BANK MANAGEMENT SYSTEM:

Computer Science Project

Developed By

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Index

Certificate

This is to certify that BANK MANAGEMNT SYSTEM Computer Science project is developed by **PRIYANSHUL SHARMA** under my supervision in the session 2024-2025.

The work done by them is original.

_____ Computer Science Teacher

Date: _____

Acknowledgement

We express our immense gratitude to our Computer Science teacher Mrs.Pooja for her intellectual vigour and generously given support that has been invaluable in escalating our determination to reach the goal of writing this project successfully.

We can hardly find appropriate words to express our obligations and gratefulness to the Principal and the Director for including such projects in our curriculum.

We also feel immense pleasure in recording deep sense of indebtedness, gratitude and sincere thanks to all fellow group mates for their help,company and hardwork.

We are especially indebted to our parents for their sincere love, moral support and spontaneous encouragement throughout the entire period of this work.

Thank you!

Project Synopsis

Introduction

- This project is all about software for the Bank management system. It helps to have a full fledged control over his/her account.

- The system we have developed is perfect for a person trying to access their bank account and also for bank executive to edit details. From an admin point of view, we have added accessibilities like adding new accounts, editing existing accounts, sorting account in a particular way, deleting rows in a particular column or a group of rows and searching a particular account. From a user perspective, we have added a safe password encryption which uses our 'password' database made for this sole purpose. Users can also easily check their balances or do transactions in simple and easy steps.

AIM

- The objective of this project is to let us apply programming knowledge into a real- world situation/problem and expose how programming skills help in developing a good software.

Idea Source

- Today one cannot afford to rely on the fallible human beings who really want to stand against today's merciless competition where not too wise saying **"to err is human"** is no longer valid, it's outdated to rationalize your mistake. So, to keep pace with time, to bring about the best result without malfunctioning and greater efficiency so to replace the unending heaps of flies with a much sophisticated hard disk of the computer.

- Moreover as in the recent years lifestyles become faster, people want to eliminate things that take a major amount of time, like waiting in a queue at the bank. Hence there is a major demand for safe and convenient ways to access banking facilities from anywhere.

- One has to use the data management software. Software has been an ascent in atomization in various organizations. Many software products working are now in markets, which have helped in making the organizations work easier and efficiently. Data management initially had to maintain a lot of ledgers and a lot of paperwork had to be done but now software products in this organization have made their work faster and easier. Now only this software has to be loaded on the computer and work can be done.

- This prevents a lot of time and money. The work becomes fully automated and any information regarding the organization can be obtained by clicking the button. Moreover, now it's an age of computers and automating such an organization gives a better look.

Plan For Implementation

Type of Data: MySQL Database

TABLE : ACCOUNTS

S.NO	DATA NAME	DATA TYPE	DESCRIPTION
1.	NAME	STRING	ENTER THE NAME OF THE PERSON OWNING THE ACCOUNT
2.	ACNO	INT	RESPECTIVE ACCOUNT NO.
3.	BBALANCE	FLOAT	BANK BALANCE

TABLE : PASSWORD

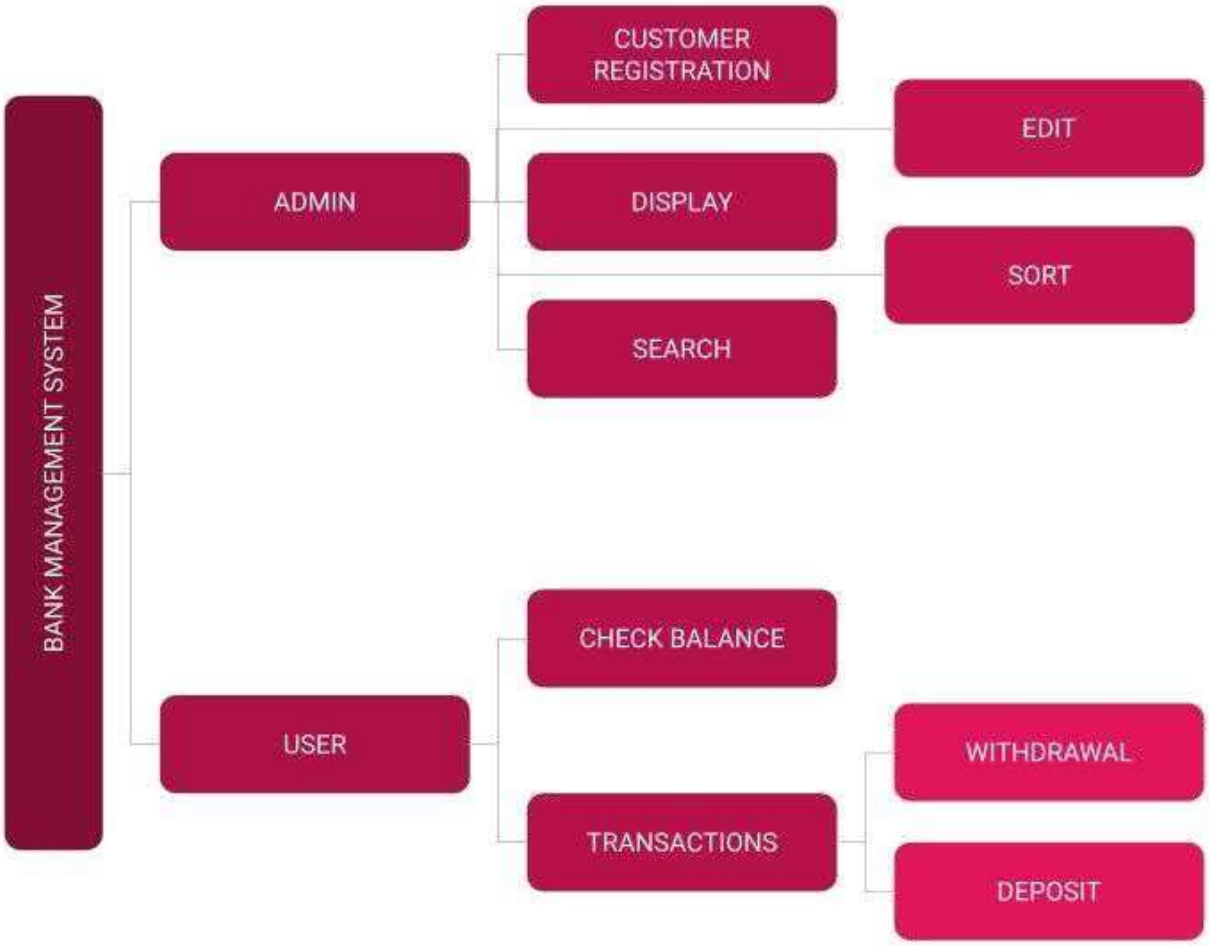
S.NO	DATA NAME	DATA TYPE	DESCRIPTION
1.	NAME	STRING	ENTER THE NAME OF THE PERSON OWNING THE ACCOUNT
2.	ACNO	INT	RESPECTIVE ACCOUNT NO.
3.	PASSWORD	STRING	PASSWORD TO ACCESS THE ACCOUNT

Tabular Representation of Data :

NAME	ACNO	BBALANCE
SAHIL	0987	5000
VIVEK	12345	40000
MANAV	7890	67500
NAME	**ACNO**	**PASSWORD**
SAHIL	0987	0987
VIVEK	12345	QWERTY
MANAV	7890	ASDFGH

Menu Options :

Main Menu	Sub Menu
ADMN	CUTOMER REGISTRATION
	DISPLAY ACCOUNTS
	SEARCHING A PARTICULAR ACCOUNT
	EDITTING IN AN ACCOUNT
	SORTING ACCOUNTS
USER	TRANSACTION (WITHDRAW OR DEPOSIT)
	CHECK BALANCE



Validation and Add on Features

- In case the user enters any wrong input, we will ask them to retry. The coding will be user friendly and the users will find everything comfortable. We have some special things for some people which will be described properly in the coding.

SOURCE CODE:

```
# Developed By : <PRIYANSHUL SHARMA>
# My blog https://priyanshul.is-a.dev/

import mysql.connector as pymysql
import random

passwrd = None
db = None
C = None

def base_check():
    check=0
    db = pymysql.connect(host="localhost", user="root", password=passwrd)
    cursor = db.cursor()
    cursor.execute('Show databases')
    Result=cursor.fetchall()
    for r in Result:
        for i in r:
            if i=='bank':
                cursor.execute('Use bank')
                check=1
    if check!=1:
        create_database()

def table_check():
    db = pymysql.connect(host="localhost", user="root", password=passwrd)
    cursor = db.cursor()
    cursor.execute('Show databases')
    Result=cursor.fetchall()
    for r in Result:
        for i in r:
            if i=='bank':
                cursor.execute('Use bank')
                cursor.execute('show tables')
                result=cursor.fetchall()
                if len(result)<=1:
                    create_tables()
                else:
                    print('      Booting systems...')


def create_database():
    try:
        db = pymysql.connect(host="localhost", user="root", password=passwrd)
        cursor = db.cursor()
        cursor.execute("CREATE DATABASE IF NOT EXISTS bank")
        db.commit()
```

```
        db.close()
        try:
            print("Database 'bank' created successfully.")
        except:
            print(f"Error creating database: {str(e)}")
    except pymysql.Error as e:
        print(f"Error creating database: {str(e)}")

def create_tables():
    try:
        db = pymysql.connect(host="localhost", user="root", password=passwrd,
database="bank")
        cursor = db.cursor()


        cursor.execute("""
            CREATE TABLE IF NOT EXISTS accounts (
                NAME VARCHAR(255),
                ACNO INT PRIMARY KEY,
                BBALANCE FLOAT CHECK (BBALANCE>1000.0)
            )
        """)


        cursor.execute("""
            CREATE TABLE IF NOT EXISTS password (
                NAME VARCHAR(255),
                ACNO INT PRIMARY KEY CHECK(ACNO>100000),
                PASSWORD VARCHAR(255) UNIQUE
            )
        """)
        db.commit()
        db.close()
        try:
            print("Tables 'accounts' and 'password' created successfully.")
        except pymysql.Error as e:
            print(f"Error creating tables: {str(e)}")
    except pymysql.Error as e:
        print(f"Error creating tables: {str(e)}")

def QR():
    Result = C.fetchall()
    for r in Result:
        print(r)

def CReg():
    N = input("Enter Name: ")
    AC = random.randint(100000,999999)
    BB = float(input("Enter Initial Bank Balance: "))
    if BB>1000:
        PP = input("Enter Account Password:")
        data = (N, AC, BB)
        adata = (N, AC, PP)
        ldata = (N, AC, 'NO', 0, 0, 0, 0)
        SQL = "INSERT INTO accounts (NAME, ACNO, BBALANCE) VALUES (%s, %s, %s)"
        SQL2 = "INSERT INTO password (NAME, ACNO, PASSWORD) VALUES (%s, %s, %s)"
        try:
```

```
            C.execute(SQL, data)
            C.execute(SQL2, adata)
            db.commit()
            print('Account successfully created...')
            print('Your Account details:',data,'Please save this information to
avail future services')
        except pymysql.Error as e:
            print(f"Error generated: {str(e)}")
    else:
        print('Balance below minimum Limit...Minimum Deposit Required!')
        CReg()

def D():

    C.execute("SELECT * FROM accounts")
    QR()

def Sort():
    Sort_On = input("SORT ON[NAME,ACNO, BBALANCE]::: ")
    AOD = input("Asc: Ascending Order , Desc: Descending Order:::")
    SQL = "SELECT * FROM ACCOUNTS ORDER BY " + Sort_On + " " + AOD
    try:
        C.execute(SQL)
        QR()
    except:
        print("Wrong Column or Order")


def Search():
    Search_on = input("SEARCH ON[ACNO OR NAME]:::")
    if Search_on =='NAME':
        VAL = input("Search Value:")
        SQL = "SELECT * FROM ACCOUNTS WHERE " + Search_on + " = " + "'" + VAL +
"'"
    elif Search_on =='ACNO':
        VAL = input("Search Value:")
        SQL = "SELECT * FROM ACCOUNTS WHERE " + Search_on + " = " + VAL
    try:
        C.execute(SQL)
        print("RECORD FOUND")
        QR()
    except:
        print("Value not found or Incorrect Search_on Value")

def Delete():

    Col = input("Column[NAME,ACNO,BBALANCE]:::")
    if Col.upper()=='NAME':
        Val = input("Value:::")
        SQL = "DELETE FROM ACCOUNTS WHERE " + Col + " " + "=" + " " + Val

    else:
        Sign = input("Comparison Value[>,=,<(etc.)]:::")
        Val = input("Value:::")
        SQL = "DELETE FROM ACCOUNTS WHERE " + Col + " " + Sign + " " + Val

    try:
```

```
            C.execute(SQL)
            D()
        except:
            print("Wrong Input Values or Record Not found")

def Edit():
    while True:
        Set_Col = input("SET Column[NAME,ACNO,BBALANCE]:::")
        Set_Condition = input("SET CONDITION: ")
        Where_Col = input("WHERE Column[NAME,ACNO,BBALANCE]:::")
        Where_Condition = input("Where CONDITION: ")
        SQL = "UPDATE ACCOUNTS SET " + Set_Col + Set_Condition + " WHERE " +
Where_Col + " " + Where_Condition
        print(SQL)
        Con = input("Confirm(Y/N): ")
        if Con=='Y':
            C.execute(SQL)
            D()
            break
        else:
            print("Try Again")

def Transact():
    db = pymysql.connect(host="localhost", user="root", password=passwrd,
database="bank")
    cursor = db.cursor()
    while True:
        print("Select W :withdrawing, D :depositing, X:EXIT::: ")
        a=input()
        Acno=(input('RE-ENTER YOUR ACCOUNT NO.:'))
        SQL= "select BBALANCE from accounts where Acno" + "=" + Acno
        cursor.execute(SQL)
        Result=cursor.fetchall()
        for i in Result:
            for j in i:
                money=j
        print(Result)
        if a=="W":
            N=int(input("enter the amount you want to withdraw"))
            if (money-N)>=1000.0:
                SQL = "UPDATE ACCOUNTS SET BBALANCE= BBALANCE-"+" " +str(N)+ " " +
"WHERE ACNO=" + " " + Acno
                C.execute(SQL)
                print('TRANSACTION SUCCESSFULL')
                Check()
                db.commit()
                break
            else:
                print('Minimum Deposit Limit breched... \n Transaction failed')

        elif a=="D":
            M=int(input("enter the amount you want to deposit"))
            SQL = "UPDATE ACCOUNTS SET BBALANCE= BBALANCE+" + " " + str(M) + " " +
"WHERE ACNO=" + " " + Acno
            C.execute(SQL)
            print('TRANSACTION SUCCESSFULL')
            Check()
```

```
            db.commit()
            break
        elif a=='X':
            break
        else:
            print("Wrong input, try again")

def Check():
    Acno=(input('ENTER YOUR ACCOUNT NO. TO CHECK YOUR BALANCE:'))
    SQL= 'SELECT BBALANCE FROM ACCOUNTS WHERE ACNO='+Acno ;
    C.execute(SQL)
    QR()

def main():
    global passwrd
    passwrd = input("Enter password for mysql: ")

    base_check()

    table_check()

    global db, C
    db = pymysql.connect(host="localhost", user="root", password=passwrd,
database="bank")
    C = db.cursor()
    while True:
        Log = input("For Bank Employees : A, For User : U ::: ")
        if Log == "A" or Log == 'a':
            P = input("ENTER PASSWORD: ")
            if P == '12345':
                print("LOGIN SUCCESSFUL")
                while True:
                    AMenu = input('''C:Customer Registration, D:Display
Accounts,S:Sort,SE:Search,DEL:Delete,X:Break :::''')
                    if AMenu.upper() == 'C':
                        CReg()
                    elif AMenu.upper() == 'D':
                        D()
                    elif AMenu.upper() =='S':
                        Sort()
                    elif AMenu.upper() =='SE':
                        Search()
                    elif AMenu.upper() =='DEL':
                        Delete()
                    elif AMenu.upper() == 'E':
                        Edit()
                    elif AMenu.upper() == 'X':
                        break
                    else:
                        print("Wrong Input")
                        main()


        elif Log == "U" or Log == "u":
            Log = input("Register as a New User : R, Login: L ::: ")
            if Log in "Rr":
                CReg()
```

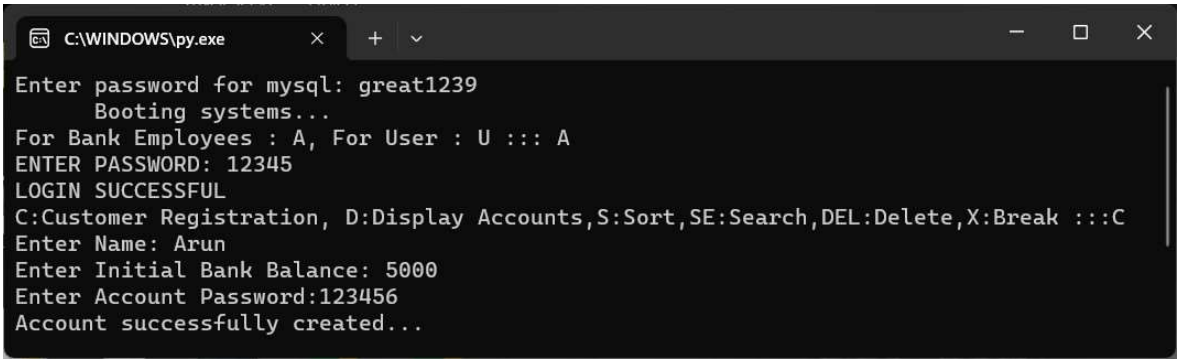
```
            elif Log in 'Ll':
                Acno = input("Enter Account Number:")
                P = input("Enter Password:")
                SQL = 'SELECT PASSWORD FROM password WHERE ACNO = %s'
                C.execute(SQL, (Acno,))
                S = C.fetchall()
                if S and P == S[0][0]:
                    print('LOGIN SUCCESSFUL')
                    while True:
                        Menu = input('''T: TRANSACTION, C: CHECK BANK BALANCE, X:
EXIT:::''')
                        if Menu.upper() == "T":
                            Transact()
                        elif Menu.upper() =="C":
                            Check()
                        elif Menu.upper() == 'X':
                            break

if __name__ == "__main__":
    main()
```

_____END OF CODE_____

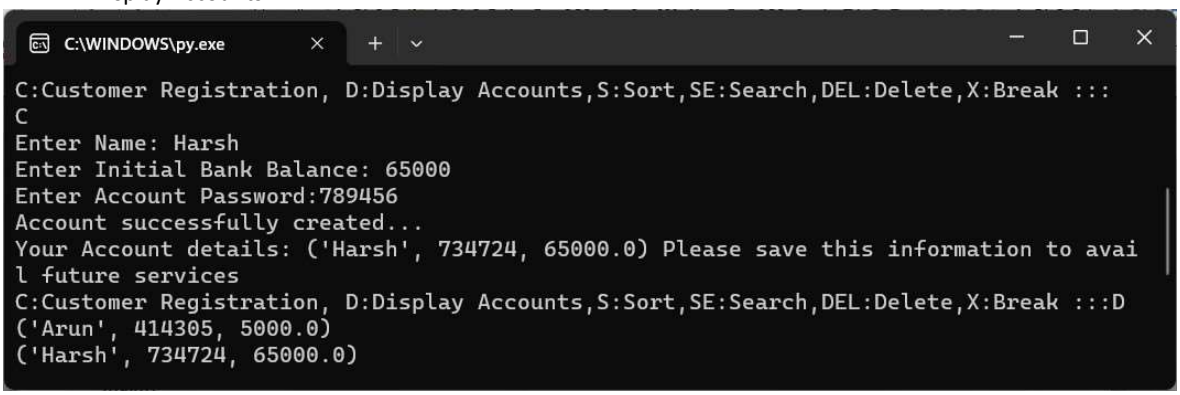
OUTPUT

➢ Admin Controls

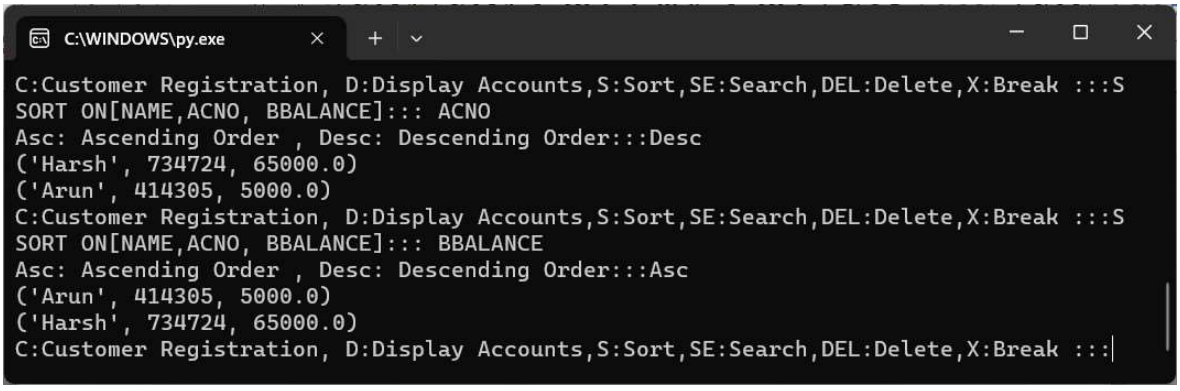
- **Customer Registration**



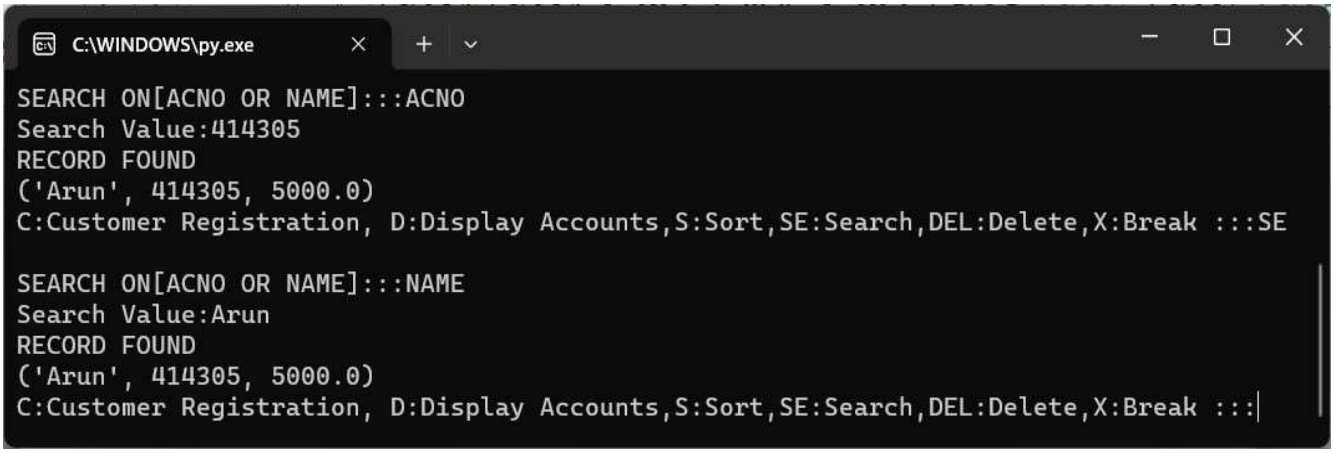
- Display Accounts

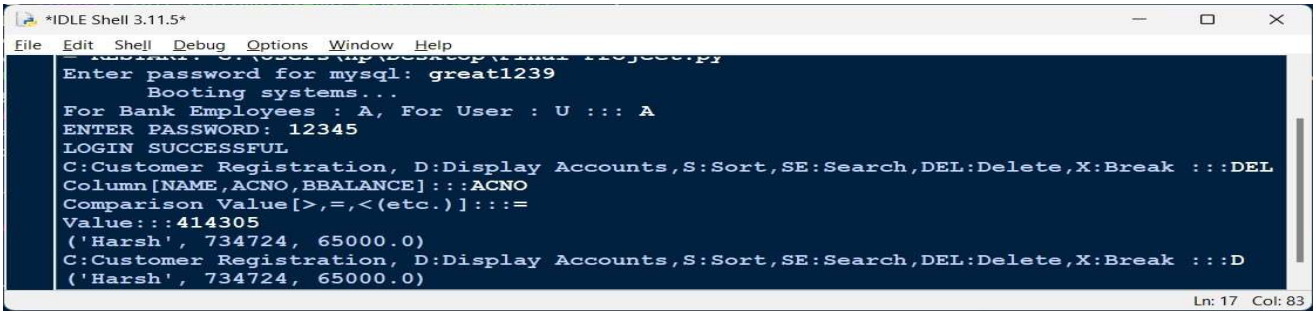


- Sort Accounts on different conditions



 Search Accounts on different conditions

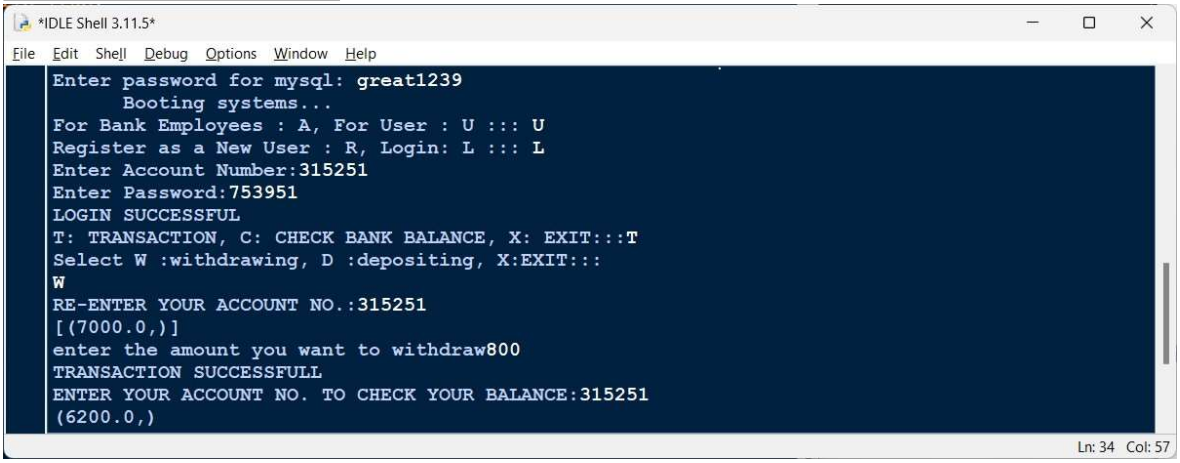




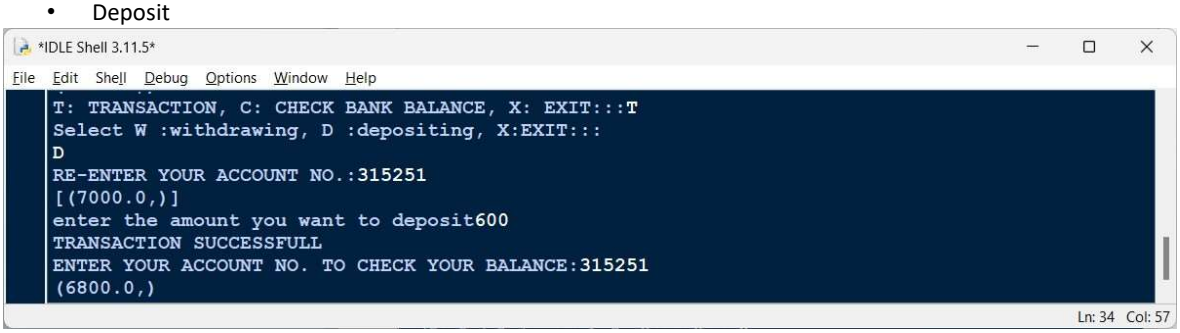
➢ User Controls

- Register

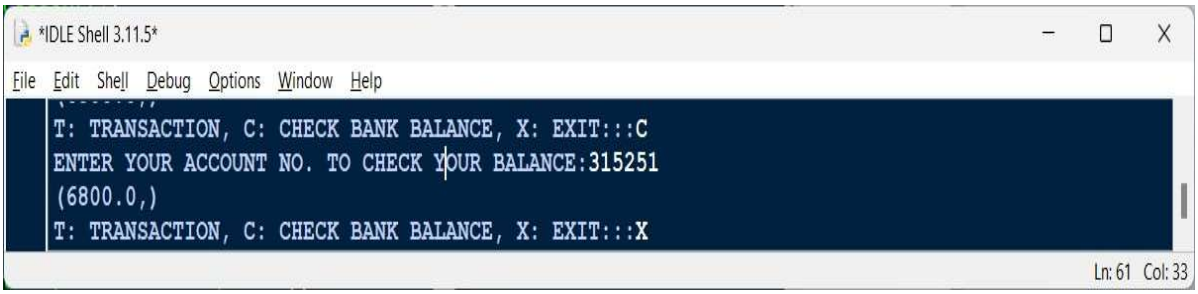
- Withdraw



- Deposit



- Check Balance



Hardware Requirement

PC/Laptop/MacBook with Intel core/i3/i5/i7 or any equivalent With at least 2 GB RAM 10 MB free space on Hard

Disk LCD/LED

Operating System & Compiler

MS Windows/Ubuntu/MacOS

Python IDLE 3.x

OR

colab.research.google.com (gmail account)

and/or

MySQL 8.x

References

1.Classnotes

2.www.w3schools.com

3.www.geekforgeeks.com