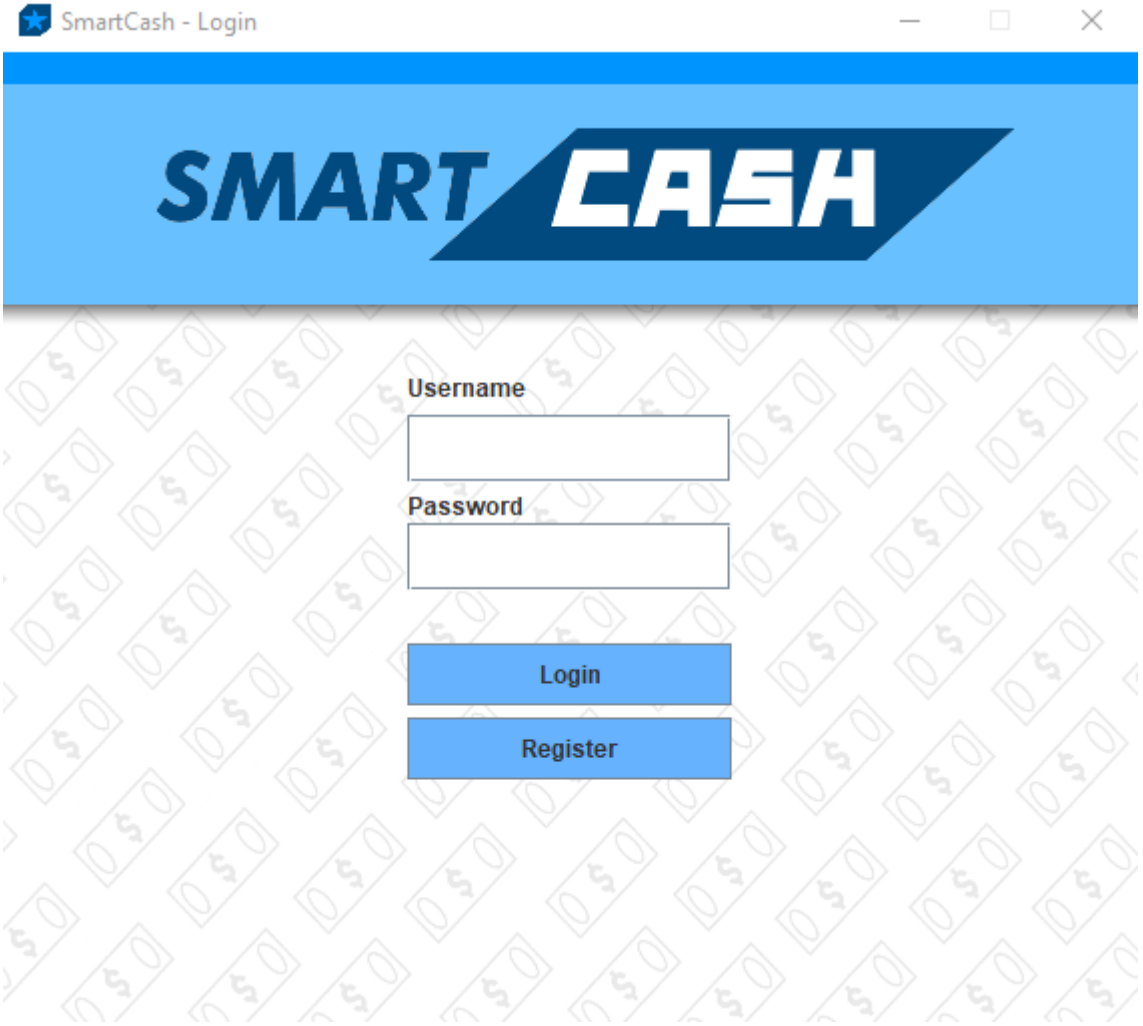
OOP UML Diagram

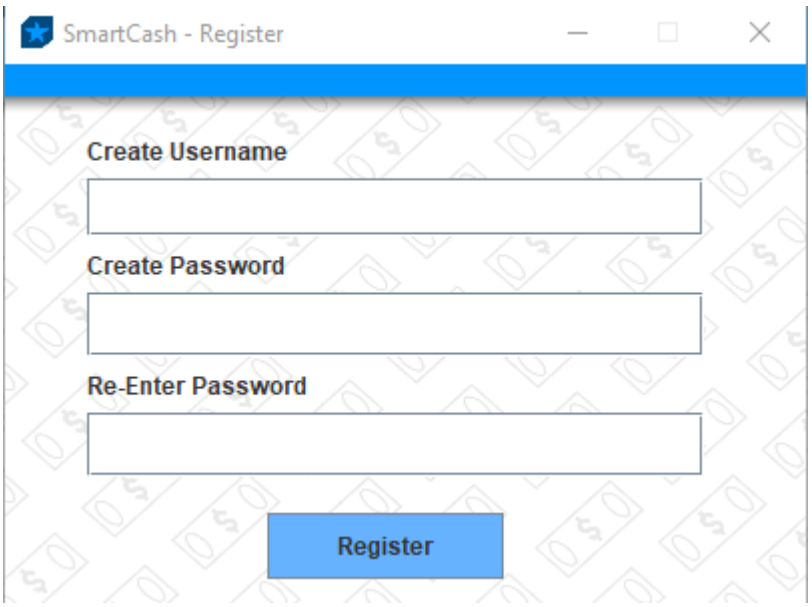


Revised Flow Diagram

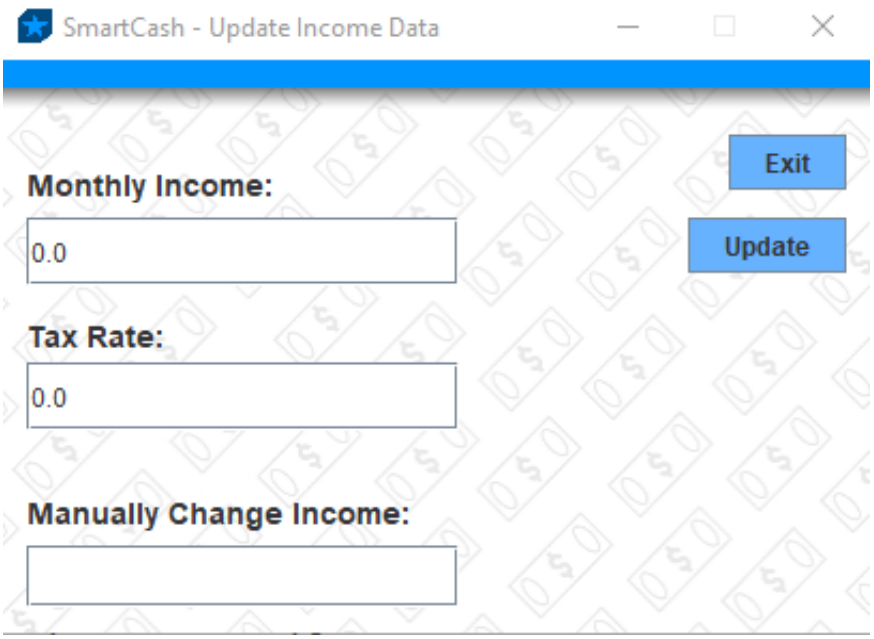


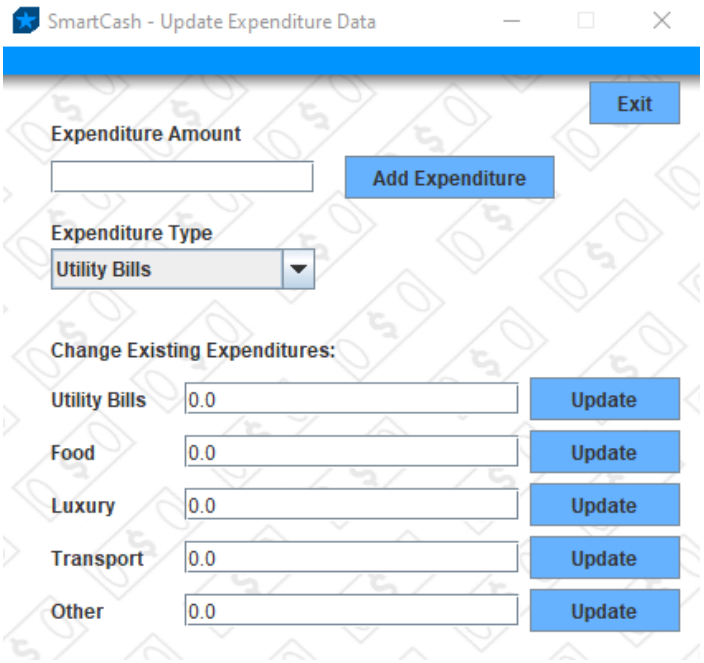
Final Software Design

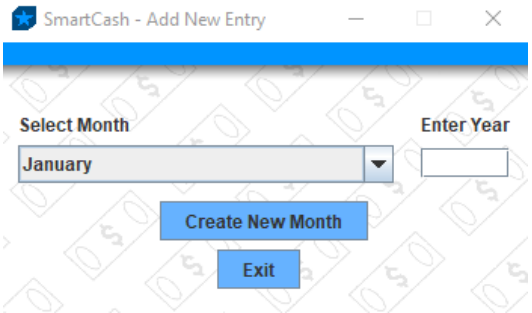


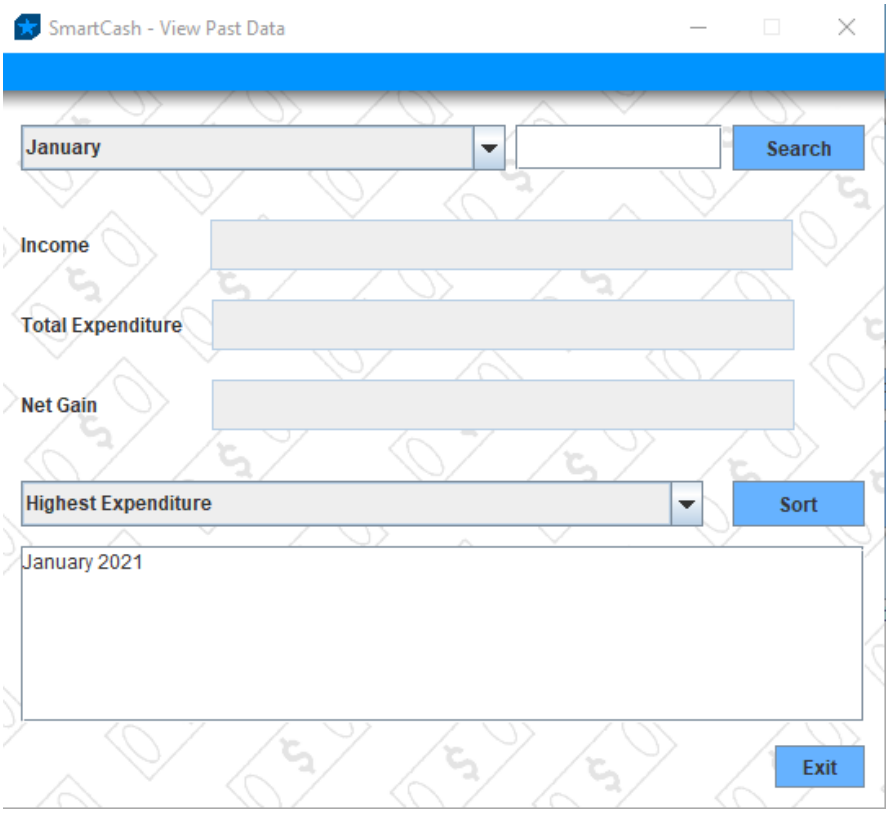


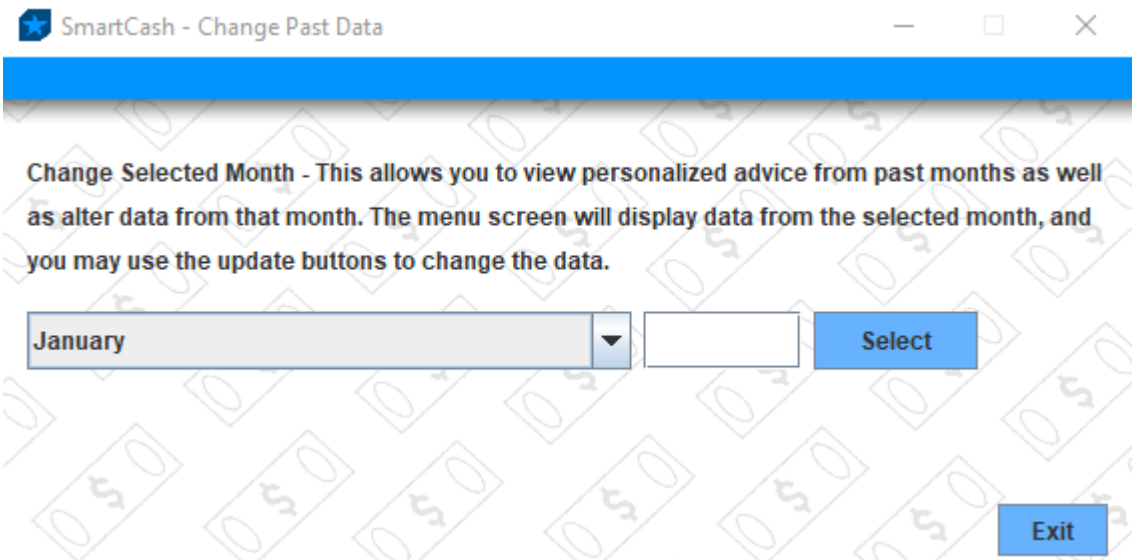

SmartCash - Financial Tracking Application
SMART CASH
Exit
Welcome back, username. Month: January 2021
Monthly Income: $0.0
Monthly Expenses: $0 [Enter data]
Surplus Money: $0 [Enter Data]
Update
Update
New Month
Past Months
Change Past Data
Savings & Investment Center
Personalized Advice
You should be saving more money. It is recommended to save anywhere from 15-30% of your income. Around half of that should be invested.
You are spending a healthy portion of your income on luxury goods!
Please enter transport expenditure data!
Please enter food expenditure data.

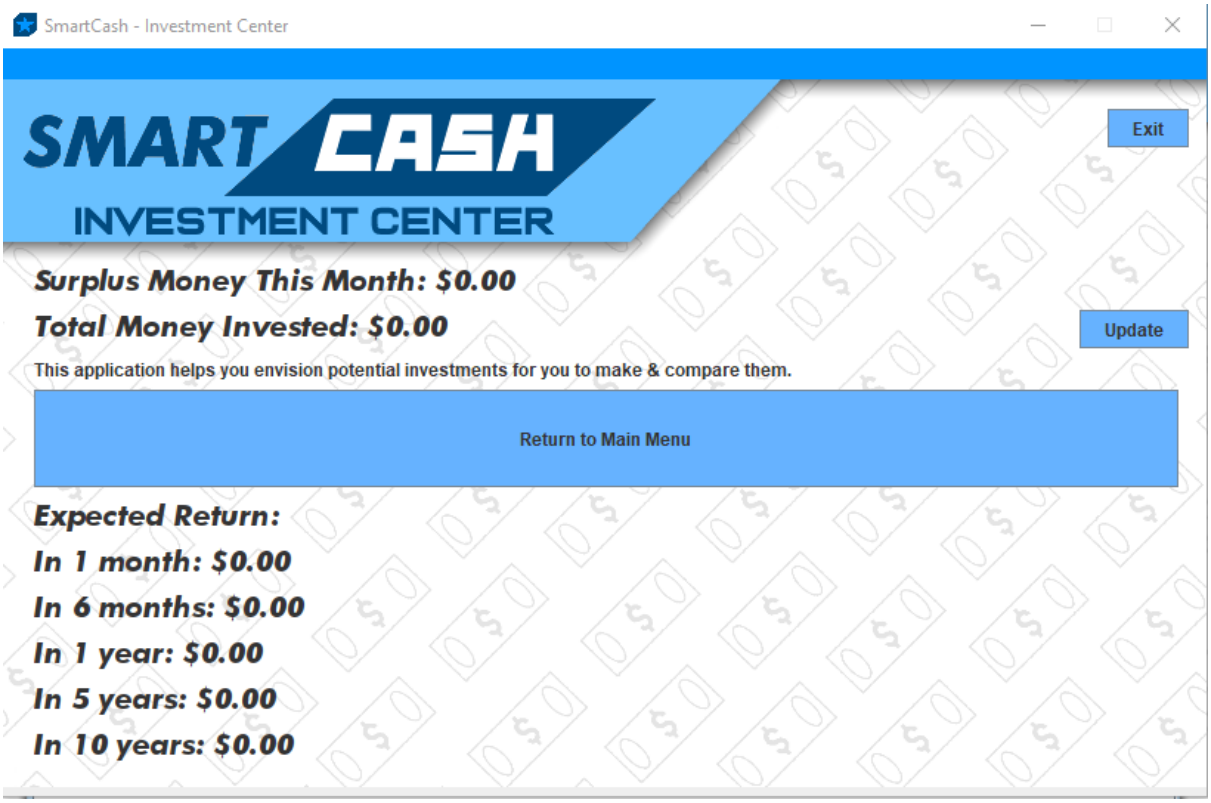

SmartCash - Update Income Data
Exit
Monthly Income:
0.0
Update
Tax Rate:
0.0
Manually Change Income:


SmartCash - Update Expenditure Data
Exit
Expenditure Amount
Add Expenditure
Expenditure Type
Utility Bills
Change Existing Expenditures:
Utility Bills
0.0
Update
Food
0.0
Update
Luxury
0.0
Update
Transport
0.0
Update
Other
0.0
Update


SmartCash - Add New Entry
Select Month
Enter Year
January
Create New Month
Exit


SmartCash - View Past Data
January
Search
Income
Total Expenditure
Net Gain
Highest Expenditure
Sort
January 2021
Exit





Testing Plan

Action	Method of Testing
Does the program run properly?	Double click the program icon and wait for it to run
Does the registration process function properly?	Create a username and password with the register button on the home menu. Check the text file to see if the data is properly saved.

Does the login function work properly?	After registering, input the credentials to see if the program allows access. Also input incorrect credentials to see if the program does not allow access.
Does the main menu default to the current month?	After logging in, check if the main menu shows the most recent month instead of the first month ever entered.
Does updating income and tax rate work properly?	Use the update button to change the income and tax rate. Check if the text file is updated properly, and if the main menu is also updated properly.
Does adding expenditures to different categories work properly?	Add different expenditures to different categories, and check the text file to see if they are categorized correctly.
Does creating a new month work properly?	Create a new month using the “New Month” button, and input data. Check if the data is read properly and if the text file is updated properly. Also check if data from the past months are saved properly.
Does viewing your monetary history work properly?	Use the “Past Months” button and select a month to view. Is the correct data properly displayed?
Does the program correctly sort & search through data?	Use the search and sort features within the “Past Months” menu to check.
Does the investment menu correctly calculate future investments?	Add multiple types of investments and check if the math is correct.
Is it possible to properly update old information?	Attempt to update old information of past months, and attempt to update investment information.