# ATM SIMULATOR FINAL PROJECT REPORT

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# INTRODUCTION

An automated teller machine (ATM) or automatic banking machine (ABM) is a computerized telecommunications device that provides the clients of a financial institution with access to financial transactions in a public space without the need for a cashier, human clerk or bank teller.

**Problem Statement:**

The goal of this design is provide an interface which allows the controlling authority to remotely configure the system and to be accessible by a wide range of people. The interaction provides direct manipulation and natural language interfaces. Input will be in the form of a graphical user interface. Output will be from high resolution graphics, and printed forms. The representation of information will be textual with iconic augmentation. Because of safety and privacy concerns the system will be put in fixed locations inside enclosures which will limit the interaction to one person at a time.

The primary goal of developing such software is to develop software so that consumer can access a bank's computer and carry out their own financial transactions without the mediation of a bank employee.

**What problem will it solve?**

The ATM software is intended to serve both bank and customer. For the bank, ATM software increases automation and reduces manual handling of routine paperwork. For the customer the ATM is ubiquitous and always available, handling routine transactions whenever and whenever the customer desires.

**Where will it be used?**

ATM software has become essential to financial institutions. Customers take it for granted that a bank will have an ATM machine. ATM machines are available at many stores, sporting events, colleges and other locations throughout the world.

**How will it work?**

We will adopt a three-tier architecture to separate the user interface from programming language, and programming language from the database. In reality

the architecture is n-tier architecture, because there can be any number of programming language communicating with each other.
Authentication is provided to the customer after entering their **Account Name** and a **personal identification number (PIN)**. The SysAdmin is supposed to log in to the system with a default **PIN** of "1357" in order to create or add more users or customers. For more information see the **user manual** and the **README.md** file.

**Scope:**

Any software development effort is a financial institutions. From an economic perspective, it is desirable to minimize the investment, maximize 4the revenue, and realize revenue as soon as possible. The domains of the software are the financial institutions. Customer takes it for granted that a bank will have an ATM machine. ATM machine are available at many stores, sporting events, colleges and other locations throughout the world.

# PLATFORM SPECIFICATION

**Hardware:**

- CPU (to control the user interface and transaction devices)
- A Key-Board to provide input for the system
- Display (used by the customer for performing the transaction)

**Software:**

- Windows 8,10,11, MacOs, Linux
- Python 3.x.x Interpreter e.g python 3.9.0 and it's packages(one may have issues if they're using Python2.x.x version )
- IDE like python3 IDE, Visual Studio code, or Pycharm

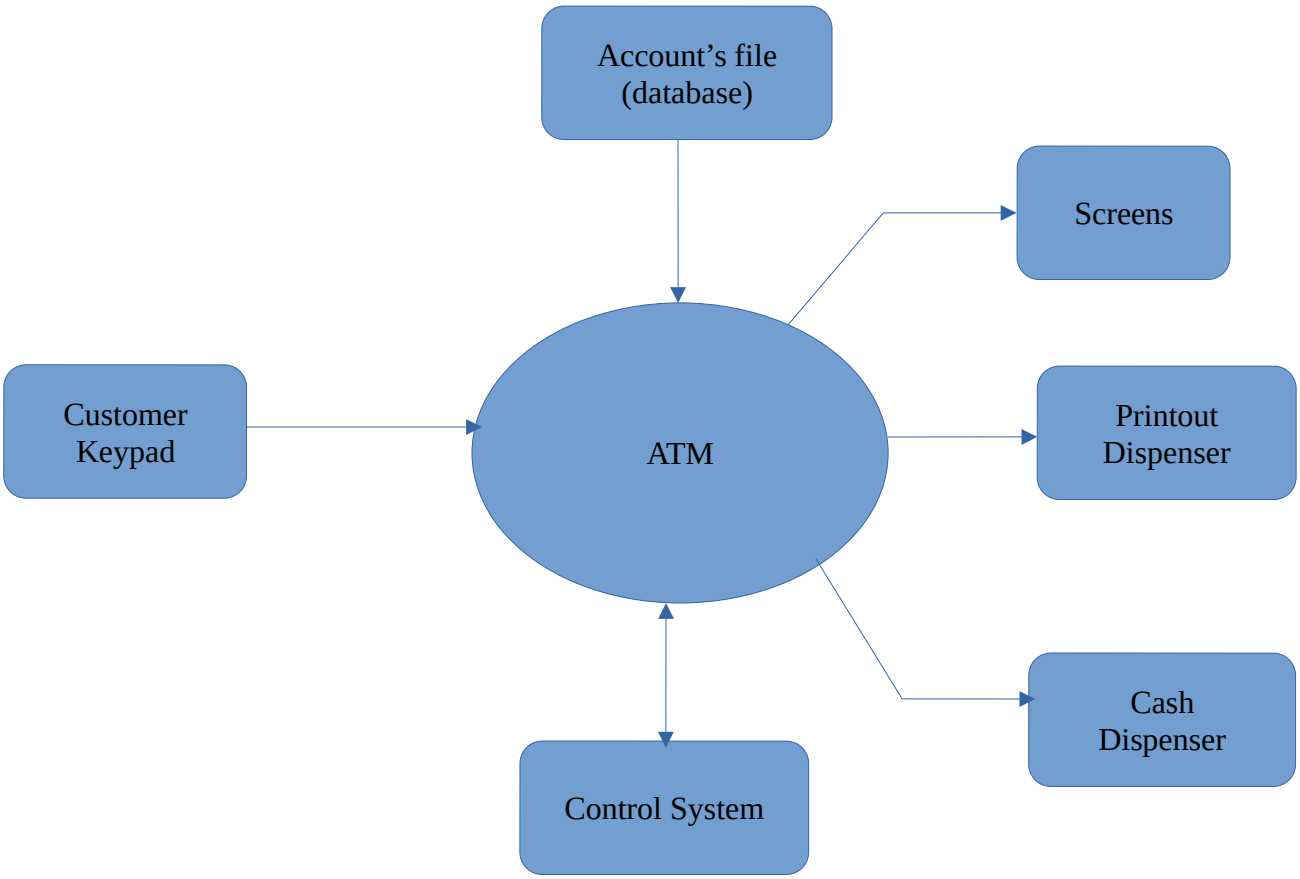
**Implementation Language:**

- Python3 with packages like Tkinter, logging installed
  Note that you can install **PYTHON ANACONDA** as the complete pyhton3 version.

# SYSTEM REQUIREMENTS.

- ➔ Before performing any transaction, the user must enter his or her username and PIN (personal identification number) at an input screen.
- ➔ The system must validate the user information against the information that is pre-built into the system.
- ➔ After each transaction, with the exception of Exit, the system must return to the menu display and prompt the user for another transaction choice.
- ➔ In the case of the Administrator, upon exiting, the system should prompt for a new user and PIN
- ➔ The user must enter the amount to be deposited into his or her account. The amount of the deposit must be added to the current balance into the account.
- ➔ The user must enter the amount to withdraw. Each withdrawal transaction is subject to a maximum of $1,000 per transaction.
- ➔ When the user selects this option, the system simply checks the data for that user and displays the current balance.
- ➔ Changing the PIN is available to all users.
- ➔ The application must check the account balance before doing a transaction.
- ➔ Any transaction that would result in a negative balance must be rejected.
- ➔ The balance of the account affected by a transaction should be updated and displayed after each transaction.
- ➔ The user should be able to do as many transactions as he or she would like to do before leaving the ATM.

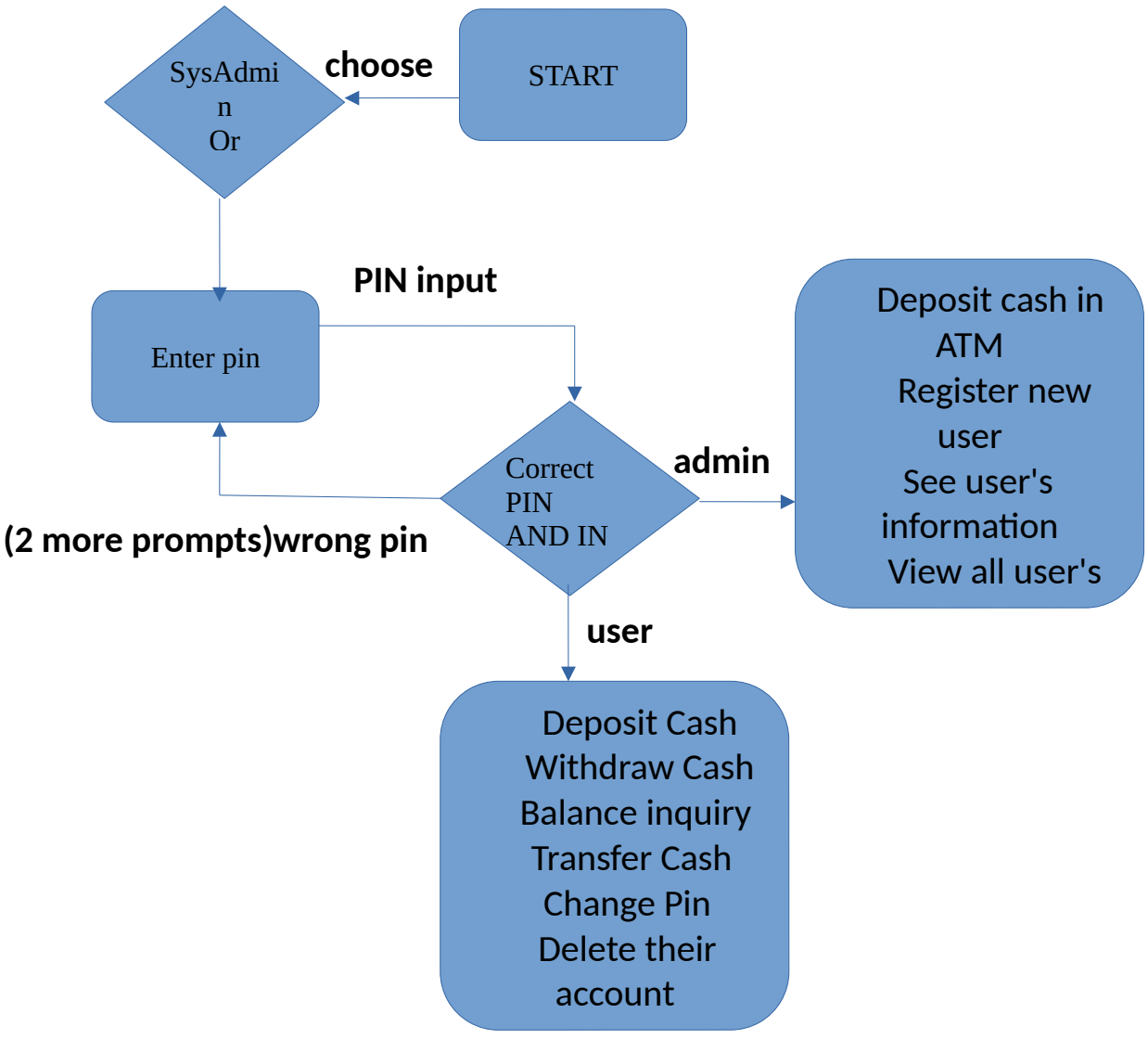
# LEVEL 0 DFD OF THE SYSTEM



# PSEUDO CODE.

Start machine (Run main.py)
Choose if SysAdmin or Normal User
if SysAdmin:
    input the  admin  PIN
    if pin is correct:
        allow access and display Admin menu and options
            - Deposit cash in ATM
            - Register new user
            - See user's information
            - View all user's cash
            - Delete user Account
            - Exit
    else:
        try again and re-enter pin
        break
if Normal user:
    input Acct.Name and PIN
    if Acct.Name and PIN are correct and exist in Account’s Database
        allow access and display normal user options
            - Deposit Cash
            - Withdraw Cash
            - Balance inquiry
            - Transfer Cash
            - Change Pin
            - Delete their account
              Exit
    else:
        prompt user to enter PIN for only 2 more rounds
        if Acct.Name and PIN are correct and exist in Account’s Database
            allow access and display normal user options
        else:
            exit

# FLOWCHART (HIGH LEVEL OR ABSTRACT)



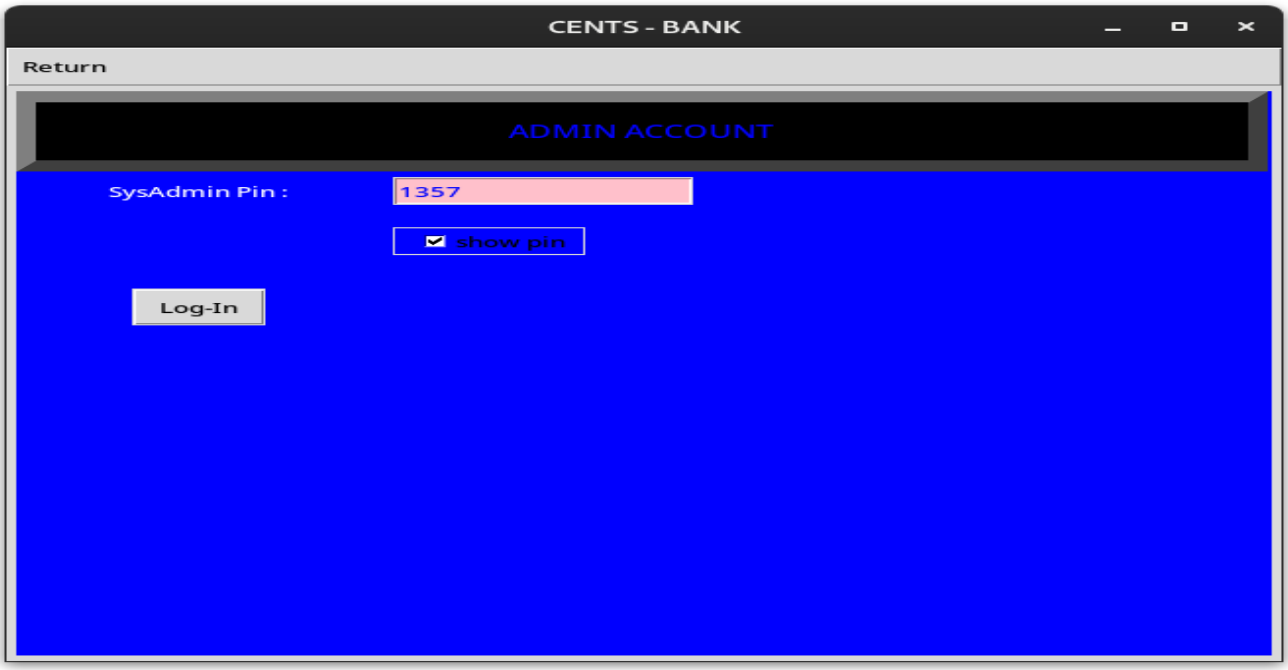
# USER MANUAL.

(**NOTE that all files must be in the same directory.**)
This ATM-Simulator application works on the following python files;

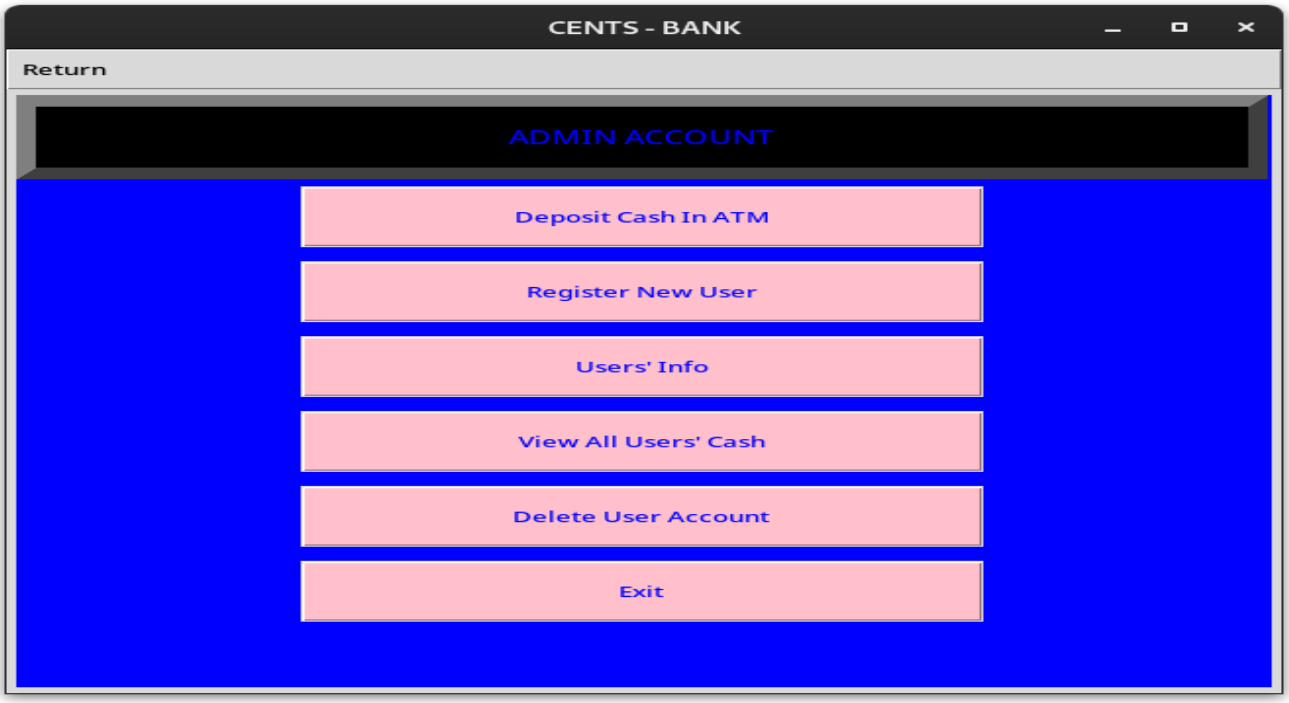
- ✓ main.py
- ✓ Design.py
- ✓ Admin.py
- ✓ BankAtm.py
- ✓ database.txt
- ✓ README.md

It is implemented in python language and it's GUI is generated using **Tkinter python packages.**
The app is launched by running main.py file which in turn calls/executes other different functions and methods in the other files. After launching this application, a GUI(Graphical User Interface) shows app, which prompts you to choose to continue either as "ADMIN" or "USER".

If you continue with "Admin", the SysAdmin root/default password is "1357", see through the database.txt file which stores information concerning the bank, admin and normal users.
Note that this file is automatically created and updated when the admin runs the application to register new users. Another file Database.txt is created when the admin adds/tops up the amount within the system.



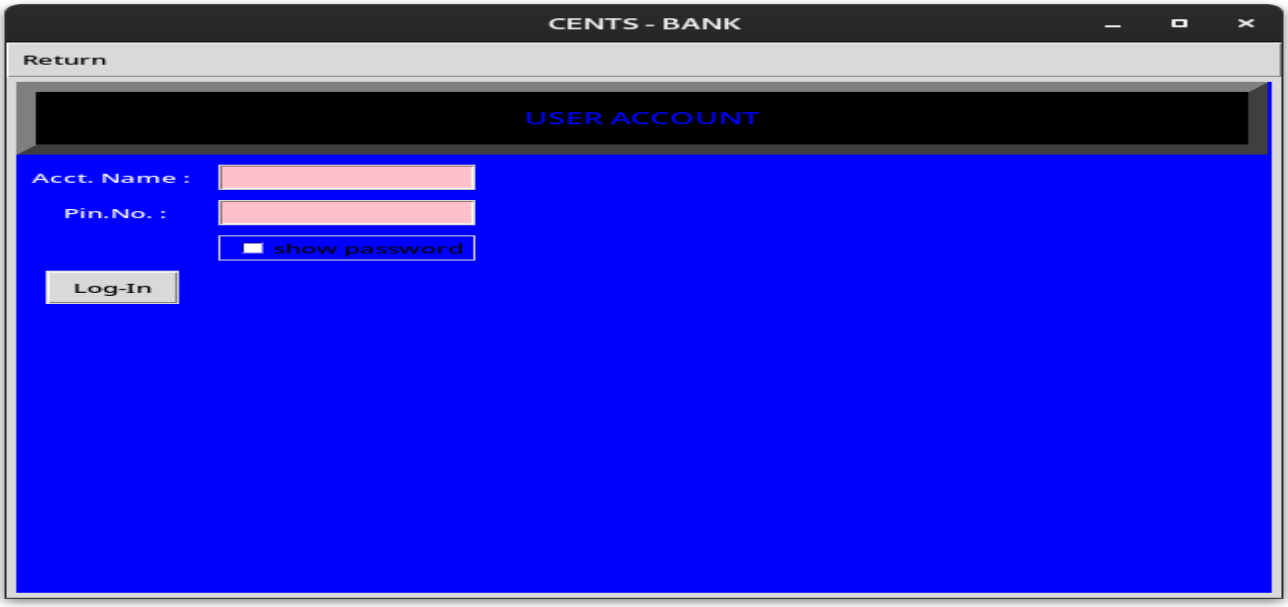

This SysAdmin  is responsible for creating and adding in more users in the bank's database and each new user created is given a default password of "0000" which is changed or updated to a custom PIN when that particular user logs in to the system at the first time.

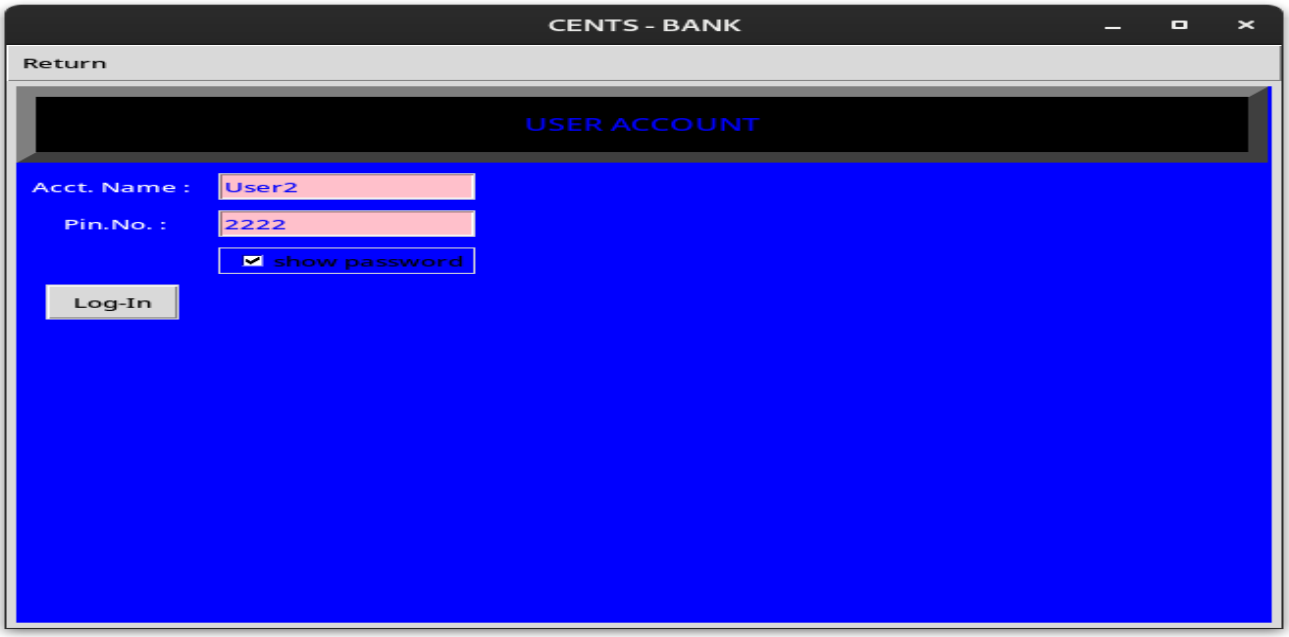



The SysAdmin can do the following on a successful log-in.

- Deposit cash in ATM
- Register new user
- See user's information
- View all user's cash
- Delete user Account
- Exit

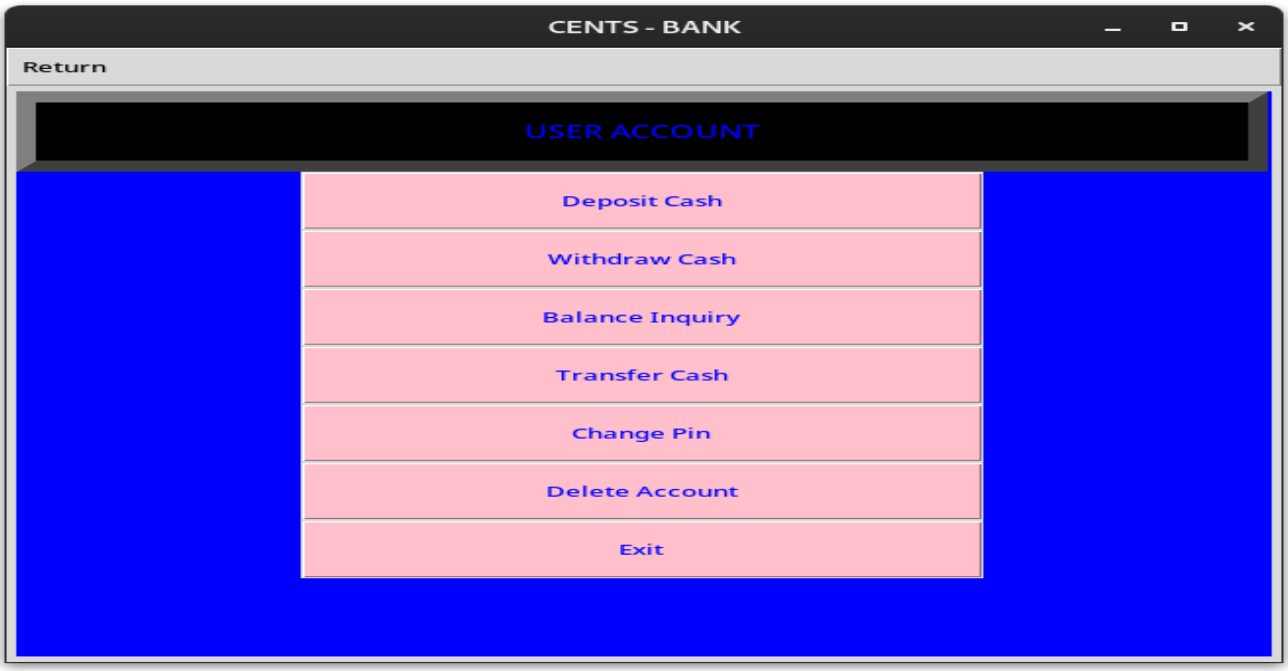
If you choose to continue with normal user.



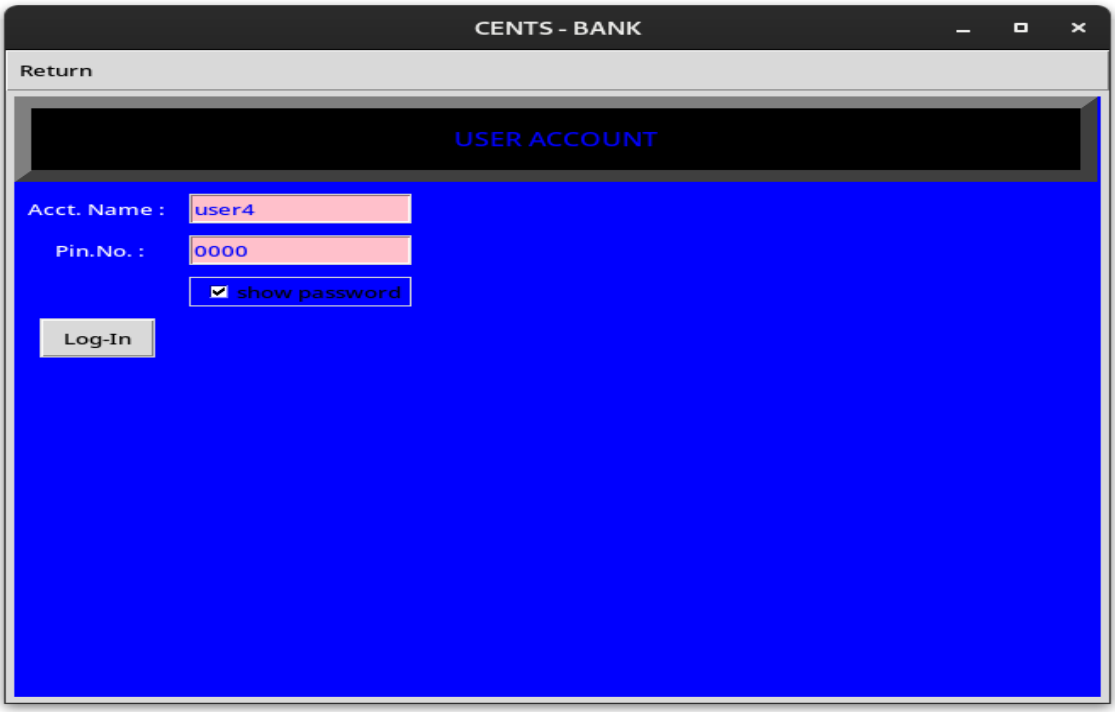



On successful login, the normal user can do the following.

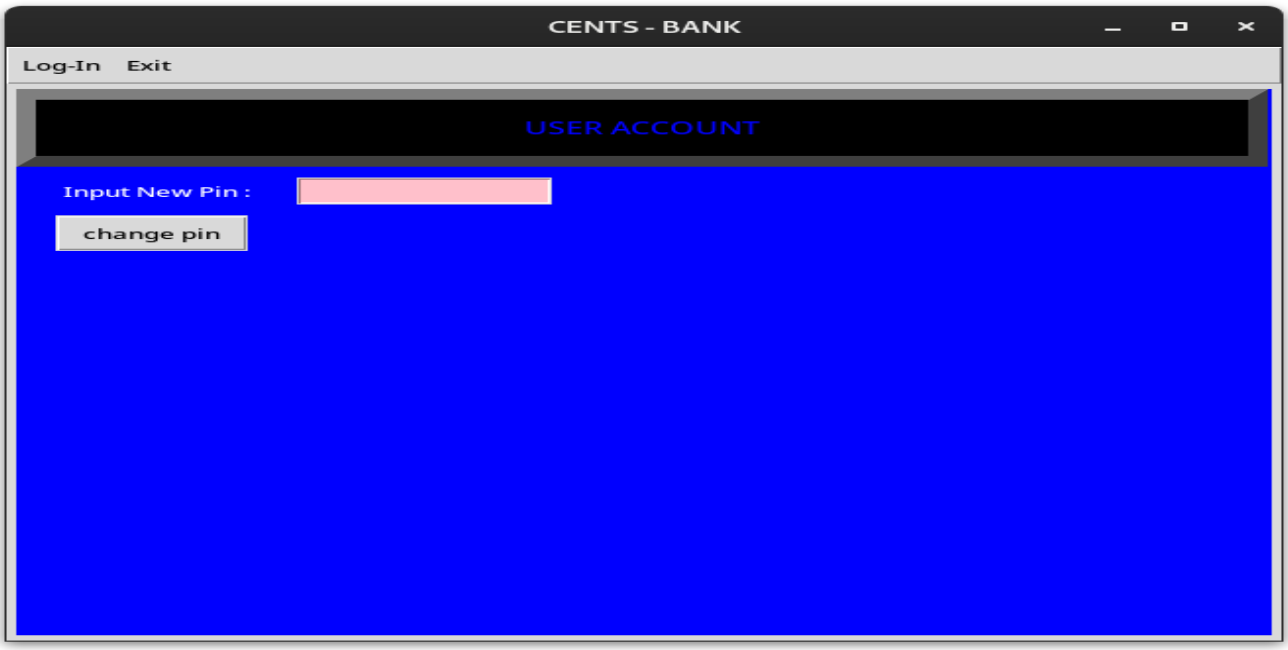
- Deposit Cash
- Withdraw Cash
- Balance inquiry
- Transfer Cash
- Change Pin
- Delete their account
- Exit



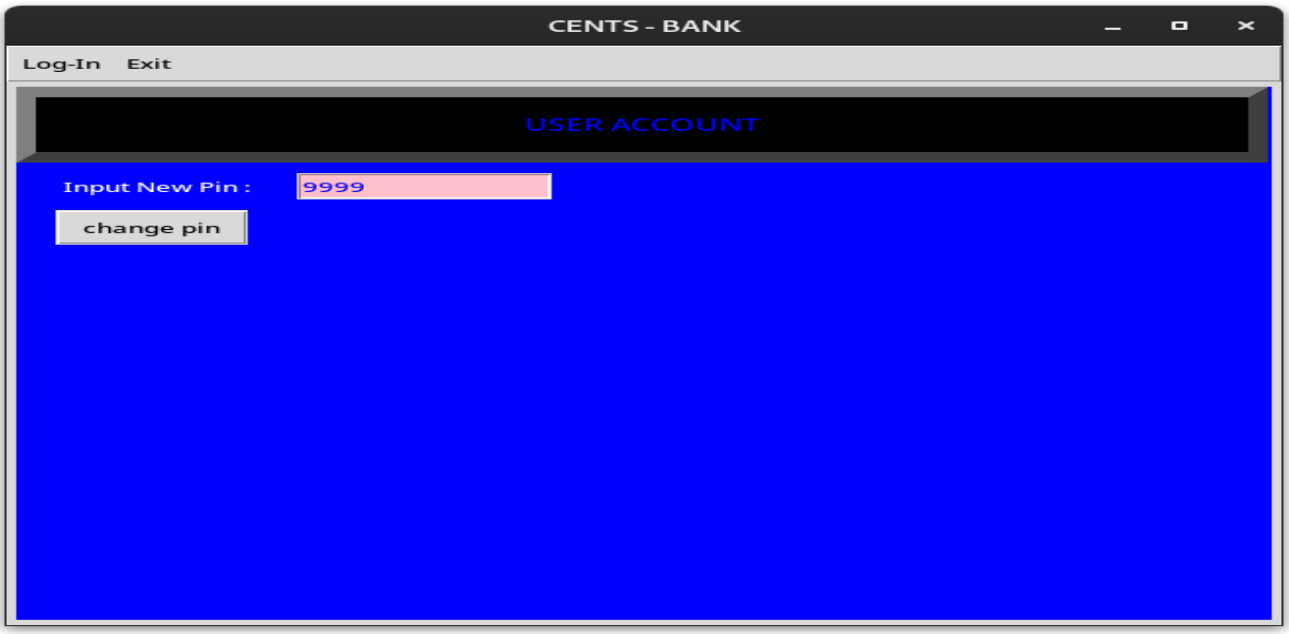
The normal user is created by the admin, and is given a default password which can be changed at first time to login to the system with their account_name and PIN as "0000".

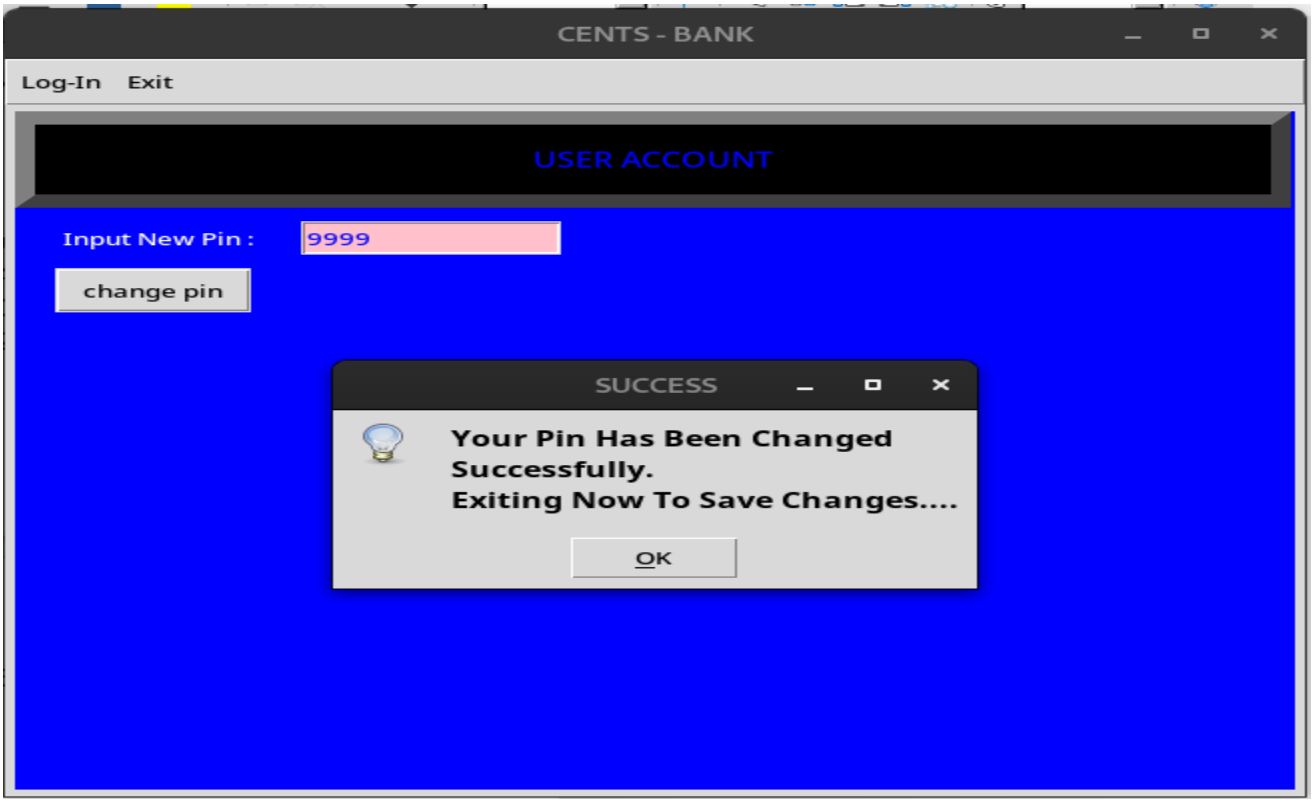



The first time the user logs into the system, they are required to change their PIN.



After the PIN is successfully changed. The user can go ahead and do their operations as required.



A few more users were created including "User1":"1234", "User2":"2222", "User3":"3333" by SysAdmin in the database.txt file during testing as required by the project.

Additional functionalities put include;

**Admin side**:

- Deposit Cash in the ATM
- View all users information
- View all users cash

**Normal User side:**

- Make cash Transfers to other accounts
- Delete their account