School of Engineering and Applied Science
CSE100 Fundamentals of Computer Programming
Project - Problem Design Document
Project Title: Bank Management System

TEAM DETAILS

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PROBLEM DEFINITION

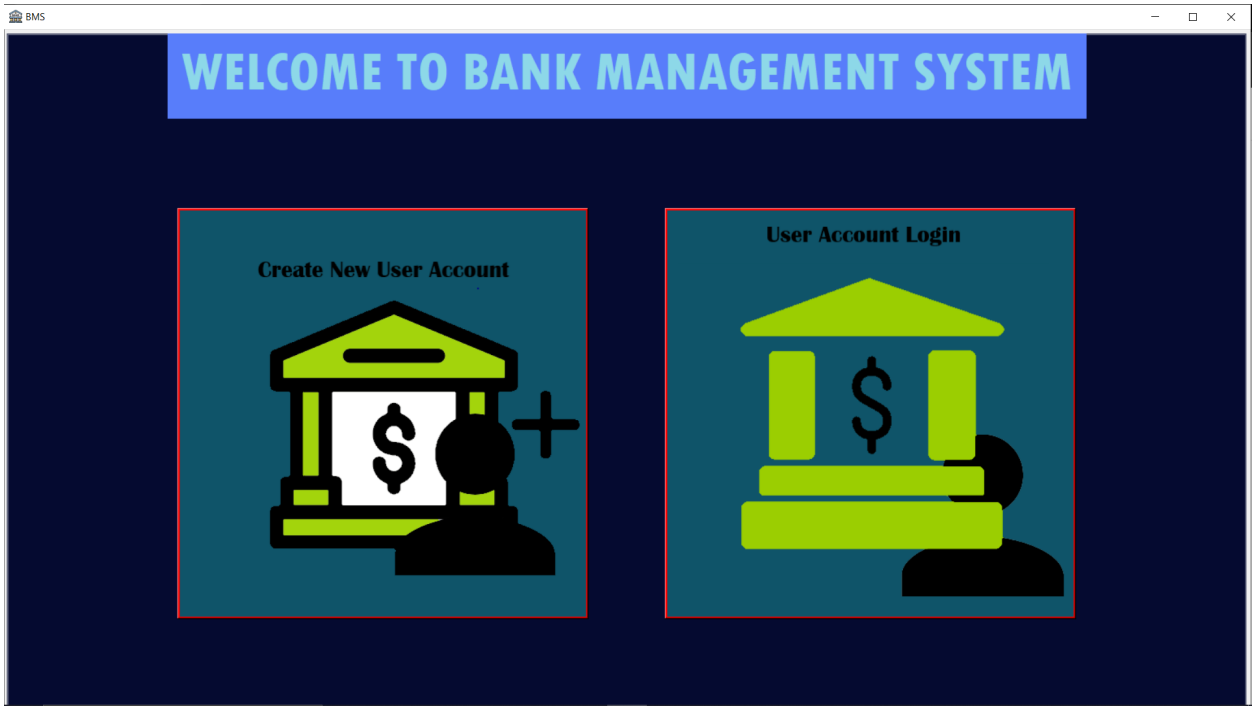
Title of the project	Bank Management System
Objective/vision/main goal of developing the software application	To try and challenge ourselves to make an efficient and applicable application used in typical banks.
What Problem will be solved by the proposed software application (or real-life need/use of the software application)	Most modern banks need a Bank Management system to keep track of the user's money. The software aims to fulfill the same demand.
End-Users of the software: different types of users/roles who are going to use the software like	The software will be used by the bank Employee to do transactions as received from the Account holder and check account information. The admin permissions will be

admin, customers, manager, employee, etc.	with the bank employees/ organization to keep track of clients' information and log transactions.
Listing of functionality/features/main modules to be provided in the software to different end-users	Open a bank account. Authorization using login id and Password Checking Bank Balance. Money Withdrawing. Money Depositing. Transaction history. Updating Account Information. Deleting Account Information. (The features will also include a login screen, main menu, Buttons, and other GUI elements using numerous python open-source libraries)
Important outputs/reports to be generated from the software	The application is able to store all the necessary data about the user and access it for editing or deleting the account. The application is able to generate a whole transaction history (Generating an Imitation of a bank passbook)

PROJECT DESIGN

UI Design and walkthrough:

The user interface design begins with a login screen. The user could either login or create a new user account.

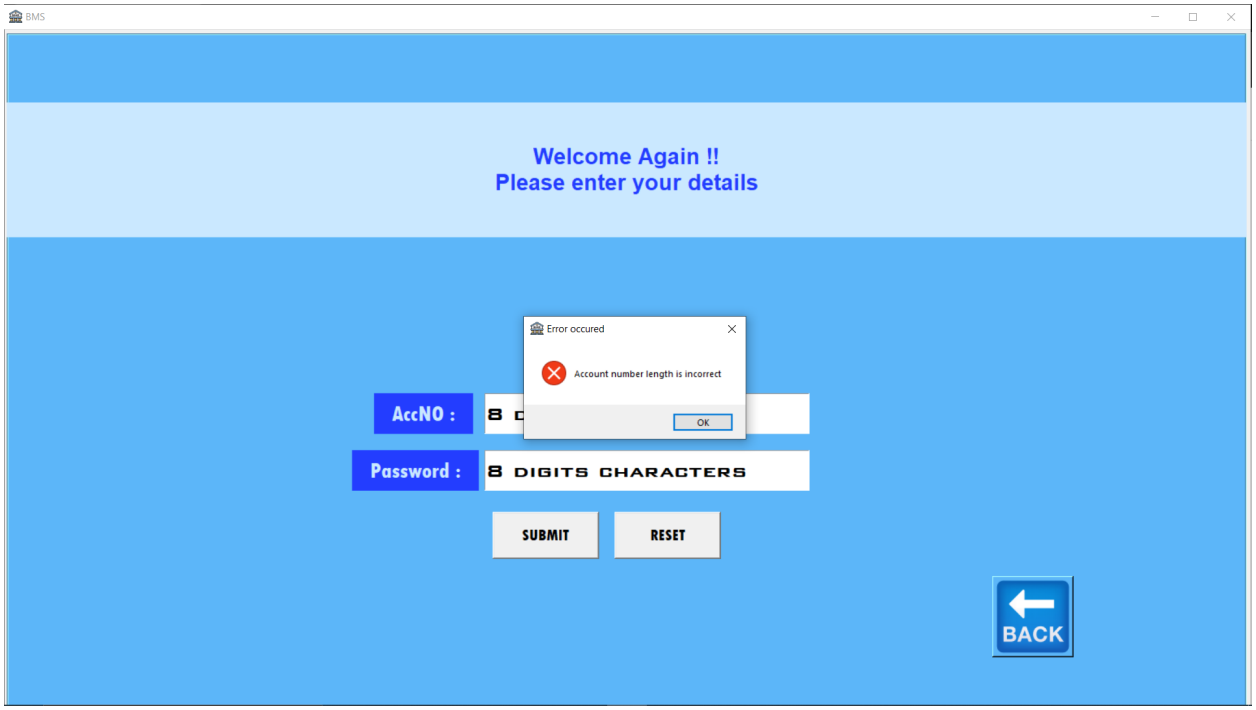


If the user clicks on to create a new user account button the menu shown below will appear. The user needs to enter their name, date of birth, email, mobile number,Aadhaar number (for identity verification purposes). The reset button will reset the information entered, in case they want to start over.

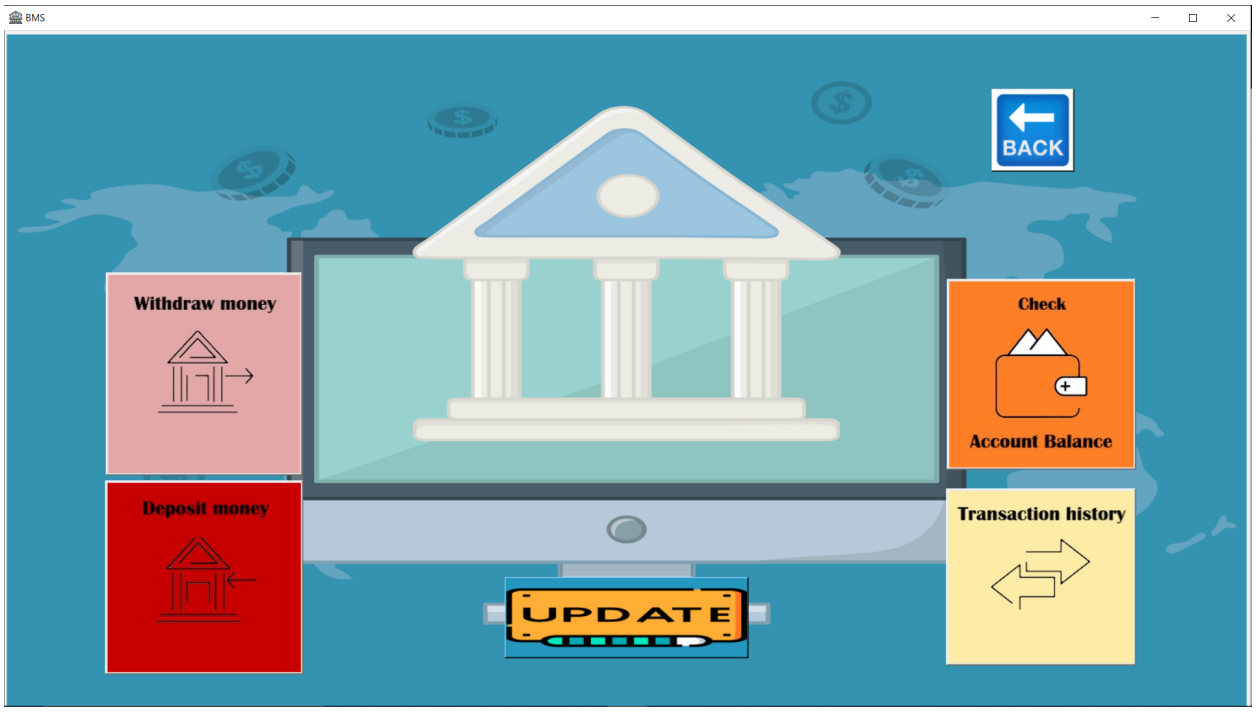
Once you are done entering your data in the input fields an email OTP will be sent to the email address entered which will look like

If the user clicks on the user account login button, then the window shown below will appear. To login, the user needs to enter their unique login ID assigned to them when they sign up.

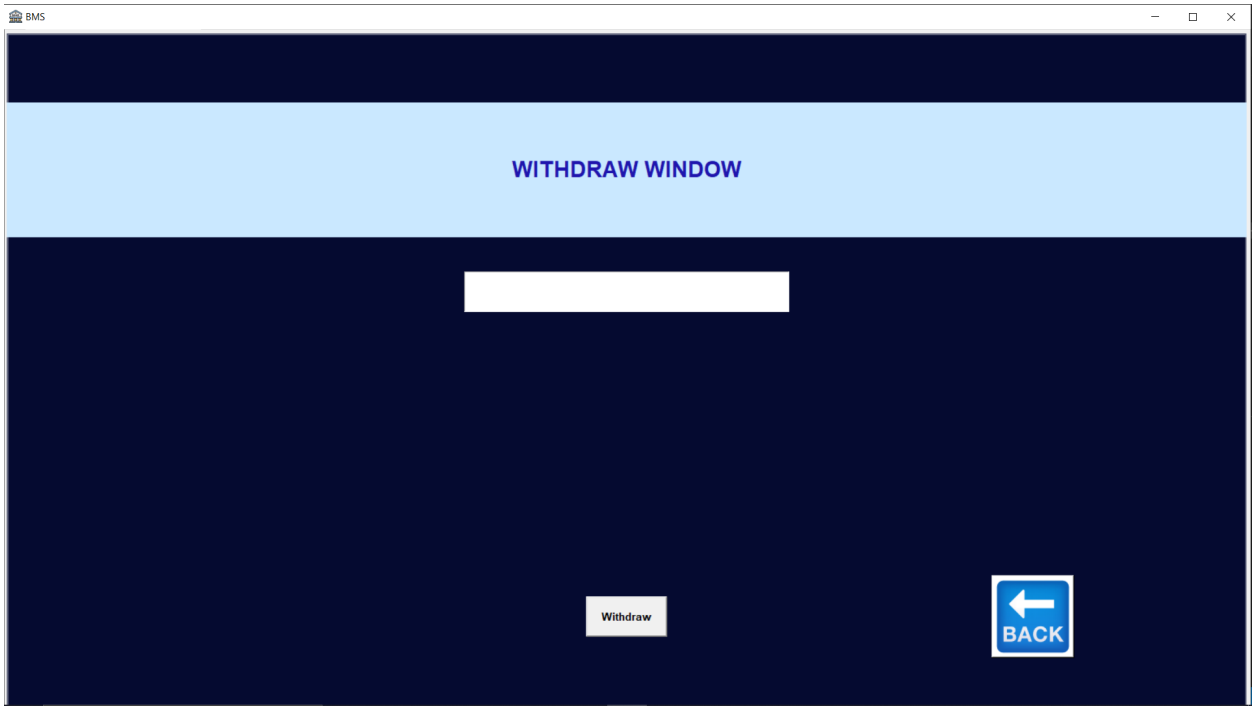
If by mistake the user enters a wrong password or user ID he will be notified with the help of this pop-up box and the user can try again.

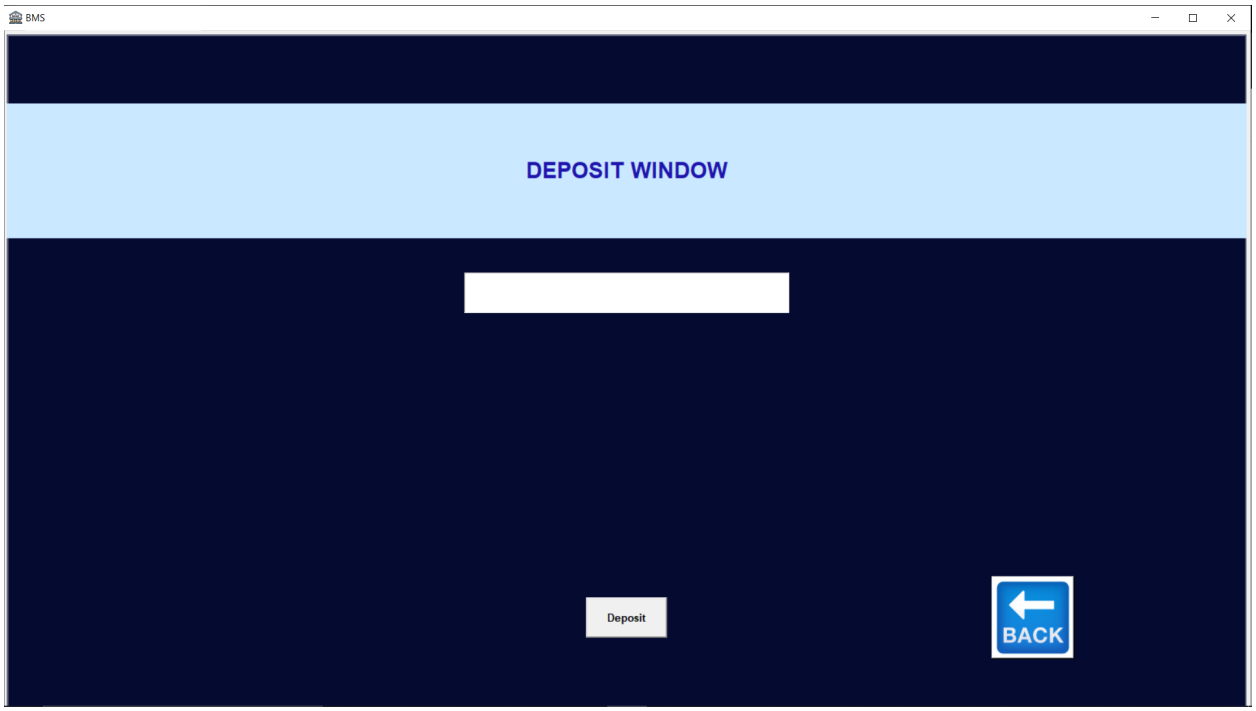


After successful submission of either the new account details or the old user ID screen, the user will be redirected to the main screen given below which contains all the other day-to-day functionalities the user can use.

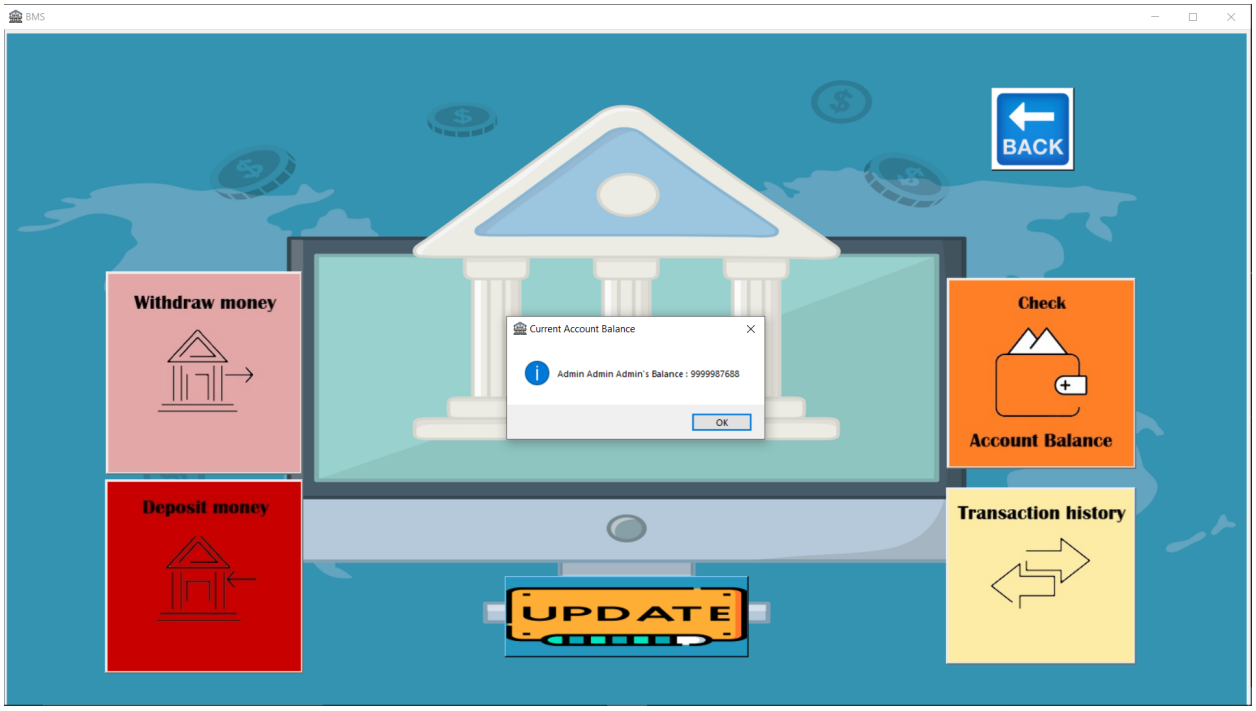


If the user clicks on Withdraw/Deposit money button they will be directed here

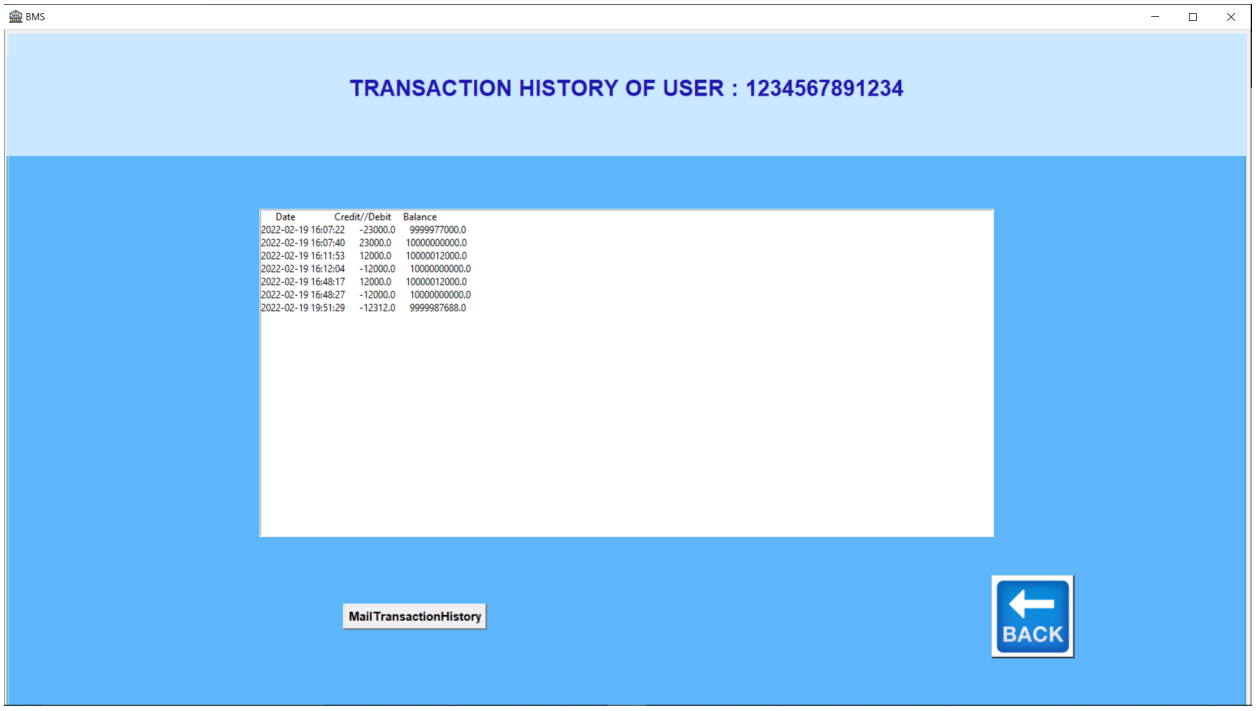




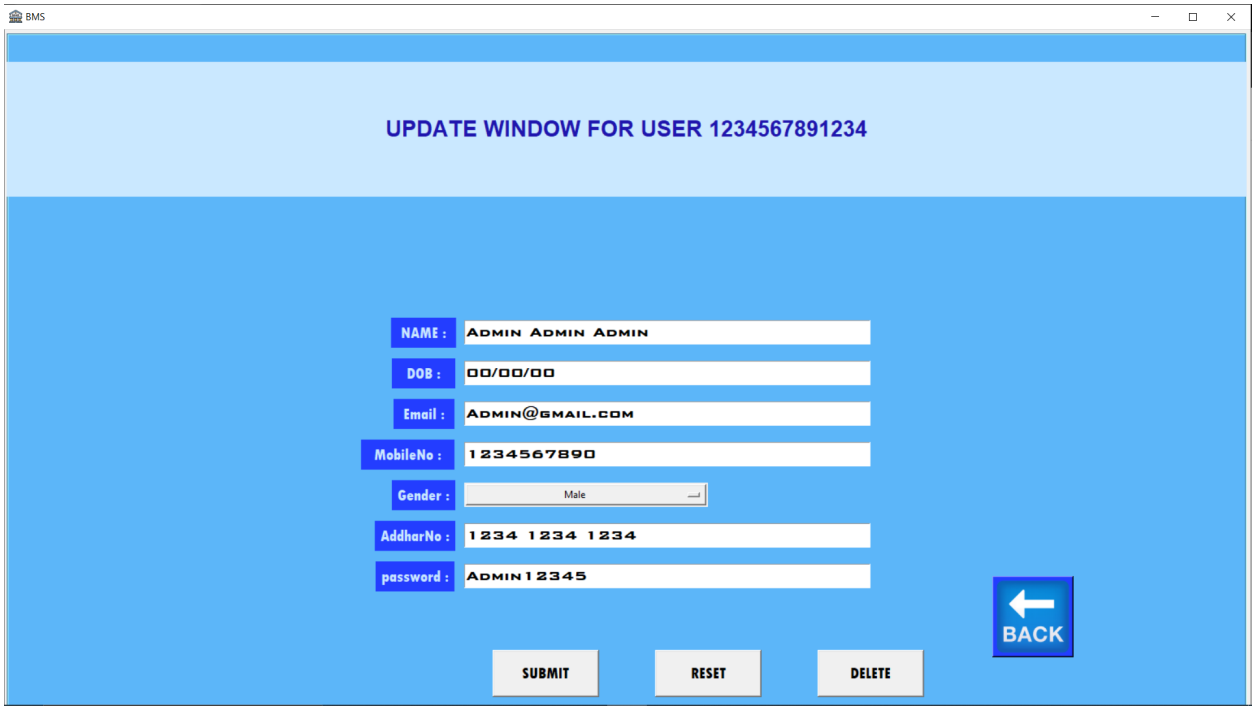
The Account balance button is just a simple popup that will display current users balance



The Transaction history button will display the user's transaction history



Finally, the update button will allow the user to update any errors in data and delete the account if needed.



Database Design:

- Users' data will be stored in an Excel spreadsheet; we can read, write and update the data using python's ‘pandas’ library.
- The Excel spreadsheet will store each user's data in distinct rows and there are respective columns to every specific detail of the user.
- columns are first name, last name, middle name, DOB, Email, Mobile Number, Gender, AddharNO, password, account number, Current bank balance.
- BMS.xlsx is the file that maintains all the user information.
- Similarly, a file containing the user’s transaction details will be created when the new account is registered and the file will be updated whenever the user transacts in the account.

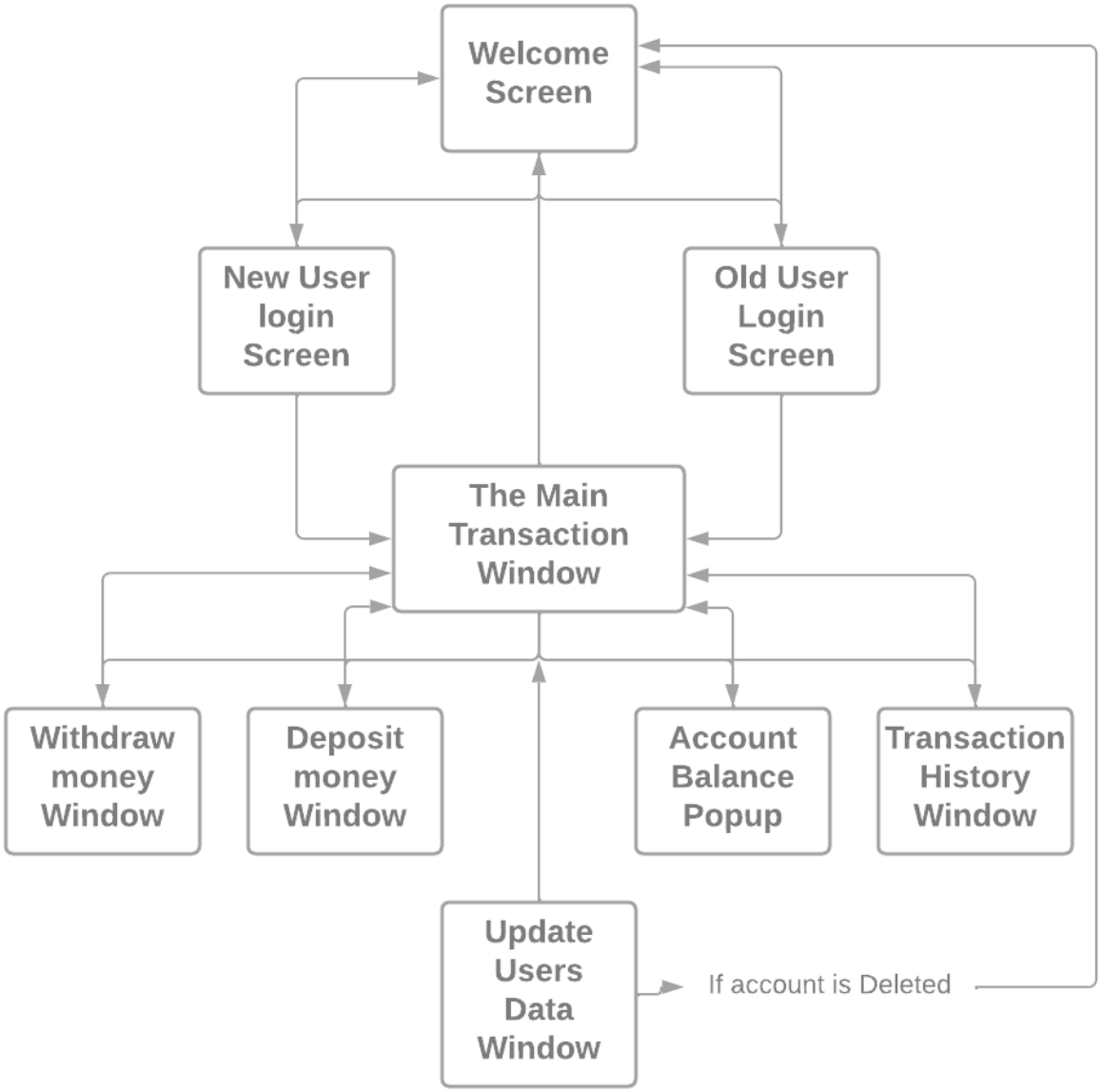
Table about all the contents of the user:

SR. NO.	Name of InputField	Data Type	Sample Data
1	firstName	string	Harsh
2	lastName	string	Alpesh
3	middleName	string	Bhagat
4	DOB	string	01/01/2022
5	Email	string	Admin123@gmail.com
6	MobileNO	integer	1234567891
7	gender	string	Male
8	aadharNO	string	1234 1234 1234
9	passWord	string	Harsh@123
10	AccountNO	integer	1234123412345
11	Current Balance`	Float	12345.0

Project Design:

- The Application comprises fundamental/simple GUI elements provided under the TkinterGUI interface tools like buttons, entry boxes, labels, and message box.
- For modularization, each window of the application is a function defined in the code so that it can be switched back and forth(as seen above in the UI interface there is a back button that just calls the function before it).
- File input/output and Excel manipulation were used to store the user's data and easily edit/delete it as needed.

Structure Chart:



Important Algorithms:

Algorithm for new account creating window:

1. Start with the Welcome Screen.
2. Select the Option if the User wants to create a New Account or wants to use an Existing Account.
3. if the user selects a new account option.
4. Then the user needs to enter details such as Name, Email, DOB, Aadhar number, etc.
5. User needs to Enter a Password for more transaction purposes.
6. When the user clicks on the submit button he will receive an OTP for email verification purposes.
7. if the user wants to reset data they can click the reset button.

Algorithm for old user verification window:

1. Start with the Welcome Screen.
2. Select the Option if the User wants to create a New Account or wants to use an Existing Account.
3. if the user selects the old user account option.
4. Enter the Account Number and Password Sent you by the bank via email
5. Check Account Number and Password: if Yes The goto Step 6:
   if No then a dialog box will open indicating invalid Details.
6. The User will be redirected to the Main Transaction window

Algorithm for Main Transaction window:

1. Start with the Transaction Screen.
2. Available Options:

   I. Withdraw Money :if Yes Then goto step 3
   : if No Then goto step II
   II. Deposit Money : if Yes then goto step 5
   if No then goto step III

   III. Check Balance : if Yes Then goto step10
   IV. : if No then goto step V
   V. Check Transaction History : if Yes then goto step 9
   if No then goto step VI

   VI. OR Want To update Details : if Yes Then goto step 11
   if No then goto step 12

3. The User needs to enter money amount

4. After Clicking on the Submit button the user will be able to withdraw money
5. The user will able to hear a transaction amount of the money transacted
6. The User needs to enter the amount to deposit the money
7. After clicking the submit button the user's Money will be deposited
8. The user will able to hear a transaction amount of the money transacted
9. The Transaction history of the User Will open
10. The User will be able to Check Account Balance
11. The User will be able to Update the account details and will be reach via an email of the user account on Gmail
12. The user can push back button making an end to the transaction window and will be redirected to the main window