Criterion B: Design

File Provided by Client:

My client Sunny, has provided me with 2 google sheet files for my usage, which I will convert to CSV files and incorporate it into my program.

A	B	C	D	E	F
Entry	Year	Category	Transaction	Amount	
Spring Camp	2021	Camp Fee	E-transfer	1961.65	
Zoom Fee	2021	Fee	Cash	84	
Summer Camp	2021	Camp Fee	E-transfer	1718	
Spring Camp	2022	Camp Fee	E-transfer	920	
Summer Camp	2022	Camp Fee	E-transfer	680	

Figure 1: Revenue File, Spreadsheet that displays categories into how the revenue data is structured and distributed.

	A	B	C	D	E	F	G
1	Entry	Year	Transaction	Category	Amount	GST	
2	Stollery Charity	2021	E-transfer	Donation	686	0	
3	Spring Camp	2021	Debit	Payment	1161.37	55.3	
4	Yearly Slidesgo	2021	E-transfer	Subscription	31.96	1.52	
5	Summer Camp	2021	Debit	Payment	793.8	37.8	
6	Spring Camp	2022	Debit	Payment	1401.23	66.73	
7	Instructor Fee	2022	Cash	Payment	21	1	
8	Summer Camp	2022	Debit	Payment	612.05	29.15	
9							

Figure 2: Spendings File, Spreadsheet that displays categories into how the spendings data is structured and distributed.

Categories of tables:

Spendings
+ ID: Int (PK) (Not Null)
+ Year: Int (Not Null)
+ Transaction: Text (Not Null)
+ Category: Text (Not Null)
+ Amount: Float (Not Null)
+ GST: Float (Not Null)

Revenue
+ ID; Int (PK) (Not Null)
+ Year: Int (Not Null)
+ Category: Text (Not Null)
+ Transaction: Text (Not Null
+ Category: Text (Not Null)

Figure 3: Tables displaying the 2 different databases, Spendings and Revenue

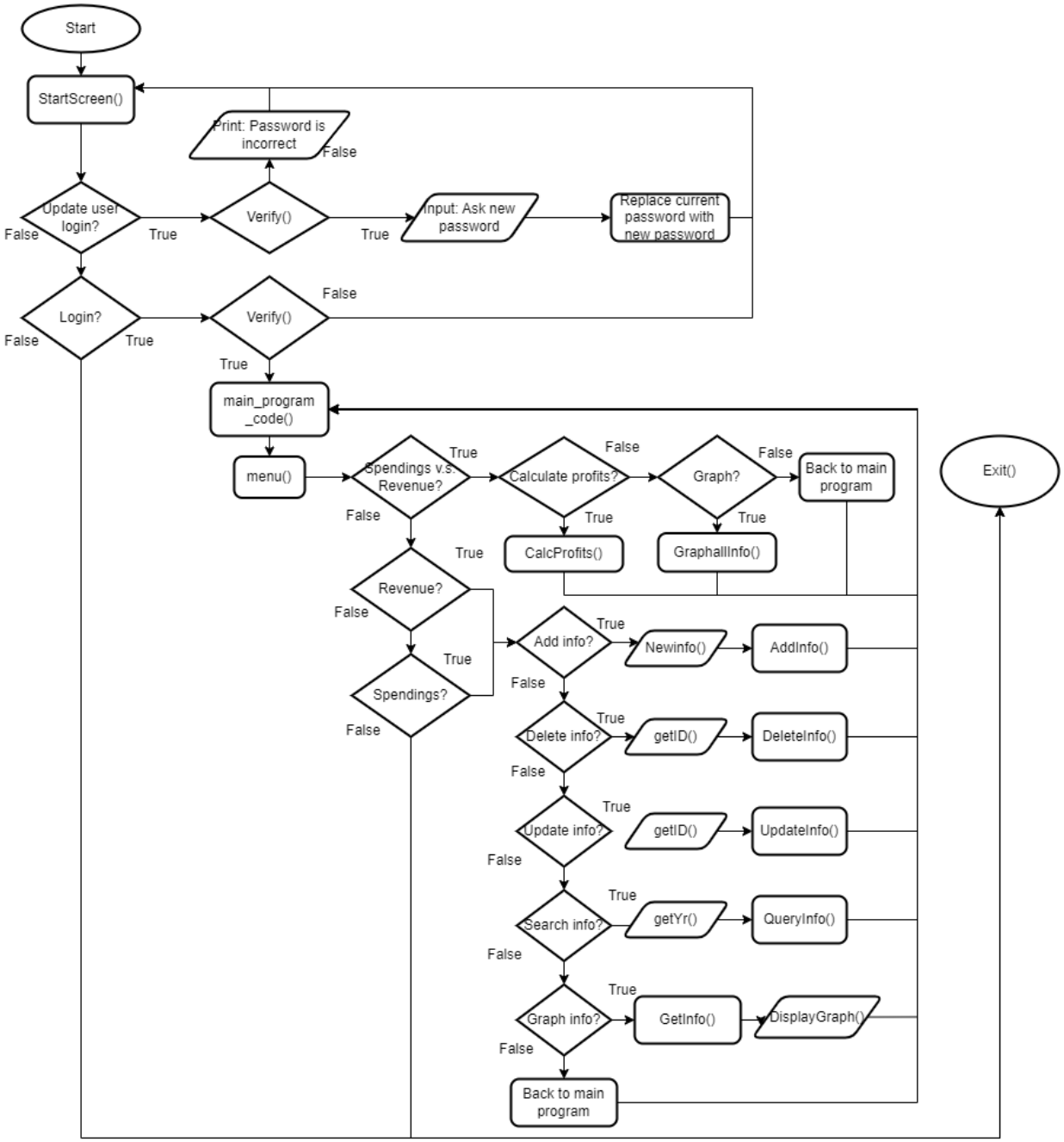

Figure 4: Flowchart demonstrating the general outline/logic of the program

Subprogram and Important Algorithms

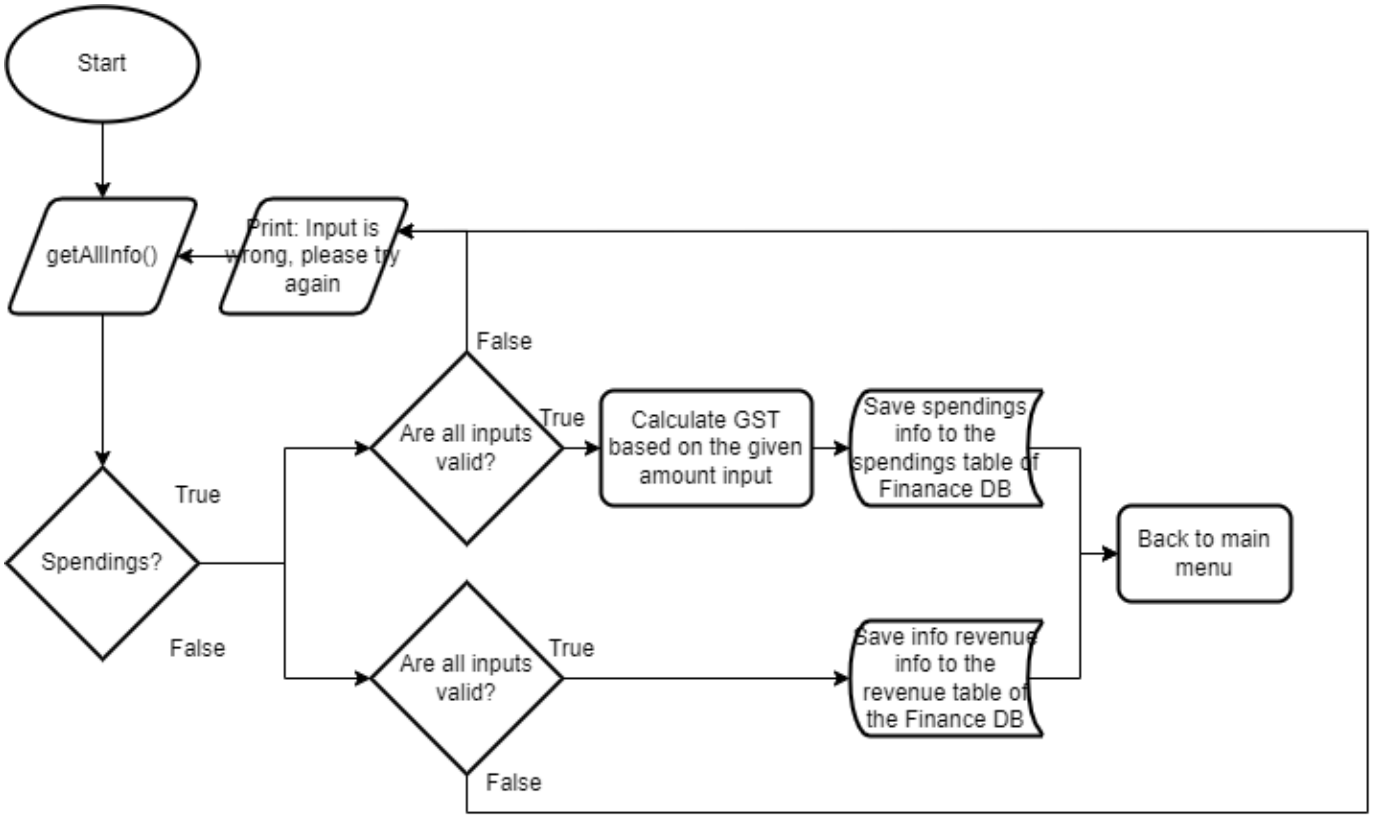

Figure 5: Adding new data into the database, into the spendings/revenue table

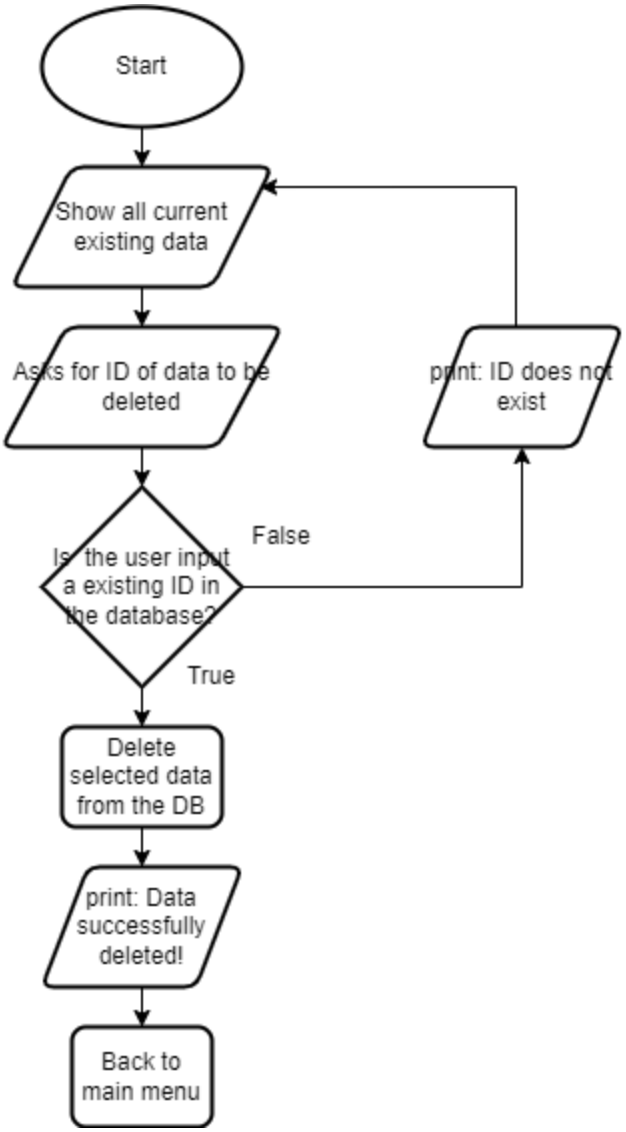

Figure 6: Removing the data from the database

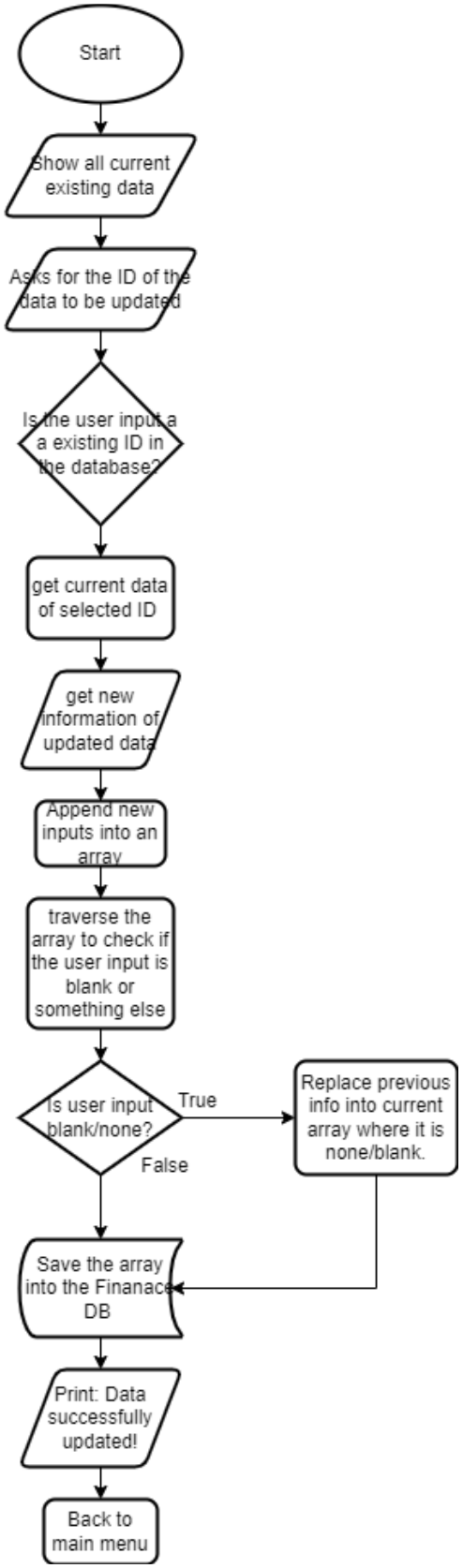

Figure 7: Updating data in the database

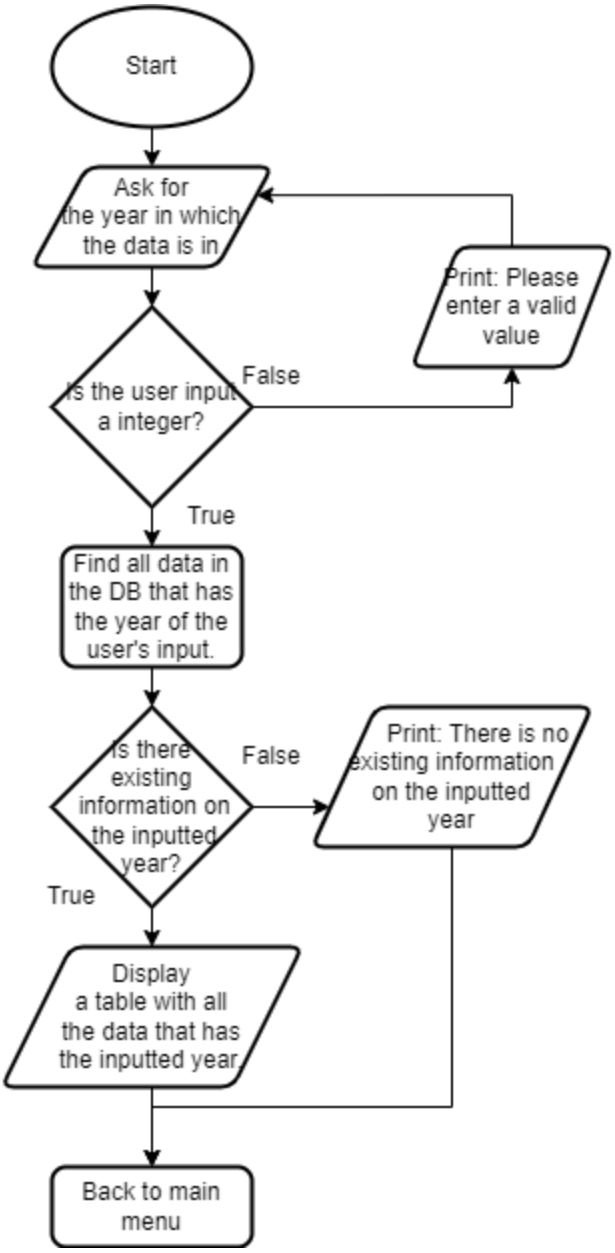

Figure 8: Searching for data in the database

User-Interface Overview

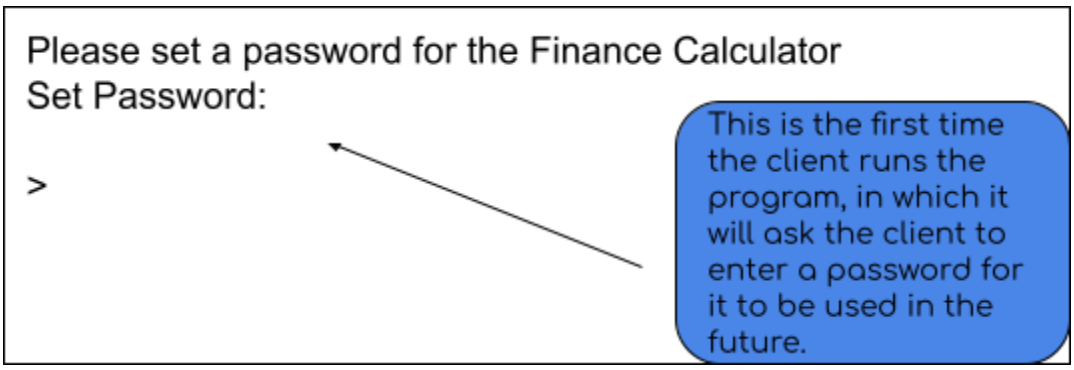

Figure 9: First time a user a running the program

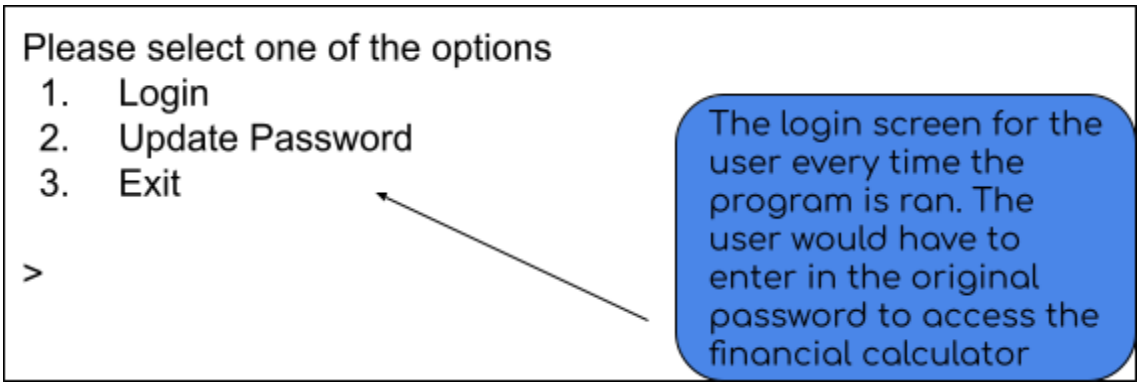

Figure 10: Login screen every time the user starts the program

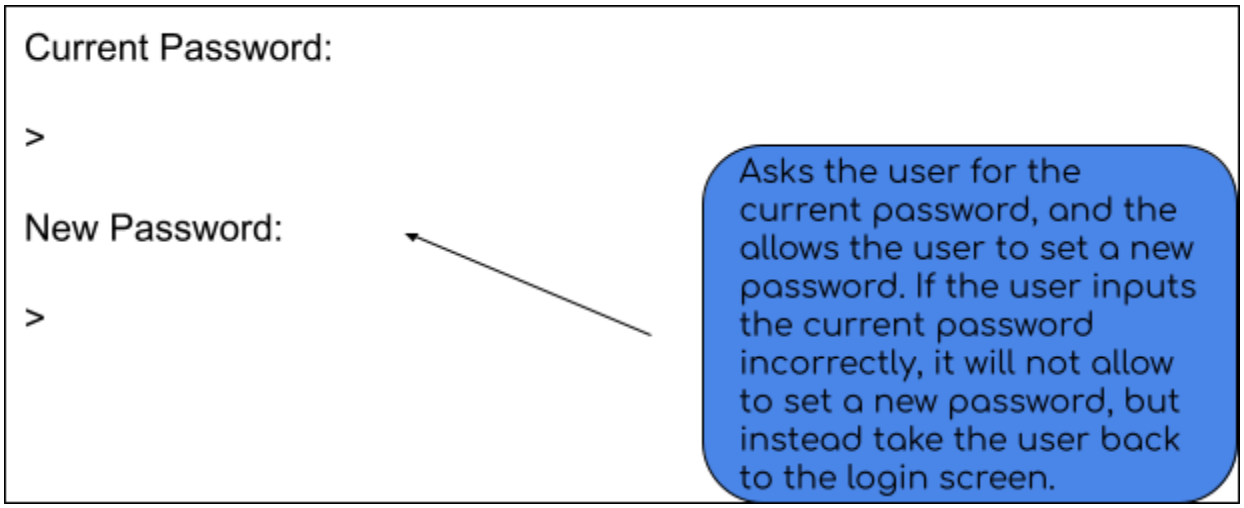

Figure 11: Set new password displayed if option 2 was picked from the login screen

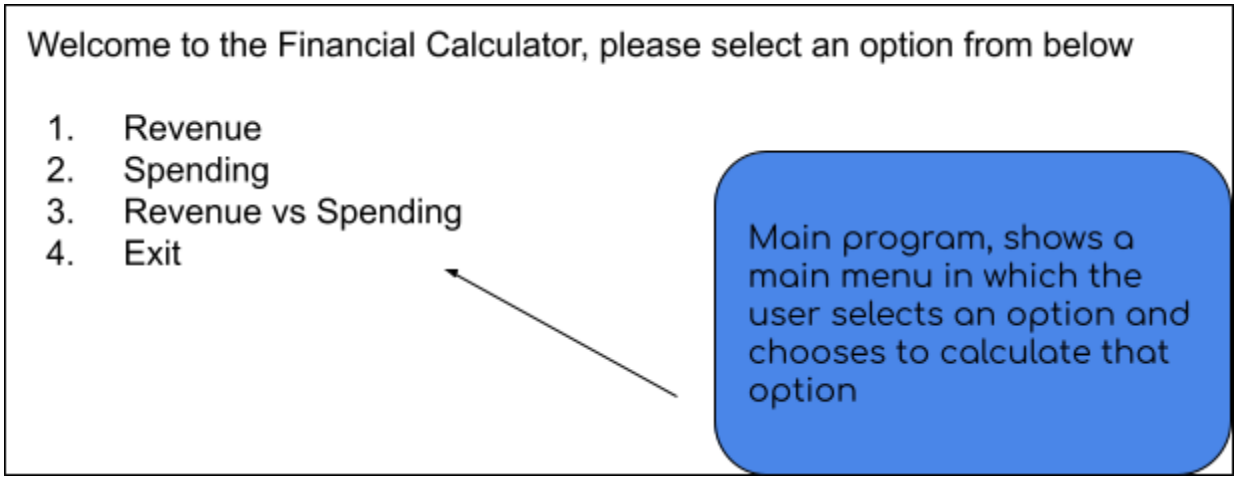

Figure 12: Shows a main menu after choosing the login option (1)

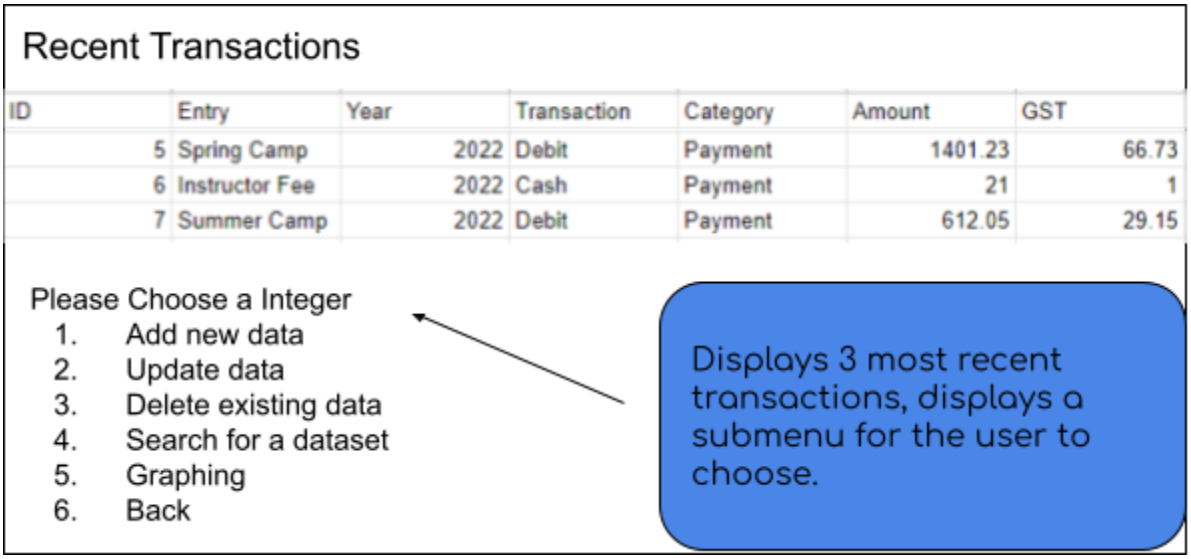

Figure 13: Submenu displayed after choosing Revenue (1) or Spending (2), but revenue does not have the GST column

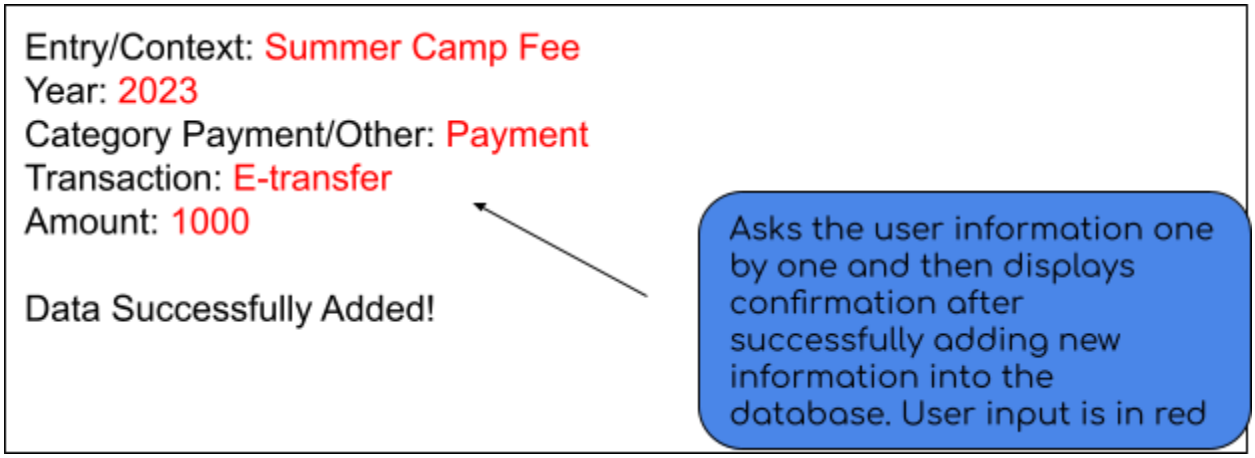

Figure 14: Gets the info and adds new data if option 1 in the submenu is selected

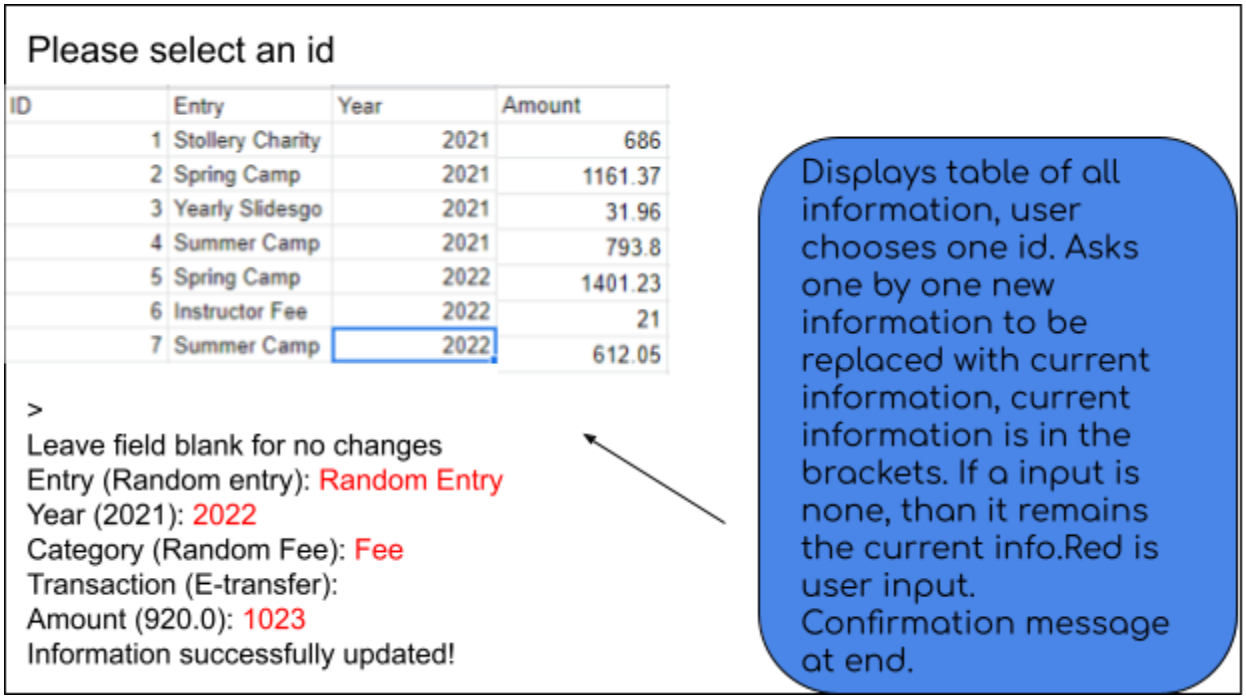

Figure 15: Updates info if option 2 is selected from submenu

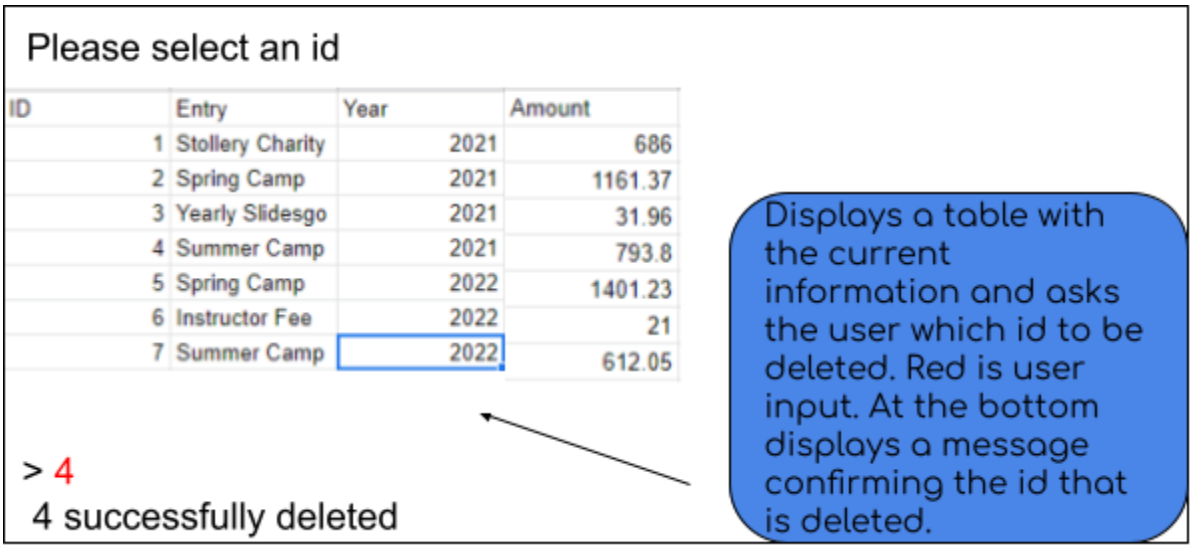

Figure 16: Deletes info is option 3 is chosen from submenu

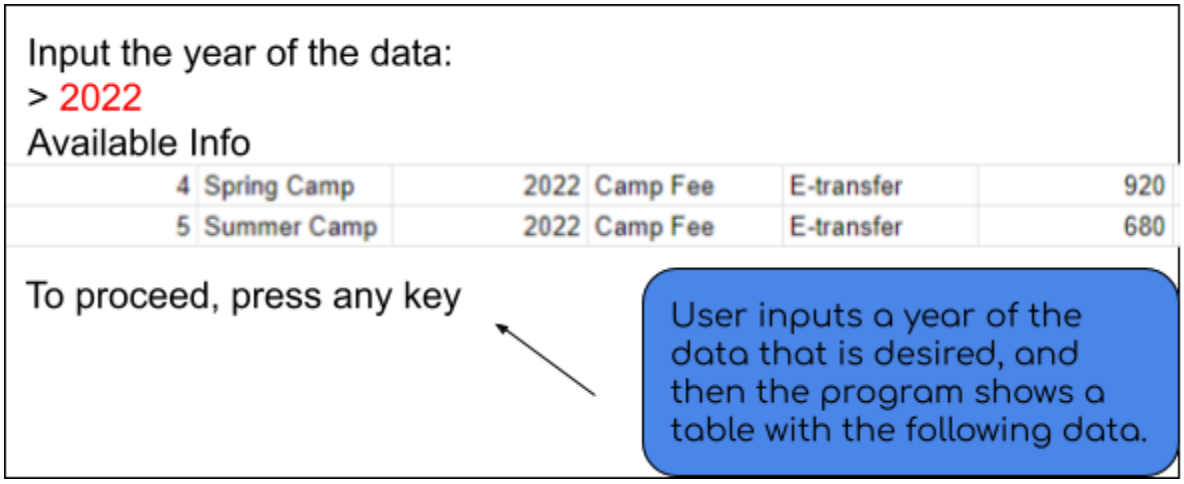

Figure 17: Queries info if option 4 is selected from the submenu

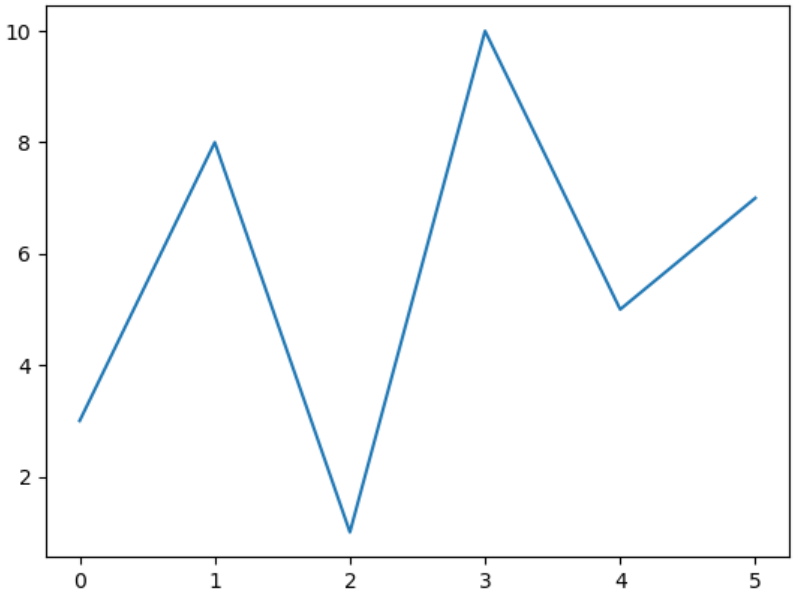

Figure 18: A graphical representation of the data appears if option 5 is selected on the submenu

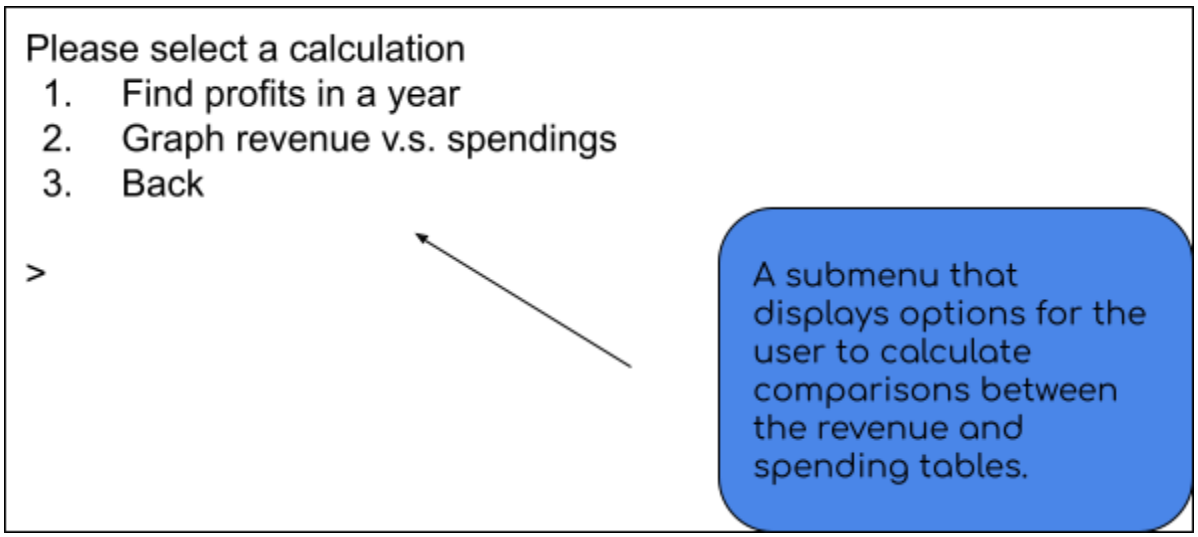

Figure 19: Submenu displays after selecting the revenue v.s spending (3) option

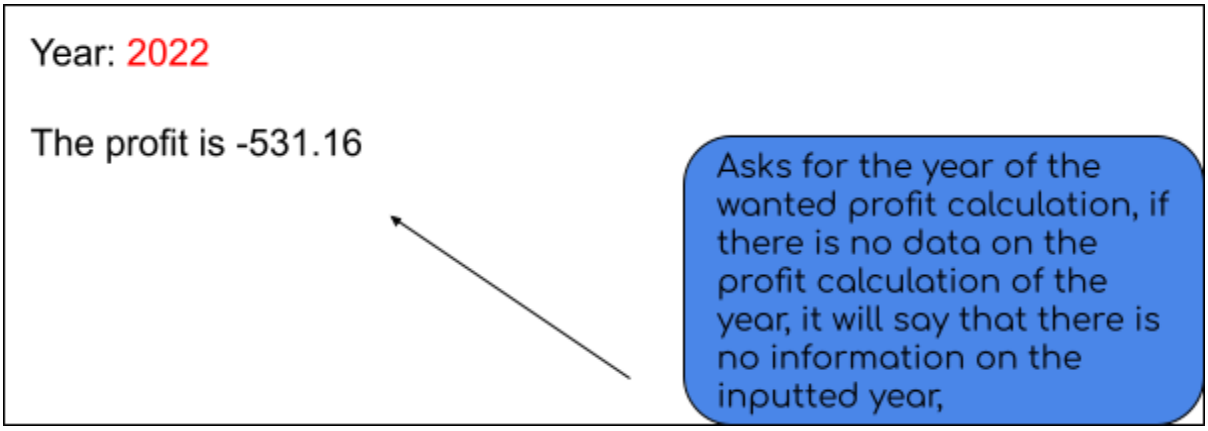

Figure 20: Finds the profits in a single year if option 1 is selected in the revenue v.s spending submenu

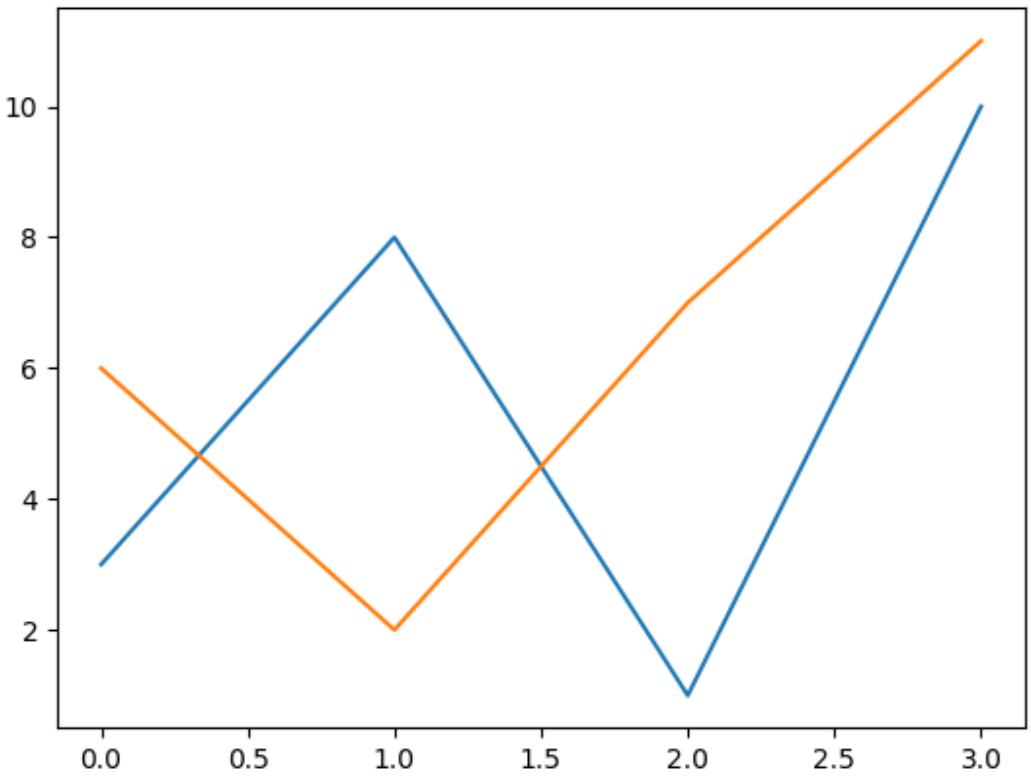

Figure 21: Displays a graph of both spendings and revenue in comparison if option 2 is chosen in the revenue v.s spending submenu

Test Plan

Test Action	Plan to Test Action
Program will display a working login screen	- Run the program for the first time, set a password, and then try the login feature - Try other random wrong password to check if it denies the inputs
Program will be able to update a new password	- Input the wrong password for the "current password", make sure that it doesn't let the user set a new password, since the input of the current password was wrong. - Try implementing a new password, and then rerun the program to see if it updated
Program will display a menu for the choice of revenue, spendings, and revenue vs spendings	- Run the program, check if the main menu of options are arranged properly and in desired fashion - Go into submenus and then head back, check if main menu of options are proper
Program is able to enter a submenu after selecting one the choices from the main menu	- Run the program and login, from there, choose one of the options, and see if the submenu displayed is proper and in desired condition
Program is able to add new data to each respective table	- Select the add info in a submenu, and input all information, see if all information is properly added into the DB - Do not input all info into the inputs. Program should ask again for proper inputs - Make sure program tells which inputs were misinputted
Program is able to delete data to each respective table	- Input a ID that does not exist in the tables, program should ask again for a proper input - Input an existing data, see if the

	program deletes that data.
Program is able to edit/update data to each respective table	- Select the update in the submenus, and input new information, check in DB if properly updated - Input none, and see if program takes the current data as the updated data
Program is able to query & search for existing data	- Input a year that does not exist, program should say that database does not exist - Input a year that does exist, program should display a table using tabulate that shows all the years existing in that particular table.
Program is able to state "Data is non-existent" if inputted data is not available or does not exist within the relational database	- Input random values into the programs, if it does not exist, program should inform the user that it does not exist
Program is able to error check non-applicable inputs, and redirect the user again for a proper input	- Input non-applicable values into the program, check if the program checks for the validity of the values. - Check if the program informs the user of their mistake
Program is able restart automatically and loop continuously without the user having the run the program multiple times	- Repeat the program by performing random selected tasks from sub-menus - Check if the program is in a while loop
Program is able to backtrack from the submenu to the main menu	- Check if the "back" option in the submenu works
Program is able to exit	- Check if the option "Exit" in the main menu and login screen works

Word Count: 46