# ASSIGNMENT 07 Mini-Project ATM Interface (User side of Banking System)

#### 1 Aim

The Aim of this mini project program is to make interface of User side of the Banking System. An ATM is a example of User side interface of Banking System.

### 2 Working

There are 2 sides of a Banking System. User side and Bank side. Bank side manages the transaction and keeps the record of user, his login credentials, and their transactions.

The user side has an Interface from where he can perform actions like checking his Balance, transferring money, withdrawing money, etc while using pin or passwords for safety.

#### 3 Statistical information:

Starting date: 14, November, 2022 End Date: 20, November, 2022 Total Time Taken: 7 days Total Line Of Code (C): 225 Number Of Functions (C): 10 Total Line Of Code (Python): 202 Number Of Functions (Python): 10

## 4 Functions used in this project

#### 4.1 mainMenu()

This function makes a menu appear in front of the user and asks user to select from the provided options.

Options includes basic user side operations like: Checking balance, Withdraw, Deposit, Change pin, Exit./

#### 4.2 checkBalance()

This function is called if the user choose to check his balance. This function takes the value of Total Balance as input and prints the total balance.

#### 4.3 moneyDeposit()

This function is called if the user choose to Deposit money in his Bank Account. This function takes the value of current Total Balance as input, Adds the Deposit Amount in it, and then prints and returns the new Total Balance as output.

#### 4.4 moneyWithdraw()

This function is called if the user choose to Withdraw money from his Bank Account. This function takes the value of current Total Balance as input, subtracts the withdrawing amount from it, and then prints and returns the new Total Balance as output.

### 4.5 checkPin()

This function asks the user to enter his pin provided by the Bank at the start and also while performing important tasks like Checking Balance, Withdrawing money, Depositing money, Changing pin etc And checks it with the pin already stored in database (ie,Provided by the bank while opening the bank account for the first time)

#### 4.6 changePin()

This function is called when user choose to change his pin. This function takes the value of new pin from the user and updates the value of pin in the database.

#### 4.7 errorMessage()

This function is called when the user enters an invalid data. This function provides an Error message "INVALID NUMBER".

#### 4.8 printReceipt()

This function is called at the end. This function asks the user if he wants a receipt or not. If yes then it exits the the code while giving the receipt. If no then it exits the code without the receipt.

#### 4.9 clearScreen()

This function itself has a system ("cls") function. "cls" means clear screen. This function clears the screen before execution new function providing user with a good interface.

#### 4.10 exitMenu()

This function provides a exiting message at the end.

# 5 Code In C language:

```
[style=chstyle,language=C]
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
// Declaration of functions
void clearScreen();
void mainMenu();
void checkBalance(float Total_balance);
float moneyDeposit(float Total_balance);
float moneyWithdraw(float Total_balance);
void printReceipt();
void exitMenu();
void errorMessage();
void checkPin(int set_pin);
int changePin(int set_pin);
// Main function !!!!
int main()
{
    int set_pin = 1234;
```

```
int option;
float Total_balance = 25000.00;
int choice;
int flag = 1;
clearScreen();
printf("\n*WELCOME TO THE SBI ATM (BODKHI)*\n\n");
checkPin(set_pin);
while (flag)
{
   mainMenu();
   printf("____\n");
   printf("_____\n\n");
   printf("Your Selection:\t");
   scanf("%d", &option);
   switch (option)
   {
   case 1:
       system("cls");
       checkPin(set_pin);
       checkBalance(Total_balance);
       break;
   case 2:
       system("cls");
       checkPin(set_pin);
       Total_balance = moneyDeposit(Total_balance);
       break;
   case 3:
       system("cls");
       checkPin(set_pin);
       Total_balance = moneyWithdraw(Total_balance);
       break;
   case 4:
       system("cls");
       checkPin(set_pin);
       set_pin = changePin(set_pin);
       break;
   case 5:
       system("cls");
       printReceipt();
       return 0;
   default:
       errorMessage();
       break;
   }
   printf("_____\n");
   printf("_____\n\n");
```

```
printf("Press:\n 1 to continue \n");
        printf(" 2 to exit \n");
        printf("\nYour Selection:\t");
        scanf("%d", &choice);
        system("cls");
        if (choice == 2)
        {
            flag = 0;
            printReceipt();
        }
    }
   return 0;
}
// Defination of Functions
void mainMenu()
   printf("\t!! MENU !!\n\n");
   printf("Please choose one of the options below\nPress:\n\n");
   printf(" 1   To Check your Balance\n");
   printf(" 2 To Deposit\n");
   printf(" 3 To Withdraw\n");
   printf(" 4  To Change your pin\n");
   printf(" 5 Exit\n");
}
void clearScreen()
{
    system("cls");
}
void checkBalance(float Total_balance)
   printf("\nYou Choose to See your Balance\n");
   printf("\nYour Available Balance is: %.2f Rs\n\n", Total_balance);
}
float moneyDeposit(float Total_balance)
    float deposit_amount;
   printf("\nYou choose to Deposit Money\n\n");
   printf("Your Previous Balance is: %.2f Rs\n\n", Total_balance);
   printf("Enter Deposit Amount\n");
    scanf("%f", &deposit_amount);
   Total_balance += deposit_amount;
   printf("\nYour New Balance is: %.2f Rs\n\n ", Total_balance);
   return Total_balance;
}
float moneyWithdraw(float Total_balance)
{
```

```
float withdraw_amount;
    int flag1 = 1;
    printf("\nYou choose to Withdraw Money\n\n");
   printf("Your Balance is: %.2f Rs\n\n", Total_balance);
   while (flag1)
    {
        printf("Enter Withdraw Amount:\n");
        scanf("%f", &withdraw_amount);
        if (withdraw_amount <= Total_balance)</pre>
        {
            flag1 = 0;
            Total_balance -= withdraw_amount;
            printf("\nYour withdrawing money is: %.2f Rs\n", withdraw_amount);
            printf("Your New Balance is: %.2f Rs\n\n", Total_balance);
        }
        else
            clearScreen();
            printf("\n!!INSUFFICIENT BALANCE!!\n\n");
            printf("!!Your Account Balance is: %.2f Rs !!\n\n", Total_balance);
        }
   }
   return Total_balance;
}
void printReceipt()
{
    int reciept;
   printf("Do you want a receipt..???\n");
   printf("Press:\n\ 1 \ to \ print \ reciept\n\ 2 \ to \ Exit \ without \ the \ receipt \n");
    printf("____\n");
   printf("____\n\n");
   printf("\nYour Selection:\t");
    scanf("%d", &reciept);
    if (reciept == 1)
        printf("\n!!!Take your receipt!!!\n");
        exitMenu();
    else if (reciept == 2)
    {
        exitMenu();
}
void exitMenu()
   printf("\n!!!Thank you for using ATM (Bodkhi Branch)!!!\n\n");
}
```

```
void errorMessage()
   printf("!!!Invalid number!!!\n");
}
void checkPin(int set_pin)
   int get_pin;
   printf("\nEnter your 4 Digit ATM PIN\n\n");
   scanf("%d", &get_pin);
   if (set_pin == get_pin)
        printf("checked and compared\n");
        clearScreen();
   }
   else
    {
        printf("\n!!!INCORRECT PIN!!!!\nTry AGAIN!!!!\n");
        checkPin(set_pin);
   }
}
int changePin(int set_pin)
   int new_pin;
   printf("Enter new pin\n");
   scanf("%d", &new_pin);
   set_pin = new_pin;
   printf("\nYour new pin is : %d\n\n", set_pin);
   return set_pin;
}
```

# 6 Execution and Compilation





# 7 Profiling

```
anigLAPTOP-GAM3BPLO:-/PP_mini_project$ cd ..
anigLAPTOP-GAM3BPLO:-/PP_mini_project
anigLAPTOP-GAM3BPLO:-/PP_mini_project
anigLAPTOP-GAM3BPLO:-/PP_mini_project$ nano c_code_for_banking.c
anigLAPTOP-GAM3BPLO:-/PP_mini_project$ gcc -Wall -pg c_code_for_banking.c
anigLAPTOP-GAM3BPLO:-/PP_mini_project$ ./a.out

Sh: 1.clc...cfc
 ani@LAPTOP-GAM3BPLO: ~/PP_mini_project
sh: 1: cls: not found
 *WELCOME TO THE SBI ATM (BODKHI)*
Enter your 4 Digit ATM PIN
1234
checked and compared
sh: 1: cls: not found
!! MENU !!
Please choose one of the options below Press:
 1 To Check your Balance
2 To Deposit
3 To Withdraw
4 To Change your pin
5 Exit
Your Selection: 5
sh: 1: cls: not found
Do you want a receipt..???
Press:
  1 to print reciept
2 to Exit without the receipt
 !!!Thank you for using ATM (Bodkhi Branch)!!!
 Type here to search
 ani@LAPTOP-GAM3BPLO: ~/PP_mini_project
GNU nano 4.8
Flat profile:_
Each sample counts as 0.01 seconds. no time accumulated

        % cumulative
        self
        self
        total

        time
        seconds
        seconds
        calls
        Ts/call
        Ts/call
        name

        0.00
        0.00
        0.00
        2
        0.00
        0.00
        clearScreen

        0.00
        0.00
        0.00
        1
        0.00
        0.00
        checkPin

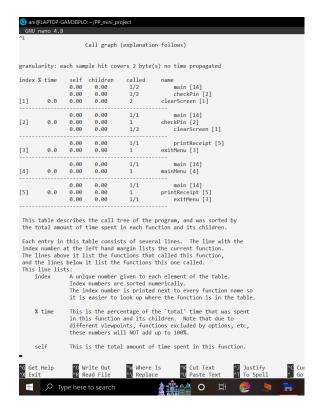
        0.00
        0.00
        0.00
        1
        0.00
        0.00
        exitHenu

        0.00
        0.00
        0.00
        1
        0.00
        0.00
        mainHenu

        0.00
        0.00
        0.00
        1
        0.00
        0.00
        printReceipt

                         the percentage of the total running time of the program used by this function.
cumulative a running sum of the number of seconds accounted seconds for by this function and those listed above it.
                         the number of seconds accounted for by this function alone. This is the major sort for this listing.
  self
                         the number of times this function was invoked, if this function is profiled, else blank.  \\
                          the average number of milliseconds spent in this function per call, if this function is profiled, else blank.
 ms/call
                          the average number of milliseconds spent in this function and its descendents per call, if this function is profiled, else blank.
                         the name of the function. This is the minor sort for this listing. The index shows the location of the function in the gprof listing. If the index is in parenthesis it shows where it would appear in the gprof listing if it were to be printed.
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```

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# 8 Debugging

```
ons@LAPIOP-GAMISBIO: -/PP_mini_project

ans@LAPIOP-GAMISBIO: -/PP_mini_project$ nano c_code_for_banking.c

ans@LAPIOP-GAMISBIO: -/PP_mini_project$ gcc -g c_code_for_banking.c

ans@LAPIOP-GAMISBIO: -/PP_mini_project$ gdb a.out

GNU_gdb (Ubuntu 9.1-abuntu) 9.1

Copyright (C) 2020 Free Software Foundation, Inc.

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This is free software: you are free to change and redistribute it.

There is NO WARRANITY, to the extent permitted by law.

Type "show copying" and "show warranty" for details.

This GDB was configured as "N86_63-linux-gnu".

Type "show configured in" for configuration details.

For bug reporting instructions, please see:

<http://www.gnu.org/software/gdb/documentation/>.

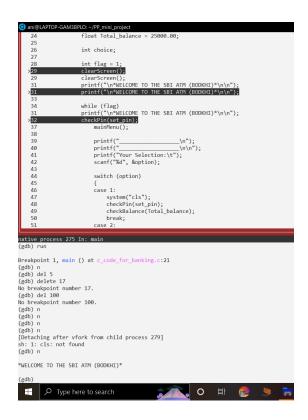
For help, type "help".

Type "apropos word" to search for commands related to "word"...

(gdb) lay next
```







# 9 Code In Python language:

```
[style=chstyle,language=Python]
import os
# Functions
# clearScreen()
# mainMenu()
# checkBalance(Total_balance)
# moneyDeposit(Total_balance)
# moneyWithdraw(Total_balance)
# printReceipt()
# exitMenu()
# errorMessage()
# checkPin()
# changePin()
# Main function !!!!
def main():
   Total_balance = 25000.00
    set_pin = 1234
    flag = True
    # clearScreen()
   print("\n***WELCOME TO THE SBI ATM (BODKHI)***\n")
    checkPin(set_pin)
    while (flag):
       mainMenu()
       print("_____")
       print("_____\n")
       print("Your Selection:\t", end="")
       option = int(input())
       # in place of switch cases in c code
       if option == 1:
            clearScreen()
            checkPin(set_pin)
            checkBalance(Total_balance)
       elif option == 2:
            clearScreen()
            checkPin(set_pin)
           Total_balance = moneyDeposit(Total_balance)
       elif option == 3:
           clearScreen()
           checkPin(set_pin)
           Total_balance = moneyWithdraw(Total_balance)
```

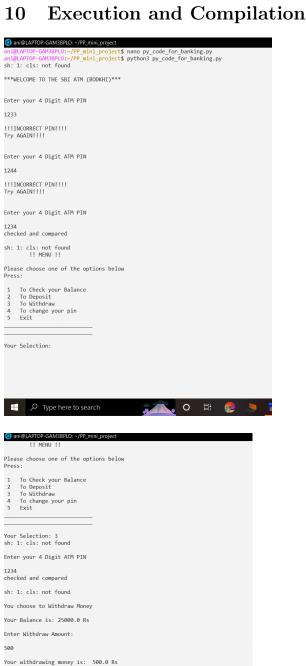
```
elif option == 4:
                                                        clearScreen()
                                                        checkPin(set_pin)
                                                         set_pin = changePin(set_pin)
                                     elif option == 5:
                                                        clearScreen()
                                                        printReceipt()
                                                        return False
                                     else:
                                                        errorMessage()
                                     print("_____")
                                     print("_____\n")
                                     print("Press:\n 1 to continue ")
                                     print(" 2 to exit \n")
                                     print("\nYour Selection:\t", end="")
                                     choice = int(input())
                                     os.system("cls")
                                     if (choice == 2):
                                                        flag = False
                                                        printReceipt()
# Defination of Functions
def mainMenu():
                  print("\t!! MENU !!\n")
                  \label{lem:print("Please choose one of the options below\nPress:\n")} % \[ = \frac{1}{n} \left( \frac{1}{n} \right) \left( \frac{1}{n} \right)
                  print(" 1   To Check your Balance")
                  print(" 2 To Deposit")
print(" 3 To Withdraw")
                  print(" 4
                                                                      To change your pin")
                  print(" 5
                                                                         Exit")
def clearScreen():
                  os.system("cls")
def checkBalance(Total_balance):
                  print("\nYou Choose to See your Balance\n")
                  print(f"Your Available Balance is: {Total_balance} Rs\n")
def moneyDeposit(Total_balance):
                  print("\nYou choose to Deposit Money\n")
                  print(f"Your Previous Balance is: {Total_balance} Rs\n")
                  print("Enter Deposit Amount")
                  deposit_amount = float(input())
```

```
Total_balance += deposit_amount
   print(f"Your New Balance is: {Total_balance} Rs\n ")
   return Total_balance
def moneyWithdraw(Total_balance):
   flag1 = True
   print("\nYou choose to Withdraw Money\n")
   print(f"Your Balance is: {Total_balance} Rs\n")
   while (flag1):
       print("Enter Withdraw Amount:\n")
       withdraw_amount = float(input())
       if (withdraw_amount <= Total_balance):</pre>
           flag1 = False
           Total_balance -= withdraw_amount
           print(f"\nYour withdrawing money is: {withdraw_amount} Rs\n")
           print(f"Your New Balance is: {\tt Total\_balance} \ Rs \ ")
       else:
           clearScreen()
           print("!!INSUFFICIENT BALANCE!!\n")
           print(f"!!Your Account Balance is: {Total_balance} Rs!!\n\n")
   return Total_balance
def printReceipt():
   print("Do you want a receipt..???\n")
   print("Press:\n\n 1 to print reciept\n 2 to Exit without the receipt \n")
   print("_____")
   print("_____\n")
   print("\nYour Selection:\t", end="")
   reciept = int(input())
   if (reciept == 1):
       print("\n!!!Take your receipt!!!\n")
       exitMenu()
   elif (reciept == 2):
       exitMenu()
def exitMenu():
```

```
print("\n!!!Thank you for using ATM (Bodkhi Branch)!!!\n\n")
def errorMessage():
    print("!!!Invalid number!!!\n")
def checkPin(set_pin):
    print("\nEnter your 4 Digit ATM PIN\n")
    get_pin = int(input())
    if (set_pin == get_pin):
        print("checked and compared\n")
        clearScreen()
    else:
        print("\n!!!INCORRECT PIN!!!!\nTry AGAIN!!!!\n")
        checkPin(set_pin)
def changePin(set_pin):
    print("Enter new pin\n")
    new_pin = int(input())
    set_pin = new_pin
    print(f"Your new pin is : {set_pin}")
    return set_pin
main()
```

Your New Balance is: 24500.0 Rs

Press: 1 to continue 2 to exit



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