**LIMITATION**

**AND**

**REASONS**

**VERSION-1:**

**CODE:**

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

print("                                      BANK MANAGEMENT SYSTEM                                      \n")

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

print("---------------------------------------------------------------------------------------------------\n")

# to calculate profit on the ammount deposited in the acoount according to the year in which it is deposited

year = int(input("ENTER YEAR IN WHICH YOU DEPOSITED AMMOUNT="))

ammount = int(input("ENTER AMMOUNT DEPOSITED ="))

# on every year 1% profit is generated on the deposited ammount

profit\_percentage = 0

profit\_percentage = year/100

profit = ammount\*profit\_percentage

print("YOU HAVE GOT THE PROFIT OF RS =", profit)

profit = ammount+profit

print("NOW YOUR AMMOUNT IN YOUR ACCOUNT IS=", profit)

**LIMITITION**

**We only have variables to use this time and by this we only have limited options available we cound perform only tasks thast requires lessen variable no loop and no function.Although we could also perform task that requires much more variable but it coulb very hard because we have to create large numbers of variable and only task that requires no loop at all could be performed in this limitation**

**VERSION-2:**

**CODE:**

import os

account\_activation1 = 1

account\_activation2 = 1

employe\_id1 = ""

employe\_id2 = ""

employe\_password1 = ""

employe\_password2 = ""

account\_no1 = int(227771)

customar\_pin1 = int(0)

customar\_name1 = ""

customar\_phonenumber1 = ""

customar\_address1 = ""

customer\_nationality1 = ""

customer\_cnic1 = ""

account\_no2 = int(227772)

customar\_pin2 = int(0)

customar\_name2 = ""

customar\_phonenumber2 = ""

customar\_address2 = ""

customer\_nationality2 = ""

customer\_cnic2 = ""

customar\_cash1 = int(0)

customar\_cash2 = int(0)

employe\_experience1 = int(0)

employe\_experience2 = int(0)

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

print("                                      BANK MANAGEMENT SYSTEM                                      \n")

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

print("---------------------------------------------------------------------------------------------------\n")

# OPTIONS AVAILABLE

program\_running = True

while program\_running == True:

    print("MAIN")

    print("ENTER OPTION NUMBER TO LOGIN AS....")

    print("1-MANAGER")

    print("2-EMPLOYE")

    print("3-CUSTOMER")

    print("4-LOGOUT")

    # getinh option number by the user

    option = int(input("ENTER OPYION NUMBER..........."))

    if(option == 1):

        manager\_username = input("ENTER YOUR USER NAME =")

        manager\_password = input("ENTER YOUR PASSWORD =")

        if manager\_username == "MUSAWIR\_AHMED" and manager\_password == "1234":

            print("WELCOME DEAR MANAGER")

            input("PRESS ANY KEY TO CONTINUE.......")

            os.system('cls' if os.name == 'nt' else 'clear')

            # SHOWING MANAGER THE FOLLOWING OPTIONS

            while option != 7:

                print("MAIN MENU>>MANAGER>>")

                print("1.DEACVTIVATE OR ACTIVATE CUSTOMER ACCOUNT")

                print("2.ADD EMPLOYE")

                print("3.VIEW ALL EMPLOYE")

                print("4.DELETE EMPLOYE")

                print("5.VIEW EMPLOYE WITH LARGEST EXPERIENCES IN HIS/HER FIELD")

                print("6.CHANGE EMPLOYE DETAILS")

                print("7.LOGOUT")

                option = int(input("ENTER ANY OPTION ................"))

                # CAMPARING THE SELECTED OPTION

                if(option == 1):

                    os.system('cls' if os.name == 'nt' else 'clear')

                    account\_no = input(

                        "ENTER ACCOUNT NUMBER OF THE CUSTOMER =")

                    cnic = input("ENTER CNIC OF THE CUSTOMER =")

                    condition = False

                    if account\_no == customar\_accountno1 and cnic == customer\_cnic1:

                        account\_activation1 = 0

                        print("ACCOUNT HAS BEEN DEACTIVATED.........")

                        condition = True

                    elif account\_no == customar\_accountno2 and cnic == customer\_cnic2:

                        account\_activation2 = 0

                        print("ACCOUNT HAS BEEN DEACTIVATED.........")

                        condition = True

                    elif condition == False:

                        print("ACCOUNT DOESNT EXIT PLEASE TRY AGAIN ..........")

                if(option == 2):

                    os.system('cls' if os.name == 'nt' else 'clear')

                    condition = False

                    # checking which employe variable is free

                    if employe\_id1 == "":

                        employe\_id1 = input("ENTER ID OF THE EMPLOYE =")

                        employe\_password1 = input(

                            "ENTER PASSWORD OF THE EMPLOYE =")

                        employe\_experience1 = input(

                            "ENTER EXPERIENCE OF THE EMPLOYE =")

                        condition = True

                    elif employe\_id2 == "":

                        employe\_id2 = input("ENTER ID OF THE EMPLOYE =")

                        employe\_password2 = input(

                            "ENTER PASSWORD OF THE EMPLOYE =")

                        employe\_experience2 = input(

                            "ENTER EXPERIENCE OF THE EMPLOYE =")

                        condition = True

                    elif condition == False:

                        print("EMPLOYE SPACE IS FULL...................")

                if(option == 3):

                    os.system('cls' if os.name == 'nt' else 'clear')

                    print("FOLOWING ARE THE NAMES OF YOUR EMPLOYES \n")

                    print("EMPLOYE ID                   PASSWORD    \n")

                    print(employe\_id1, "      ", "      ", employe\_password1)

                    print(employe\_id2, "      ", "      ", employe\_password2)

                if(option == 4):

                    os.system('cls' if os.name == 'nt' else 'clear')

                    employe\_id = input("ENTER EMPLOYE ID =")

                    employe\_password = input("ENTER PASSWORD OF THE EMPLOYE =")

                    condition = False

                    if employe\_id == employe\_id1 and employe\_password == employe\_password1:

                        employe\_id1 = ""

                        employe\_password1 = ""

                        condition = True

                    elif employe\_id == employe\_id2 and employe\_password == employe\_password2:

                        employe\_id2 = ""

                        employe\_password2 = ""

                        condition = True

                    elif condition == False:

                        print("EMPLOYE PASSWORD OR ID IS WRONG ........")

                if(option == 5):

                    os.system('cls' if os.name == 'nt' else 'clear')

                    if (employe\_experience1 >= employe\_experience2):

                        print(employe\_id1, "\n", employe\_password1,

                              "\n", employe\_experience1)

                    elif (employe\_experience2 >= employe\_experience1):

                        print(employe\_id2, "\n", employe\_password2,

                              "\n", employe\_experience2)

                if(option == 6):

                    os.system('cls' if os.name == 'nt' else 'clear')

                    condition = False

                    employe\_id = input("ENTER ID OF THE EMPLOYE =")

                    if employe\_id == employe\_id1:

                        employe\_id1 = print("ENTER ID OF THE EMPLOYE =")

                        employe\_password1 = print(

                            "ENTER PASSWORD OF THE EMPLOYE =")

                        employe\_experience1 = input(

                            "ENTER EXPERIENCE OF THE EMPLOYE =")

                        condition = True

                    elif employe\_id == employe\_id2:

                        employe\_id2 = print("ENTER ID OF THE EMPLOYE =")

                        employe\_password2 = print(

                            "ENTER PASSWORD OF THE EMPLOYE =")

                        employe\_experience2 = input(

                            "ENTER EXPERIENCE OF THE EMPLOYE =")

                        condition = True

                    elif condition == False:

                        print("EMPLOYE NOT FOUND.............")

        else:

            print("USERNAME OR PASSWORD IS INCORRECT....")

            input("PRESS ANY KEY TO CONTINUE............")

            os.system('cls' if os.name == 'nt' else 'clear')

    elif option == 2:

        print("WELCOME DEAR EMPLOYE")

        input("PRESS ANY KEY TO CONTINUE........")

        os.system('cls' if os.name == 'nt' else 'clear')

        tem\_id = input("ENTER YOUR ID =")

        password = input("ENTER YOUR PASSWORD =")

        if tem\_id == employe\_id1 and employe\_password1 == password or tem\_id == employe\_id2 and employe\_password2 == password:

            while option != 8:

                print("MAIN MENU >> EMPLOYE >>")

                print("1.OPEN CUSTOMER BANK ACCOUNT")

                print("2.TO SEE CUSTOMER INFORMATION")

                print("3.TO CHANGE CUSTOMER PIN")

                print("4.TO DEPOSIT CUSTOMER CASH")

                print("5.TO CHANGE CUSTOMERS DETAILS")

                print("6.TO WITHDRAW CASH")

                print("7.TO CALCULATE PROFIT ON CASH")

                print("8.LOGOUT")

                option = int(input("ENTER OPTION NUMBER ="))

                os.system('cls' if os.name == 'nt' else 'clear')

                if option == 1:

                    if customar\_name2 != "":

                        overwrite = int(input(

                            "ENTER 1 TO OVERWRITE CUSTOMER TO ADD NEW CUSTOMER ELSE ENTER 2 TO CANCEL"))

                        if(overwrite == 1):

                            customar\_name1 = input(

                                "ENTER NAME OF THE CUSTOMER =")

                            customar\_phonenumber1 = input(

                                "ENTER PHONE NUMBER OF THE CUSTOMER =")

                            customar\_address1 = input(

                                "ENTER ADRESS OF THE CUSTOMER =")

                            customer\_nationality1 = input(

                                "ENTER NATIONALITY OF THE CUSTOMER =")

                            customer\_cnic1 = input(

                                "ENTER CNIC OF THE CUSTOMER =")

                            print("YOUR ACCOUN NUMBER IS =", account\_no1)

                            customar\_pin1 = input("ENTER YOUR PIN =")

                            print("YOUR ACCOUNT HAS BEEN OPENED SUCESSFULLY.......")

                    else:

                        customar\_name2 = input(

                            "ENTER NAME OF THE CUSTOMER =")

                        customar\_phonenumber2 = input(

                            "ENTER PHONE NUMBER OF THE CUSTOMER =")

                        customar\_address2 = input(

                            "ENTER ADRESS OF THE CUSTOMER =")

                        customer\_nationality2 = input(

                            "ENTER NATIONALITY OF THE CUSTOMER =")

                        customer\_cnic2 = input("ENTER CNIC OF THE CUSTOMER =")

                        print("YOUR ACCOUN NUMBER IS =", account\_no2)

                        customar\_pin2 = input("ENTER YOUR PIN =")

                        print("YOUR ACCOUNT HAS BEEN OPENED SUCESSFULLY.......")

                if option == 2:

                    account\_no = input("ENTER ACCOUNT NUMBER =")

                    cnic = input("ENTER CNIC OF THE CUSTOMER =")

                    if (account\_no == account\_no1 and cnic == customer\_cnic1):

                        print("NAME =", customar\_name1, "\n", "PHONE NUMBER =", customar\_phonenumber1,

                              "\nADDRESS =", customar\_address1, "\nCNIC =", customer\_cnic1, "\nNATIONALITY =", customer\_nationality1)

                    if (account\_no == account\_no2 and cnic == customer\_cnic2):

                        print("NAME =", customar\_name2, "\n", "PHONE NUMBER =", customar\_phonenumber2,

                              "\nADDRESS =", customar\_address2, "\nCNIC =", customer\_cnic2, "\nNATIONALITY =", customer\_nationality2)

                if option == 3:

                    account\_no = input("ENTER ACCOUNT NUMBER =")

                    cnic = input("ENTER CNIC OF THE CUSTOMER =")

                    condition = False

                    if (account\_no == account\_no1 and cnic == customer\_cnic1):

                        customar\_pin1 == input("ENTER NEW PIN =")

                        condition = True

                        print("PIN HAS BEEN UPDATED....")

                    if (account\_no == account\_no2 and cnic == customer\_cnic2):

                        customar\_pin2 == input("ENTER NEW PIN =")

                        condition = True

                        print("PIN HAS BEEN UPDATED....")

                    elif condition == False:

                        print("ACCOUNT NUMBER OR PIN IS WRONG..............")

                    input("PRESS ANY KEY TO CONTNUE...........")

                if option == 4:

                    account\_no = input("ENTER ACCOUNT NUMBER =")

                    cnic = input("ENTER CNIC OF THE CUSTOMER =")

                    pin = input("ENTER CUSTOMER PIN =")

                    cash = 0

                    condition = False

                    if (account\_no == account\_no1 and cnic == customer\_cnic1 and pin == customar\_pin1):

                        cash = int(input("ENTER AMMOUNT TO BE DEPOSIT ="))

                        customar\_cash1 = cash+customar\_cash1

                        condition = True

                    elif (account\_no == account\_no2 and cnic == customer\_cnic2 and pin == customar\_pin2):

                        cash = int(input("ENTER AMMOUNT TO BE DEPOSIT ="))

                        customar\_cash2 = cash+customar\_cash2

                        condition = True

                    elif condition == False:

                        print("ACCOUNT NUMBER OR PIN IS WRONG..............")

                    input("PRESS ANY KEY TO CONTNUE...........")

                if option == 5:

                    account\_no = input("ENTER ACCOUNT NUMBER =")

                    cnic = input("ENTER CNIC OF THE CUSTOMER =")

                    if (account\_no == account\_no1 and cnic == customer\_cnic1):

                        customar\_name1 = input(

                            "ENTER NAME OF THE CUSTOMER =")

                        customar\_phonenumber1 = input(

                            "ENTER PHONE NUMBER OF THE CUSTOMER =")

                        customar\_address1 = input(

                            "ENTER ADRESS OF THE CUSTOMER =")

                        customer\_nationality1 = input(

                            "ENTER NATIONALITY OF THE CUSTOMER =")

                        customer\_cnic1 = input("ENTER CNIC OF THE CUSTOMER =")

                        print("YOUR ACCOUN NUMBER IS =", account\_no1)

                        customar\_pin1 = input("ENTER YOUR PIN =")

                    elif (account\_no == account\_no2 and cnic == customer\_cnic2):

                        customar\_name2 = input(

                            "ENTER NAME OF THE CUSTOMER =")

                        customar\_phonenumber2 = input(

                            "ENTER PHONE NUMBER OF THE CUSTOMER =")

                        customar\_address2 = input(

                            "ENTER ADRESS OF THE CUSTOMER =")

                        customer\_nationality2 = input(

                            "ENTER NATIONALITY OF THE CUSTOMER =")

                        customer\_cnic2 = input("ENTER CNIC OF THE CUSTOMER =")

                        print("YOUR ACCOUN NUMBER IS =", account\_no1)

                        customar\_pin2 = input("ENTER YOUR PIN =")

                if option == 6:

                    account\_no = input("ENTER ACCOUNT NUMBER =")

                    cnic = input("ENTER CNIC OF THE CUSTOMER =")

                    pin = input("ENTER CUSTOMER PIN =")

                    cash = 0

                    condition = False

                    if (account\_no == account\_no1 and cnic == customer\_cnic1 and pin == customar\_pin1):

                        cash = int(input("ENTER AMMOUNT TO BE WITHDRAWED ="))

                        condition = True

                        if cash <= customar\_cash1:

                            customar\_cash1 = customar\_cash1-cash

                            print("AMMOUNT HAS BEEN WITHDRAWED")

                            print("YOUR ACCOUNT BALANCE NOW IS =", customar\_cash1)

                        else:

                            print(

                                "ACCOUNT BALANCE IS LESS THAN THE AMMOUNT TO BE WITHDRAWED")

                    elif (account\_no == account\_no2 and cnic == customer\_cnic2 and pin == customar\_pin2):

                        cash = int(input("ENTER AMMOUNT TO BE WITHDRAWED ="))

                        condition = True

                        if cash <= customar\_cash2:

                            customar\_cash2 = customar\_cash2-cash

                            print("AMMOUNT HAS BEEN WITHDRAWED")

                            print("YOUR ACCOUNT BALANCE NOW IS =", customar\_cash2)

                        else:

                            print(

                                "ACCOUNT BALANCE IS LESS THAN THE AMMOUNT TO BE WITHDRAWED")

                    elif condition == False:

                        print("SOME INFORMATION IS WRONG ORACCOUNT DOSNT EXIST")

                    input("PRESS ANY KEY TO CONTINUE....")

                if option == 7:

                    year = int(

                        input("ENTER YEAR IN WHICH YOU DEPOSITED AMMOUNT="))

                    ammount = int(input("ENTER AMMOUNT DEPOSITED ="))

                    # on every year 1% profit is generated on the deposited ammount

                    profit\_percentage = 0

                    profit\_percentage = year/100

                    profit = ammount\*profit\_percentage

                    print("YOU HAVE GOT THE PROFIT OF RS =", profit)

                    profit = ammount+profit

                    print("NOW YOUR AMMOUNT IN YOUR ACCOUNT IS=", profit)

    elif option == 3:

        condition = False

        account\_no = int(input("ENTER ACCOUNT NUMBER ="))

        pin = int(input("ENTER YOUR PINN ="))

        option = int(0)

        print(account\_no1)

        while option != 5:

            if(account\_no == account\_no1 and pin == customar\_pin1):

                condition = True

                print("MAIN MENU>>CUSTOMER")

                print("1.ACCOUNT DETAILS")

                print("2.CHECK BALANCE")

                print("3.FUND TRANSFER")

                print("4.BILL PAYMENT")

                print("5.LOGOUT")

                option = int(input("ENTER ANY OPTION  ="))

                if option == 1:

                    print("NAME =", customar\_name1, "\nPHONE NUMBER =", customar\_phonenumber1, "\nADRESS=", customar\_address1,

                          "\nNATIONALITY =", customer\_nationality1)

                if option == 2:

                    print("YOUR ACCOUNT BALANCE IS =", customar\_cash1)

                if option == 3:

                    account\_no = input(

                        "ENTER ACCOUNT NO YOU WANT TO TRANSFER =")

                    cash = int(input("ENTER AMMOUNT OF CASH"))

                    if account\_no == account\_no2:

                        if cash >= customar\_cash1:

                            customar\_cash1 = int(customar\_cash1)

                            customar\_cash2 = int(customar\_cash2)

                            customar\_cash1 = customar\_cash1-cash

                            customar\_cash2 = customar\_cash2+cash

                            print("AMMOUNT HAS BEEN TRANSFERED SUCESSFULLY...")

                        else:

                            print(

                                "ACCOUNT BAANCE IS TO LOW FOR TRANSACTION \n YOUR ACCOUNT BALANCE IS =", customar\_cash1)

                    else:

                        print("ACCOUNTNUMBER NOT FOUND OR MAT BE WRONG ")

                if option == 4:

                    print("ONLY WATER ELECTRICAL BILL CAN BE PAYED")

                    bill\_type = input("ENTER BILL TYPE =")

                    cash = int(input("ENTER AMOUNT TO E PAYED ="))

                    if cash >= customar\_cash1:

                        customar\_cash1 = int(customar\_cash1)

                        customar\_cash1 = customar\_cash1-cash

                        print("BILL HAS BEEN PAYED ")

                    else:

                        print(

                            "ACCOUNT BAANCE IS TO LOW FOR TRANSACTION \n YOUR ACCOUNT BALANCE IS =", customar\_cash1)

            elif(account\_no == account\_no2 and pin == customar\_pin2):

                condition = True

                print("MAIN MENU>>CUSTOMER")

                print("1.ACCOUNT DETAILS")

                print("2.CHECK BALANCE")

                print("3.FUND TRANSFER")

                print("4.BILL PAYMENT")

                print("5.LOGOUT")

                option = int(input("ENTER ANY OPTION  ="))

                if option == 1:

                    print("NAME =", customar\_name2, "\nPHONE NUMBER =", customar\_phonenumber2,

                          "\nADRESS=", customar\_address2, "\nNATIONALITY =", customer\_nationality2)

                if option == 2:

                    print("YOUR ACCOUNT BALANCE IS =", customar\_cash2)

                if option == 3:

                    account\_no = input(

                        "ENTER ACCOUNT NO YOU WANT TO TRANSFER =")

                    cash = int(input("ENTER AMMOUNT OF CASH"))

                    if account\_no == account\_no1:

                        if cash >= customar\_cash2:

                            customar\_cash2 = int(customar\_cash2)

                            customar\_cash1 = int(customar\_cash1)

                            customar\_cash2 = customar\_cash2-cash

                            customar\_cash1 = customar\_cash1+cash

                            print("AMMOUNT HAS BEEN TRANSFERED SUCESSFULLY...")

                        else:

                            print(

                                "ACCOUNT BAANCE IS TO LOW FOR TRANSACTION \n YOUR ACCOUNT BALANCE IS =", customar\_cash2)

                    else:

                        print("ACCOUNTNUMBER NOT FOUND OR MAT BE WRONG ")

                if option == 4:

                    print("ONLY WATER ELECTRICAL BILL CAN BE PAYED")

                    bill\_type = input("ENTER BILL TYPE =")

                    cash = int(input("ENTER AMOUNT TO E PAYED ="))

                    if cash >= customar\_cash2:

                        customar\_cash2 = int(customar\_cash2)

                        customar\_cash2 = customar\_cash2-cash

                        print("BILL HAS BEEN PAYED ")

                    else:

                        print(

                            "ACCOUNT BAANCE IS TO LOW FOR TRANSACTION \n YOUR ACCOUNT BALANCE IS =", customar\_cash1)

        if condition == False:

            print("WRON ACCOUNT DETAILS ENTERED")

**.**

**LIMITITION-2:**

**In this version 2 we were alow to use variable loops and decision making statements like if else Etc we can make any program with it but at this stage datacould not be stored parmanantly and in order to perform the task that requires large amount of data to be collected or stored requires declaring a large amount of variables that is not suitable more over the code will double in size as we have write a condition for every varible and we could not reuse it**

**VERSION-3:**

**CODE:**

import os

customer\_record = []

employe\_record = []

customer\_record = []

account\_no = int(227771)

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

print("                                      BANK MANAGEMENT SYSTEM                                      \n")

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

print("---------------------------------------------------------------------------------------------------\n")

# OPTIONS AVAILABLE

program\_running = True

while program\_running == True:

    print("MAIN")

    print("ENTER OPTION NUMBER TO LOGIN AS....")

    print("1-MANAGER")

    print("2-EMPLOYE")

    print("3-CUSTOMER")

    print("4-LOGOUT")

    # getinh option number by the user

    option = int(input("ENTER OPYION NUMBER..........."))

    if(option == 1):

        manager\_username = input("ENTER YOUR USER NAME =")

        manager\_password = input("ENTER YOUR PASSWORD =")

        if manager\_username == "MUSAWIR\_AHMED" and manager\_password == "1234":

            print("WELCOME DEAR MANAGER")

            input("PRESS ANY KEY TO CONTINUE.......")

            os.system('cls' if os.name == 'nt' else 'clear')

            # SHOWING MANAGER THE FOLLOWING OPTIONS

            while option != 7:

                print("MAIN MENU>>MANAGER>>")

                print("1.DEACVTIVATE OR ACTIVATE CUSTOMER ACCOUNT")

                print("2.ADD EMPLOYE")

                print("3.VIEW ALL EMPLOYE")

                print("4.DELETE EMPLOYE")

                print("5.VIEW EMPLOYE WITH LARGEST EXPERIENCES IN HIS/HER FIELD")

                print("6.CHANGE EMPLOYE DETAILS")

                print("7.LOGOUT")

                option = int(input("ENTER ANY OPTION ................"))

                # CAMPARING THE SELECTED OPTION

                if option == 2:

                    employe\_id = input("ENTER NAME OF THE EMPLOYE  =")

                    employe\_password = input("ENTER PASSWORD OS THE EMPLOYE =")

                    employe\_experience = input(

                        "ENTER EXPERIENCE OF THE EMPLOYE =")

                    record = employe\_id+","+employe\_password+","+employe\_experience+","

                    employe\_record.append(record)

                    print("EMPLOYE HAS BEEN ADDED SUCESSFULLY.................")

                if option == 3:

                    os.system('cls' if os.name == 'nt' else 'clear')

                    print("EMPLOYE ID \t EMPLOYE PASSWORD \t EMPLOYE EXPERIENCE ")

                    for field in employe\_record:

                        employe\_id = ""

                        employe\_experience = ""

                        employe\_password = ""

                        coma\_counter = int(0)

                        for char in field:

                            if(coma\_counter < 1 and char != ","):

                                employe\_id = employe\_id+char

                            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                                employe\_password = employe\_password+char

                            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                                employe\_experience = employe\_experience+char

                            if(char == ","):

                                coma\_counter = coma\_counter+1

                        if employe\_id != "":

                            print(employe\_id, " \t ", employe\_password,

                                  " \t ", employe\_experience)

                    input("PRESS ENTER TO CONTINUE .........")

                if option == 4:

                    temp\_employe\_id = input("ENTER EMPLOYE ID =")

                    for field in employe\_record:

                        counter = int(0)

                        employe\_id = ""

                        employe\_experience = ""

                        employe\_password = ""

                        coma\_counter = int(0)

                        for char in field:

                            if(coma\_counter < 1 and char != ","):

                                employe\_id = employe\_id+char

                            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                                employe\_password = employe\_password+char

                            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                                employe\_experience = employe\_experience+char

                            if(char == ","):

                                coma\_counter = coma\_counter+1

                            if(temp\_employe\_id == employe\_id):

                                employe\_record[counter] = ""

                        counter = counter+1

                if option == 5:

                    employe\_experience\_sorted = []

                    employe\_experience\_list = []

                    for field in employe\_record:

                        counter = int(0)

                        employe\_experience = ""

                        coma\_counter = int(0)

                        for char in field:

                            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                                employe\_experience = employe\_experience+char

                            if(char == ","):

                                coma\_counter = coma\_counter+1

                        employe\_experience\_list.append(int(employe\_experience))

                    largest\_idx\_list = []

                    counter = 0

                    for field in range(0, len(employe\_experience\_list)):

                        largest = -100000

                        largest\_idx = 0

                        counter = 0

                        for i in employe\_experience\_list:

                            if(largest < i):

                                largest = i

                                largest\_idx = counter

                                counter = counter+1

                        employe\_experience\_list[largest\_idx] = -1

                        employe\_experience\_sorted.append(

                            employe\_record[largest\_idx])

                    print("EMPLOYE ID \t EMPLOYE PASSWORD \t EMPLOYE EXPERIENCE ")

                    for field in employe\_experience\_sorted:

                        employe\_id = ""

                        employe\_experience = ""

                        employe\_password = ""

                        coma\_counter = int(0)

                        for char in field:

                            if(coma\_counter < 1 and char != ","):

                                employe\_id = employe\_id+char

                            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                                employe\_password = employe\_password+char

                            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                                employe\_experience = employe\_experience+char

                            if(char == ","):

                                coma\_counter = coma\_counter+1

                        if employe\_id != "":

                            print(employe\_id, " \t ", employe\_password,

                                  " \t ", employe\_experience)

                    input("PRESS ENTER TO CONTINUE .........")

                if option == 6:

                    counter = 0

                    temp\_employe = input("ENTER EMPLOYE ID =")

                    for field in employe\_record:

                        employe\_id = ""

                        employe\_experience = ""

                        employe\_password = ""

                        coma\_counter = int(0)

                        for char in field:

                            if(coma\_counter < 1 and char != ","):

                                employe\_id = employe\_id+char

                            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                                employe\_password = employe\_password+char

                            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                                employe\_experience = employe\_experience+char

                            if(char == ","):

                                coma\_counter = coma\_counter+1

                        if temp\_employe == employe\_id:

                            employe\_id = input("ENTER NAME OF THE EMPLOYE  =")

                            employe\_password = input(

                                "ENTER PASSWORD OS THE EMPLOYE =")

                            employe\_experience = input(

                                "ENTER EXPERIENCE OF THE EMPLOYE =")

                            record = employe\_id+","+employe\_password+","+employe\_experience+","

                            employe\_record[counter] = record

                        counter = counter+1

    if option == 2:

        condition = False

        print("WELCOME DEAR EMPLOYE")

        input("PRESS ANY KEY TO CONTINUE........")

        os.system('cls' if os.name == 'nt' else 'clear')

        tem\_id = input("ENTER YOUR ID =")

        password = input("ENTER YOUR PASSWORD =")

        for field in employe\_record:

            employe\_id = ""

            employe\_experience = ""

            employe\_password = ""

            coma\_counter = int(0)

            for char in field:

                if(coma\_counter < 1 and char != ","):

                    employe\_id = employe\_id+char

                if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                    employe\_password = employe\_password+char

                if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                    employe\_experience = employe\_experience+char

                if(char == ","):

                    coma\_counter = coma\_counter+1

            if tem\_id == employe\_id and password == employe\_password:

                condition = True

        if condition == True:

            while option != 7:

                print("MAIN MENU >> EMPLOYE >>")

                print("1.OPEN CUSTOMER BANK ACCOUNT")

                print("2.TO SEE CUSTOMER INFORMATION")

                print("3.TO CHANGE CUSTOMER PIN")

                print("4.TO DEPOSIT CUSTOMER CASH")

                print("5.TO CHANGE CUSTOMERS DETAILS")

                print("6.TO CALCULATE PROFIT ON CASH")

                print("7.LOGOUT")

                option = int(input("ENTER OPTION NUMBER ="))

                if(option == 1):

                    name = input("ENTER YOUR NAME =")

                    phone\_number = input("ENTER YOUR PHONE NUMBER =")

                    adress = input("ENTER CUSTOMER ADRESS =")

                    nationality = input("ENTER CUSTOMER NATIONALITY =")

                    cnic = input("ENTER CUSTOMER CNIC =")

                    print("YOU ACCOUNT NUMBER IS =", account\_no)

                    pin = input("ENTER YOUR PIN =")

                    cash = input("ENTER CASH TO DEPOSIT =")

                    record = name+","+phone\_number+","+adress+","+nationality + \

                        ","+cnic+","+str(account\_no)+","+pin+","+cash+","

                    account\_no = account\_no+1

                    customer\_record.append(record)

                    print("RECORD HAS BEEN UPDATED ")

                    input("PRESS ANY KEY TO CONTINUE...........")

                if(option == 2):

                    account\_no = int(

                        input("ENTER ACCOUNT NUMBER OF THE USER ="))

                    cnic = int(input("ENTER CNIC OF THE USER ="))

                    condition = True

                    for field in customer\_record:

                        customer\_account\_no = ""

                        customer\_cnic = ""

                        customer\_name = ""

                        customer\_phonenumber = ""

                        customer\_address = ""

                        customer\_nationality = ""

                        customer\_pin = ""

                        customer\_cash = ""

                        coma\_counter = int(0)

                        for char in field:

                            if(coma\_counter < 1 and char != "," and coma\_counter == 0):

                                customer\_name = customer\_name+char

                            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                                customer\_phonenumber = customer\_phonenumber+char

                            if(coma\_counter < 3 and char != "," and coma\_counter == 2):

                                customer\_address = customer\_address+char

                            if(coma\_counter < 4 and char != "," and coma\_counter == 3):

                                customer\_nationality = customer\_nationality+char

                            if(coma\_counter < 5 and char != "," and coma\_counter == 4):

                                customer\_cnic = customer\_cnic+char

                            if(coma\_counter < 6 and char != "," and coma\_counter != 1 and coma\_counter == 5):

                                customer\_account\_no = customer\_account\_no+char

                            if(coma\_counter < 7 and char != "," and coma\_counter != 1 and coma\_counter == 6):

                                customer\_pin = customer\_pin+char

                            if(coma\_counter < 8 and char != "," and coma\_counter != 1 and coma\_counter == 7):

                                customer\_cash = customer\_cash+char

                            if(char == ","):

                                coma\_counter = coma\_counter+1

                        customer\_cnic = int(customer\_cnic)

                        customer\_account\_no = int(customer\_account\_no)

                        if customer\_cnic == cnic and customer\_account\_no == account\_no:

                            print("NAME =", customer\_name, "\nPHONE NUMBER =", customer\_phonenumber, "\nADDRESS =", customer\_address, "\nNATIONALITY =",

                                  customer\_nationality, "\nCUSTOMER CNIC =", customer\_cnic, "\nCUSTOMER ACCOUNT NUMBER =", customer\_account\_no, "\nPIN =", customer\_pin)

                if option == 5:

                    account\_no = int(

                        input("ENTER ACCOUNT NUMBER OF THE USER ="))

                    cnic = int(input("ENTER CNIC OF THE USER ="))

                    condition = True

                    counter = 0

                    for field in customer\_record:

                        customer\_account\_no = ""

                        customer\_cnic = ""

                        customer\_name = ""

                        customer\_phonenumber = ""

                        customer\_address = ""

                        customer\_nationality = ""

                        customer\_pin = ""

                        customer\_cash = ""

                        coma\_counter = int(0)

                        for char in field:

                            if(coma\_counter < 1 and char != "," and coma\_counter == 0):

                                customer\_name = customer\_name+char

                            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                                customer\_phonenumber = customer\_phonenumber+char

                            if(coma\_counter < 3 and char != "," and coma\_counter == 2):

                                customer\_address = customer\_address+char

                            if(coma\_counter < 4 and char != "," and coma\_counter == 3):

                                customer\_nationality = customer\_nationality+char

                            if(coma\_counter < 5 and char != "," and coma\_counter == 4):

                                customer\_cnic = customer\_cnic+char

                            if(coma\_counter < 6 and char != "," and coma\_counter != 1 and coma\_counter == 5):

                                customer\_account\_no = customer\_account\_no+char

                            if(coma\_counter < 7 and char != "," and coma\_counter != 1 and coma\_counter == 6):

                                customer\_pin = customer\_pin+char

                            if(coma\_counter < 8 and char != "," and coma\_counter != 1 and coma\_counter == 7):

                                customer\_cash = customer\_cash+char

                            if(char == ","):

                                coma\_counter = coma\_counter+1

                        customer\_cnic = int(customer\_cnic)

                        customer\_account\_no = int(customer\_account\_no)

                        if customer\_cnic == cnic and customer\_account\_no == account\_no:

                            name = input("ENTER YOUR NAME =")

                            phone\_number = input("ENTER YOUR PHONE NUMBER =")

                            adress = input("ENTER CUSTOMER ADRESS =")

                            nationality = input("ENTER CUSTOMER NATIONALITY =")

                            cnic = input("ENTER CUSTOMER CNIC =")

                            print("YOU ACCOUNT NUMBER IS =", account\_no)

                            pin = input("ENTER YOUR PIN =")

                            cash = input("ENTER CASH TO DEPOSIT =")

                            customer\_cnic = str(customer\_cnic)

                            customer\_account\_no = str(customer\_account\_no)

                            record = name+","+phone\_number+","+adress+","+nationality + \

                                ","+cnic+","+str(account\_no) + \

                                ","+pin+","+cash+","

                            customer\_record[counter] = record

                        counter = counter+1

                if option == 3:

                    account\_no = int(

                        input("ENTER ACCOUNT NUMBER OF THE USER ="))

                    cnic = int(input("ENTER CNIC OF THE USER ="))

                    condition = True

                    counter = 0

                    for field in customer\_record:

                        customer\_account\_no = ""

                        customer\_cnic = ""

                        customer\_name = ""

                        customer\_phonenumber = ""

                        customer\_address = ""

                        customer\_nationality = ""

                        customer\_pin = ""

                        customer\_cash = ""

                        coma\_counter = int(0)

                        for char in field:

                            if(coma\_counter < 1 and char != "," and coma\_counter == 0):

                                customer\_name = customer\_name+char

                            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                                customer\_phonenumber = customer\_phonenumber+char

                            if(coma\_counter < 3 and char != "," and coma\_counter == 2):

                                customer\_address = customer\_address+char

                            if(coma\_counter < 4 and char != "," and coma\_counter == 3):

                                customer\_nationality = customer\_nationality+char

                            if(coma\_counter < 5 and char != "," and coma\_counter == 4):

                                customer\_cnic = customer\_cnic+char

                            if(coma\_counter < 6 and char != "," and coma\_counter != 1 and coma\_counter == 5):

                                customer\_account\_no = customer\_account\_no+char

                            if(coma\_counter < 7 and char != "," and coma\_counter != 1 and coma\_counter == 6):

                                customer\_pin = customer\_pin+char

                            if(coma\_counter < 8 and char != "," and coma\_counter != 1 and coma\_counter == 7):

                                customer\_cash = customer\_cash+char

                            if(char == ","):

                                coma\_counter = coma\_counter+1

                        customer\_cnic = int(customer\_cnic)

                        customer\_account\_no = int(customer\_account\_no)

                        if customer\_cnic == cnic and customer\_account\_no == account\_no:

                            pin = input("ENTER YOUR PIN =")

                        customer\_cnic = str(customer\_cnic)

                        customer\_account\_no = str(customer\_account\_no)

                        record = name+","+phone\_number+","+adress+","+nationality + \

                            ","+cnic+","+str(account\_no) + \

                            ","+pin+","+cash+","

                        customer\_record[counter] = record

                        counter = counter+1

                if option == 6:

                    year = int(

                        input("ENTER YEAR IN WHICH YOU DEPOSITED AMMOUNT="))

                    ammount = int(input("ENTER AMMOUNT DEPOSITED ="))

                    # on every year 1% profit is generated on the deposited ammount

                    profit\_percentage = 0

                    profit\_percentage = year/100

                    profit = ammount\*profit\_percentage

                    print("YOU HAVE GOT THE PROFIT OF RS =", profit)

                    profit = ammount+profit

                    print("NOW YOUR AMMOUNT IN YOUR ACCOUNT IS=", profit)

    if option == 3:

        condition = False

        option = int(0)

        account\_no = input("ENTER YOUR ACCOUNT NUMBER =")

        pin = input("ENTER YOUR PINN =")

        condition = True

        counter = 0

        for field in customer\_record:

            customer\_account\_no = ""

            customer\_cnic = ""

            customer\_name = ""

            customer\_phonenumber = ""

            customer\_address = ""

            customer\_nationality = ""

            customer\_pin = ""

            customer\_cash = ""

            coma\_counter = int(0)

            for char in field:

                if(coma\_counter < 1 and char != "," and coma\_counter == 0):

                    customer\_name = customer\_name+char

                if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                    customer\_phonenumber = customer\_phonenumber+char

                if(coma\_counter < 3 and char != "," and coma\_counter == 2):

                    customer\_address = customer\_address+char

                if(coma\_counter < 4 and char != "," and coma\_counter == 3):

                    customer\_nationality = customer\_nationality+char

                if(coma\_counter < 5 and char != "," and coma\_counter == 4):

                    customer\_cnic = customer\_cnic+char

                if(coma\_counter < 6 and char != "," and coma\_counter != 1 and coma\_counter == 5):

                    customer\_account\_no = customer\_account\_no+char

                if(coma\_counter < 7 and char != "," and coma\_counter != 1 and coma\_counter == 6):

                    customer\_pin = customer\_pin+char

                if(coma\_counter < 8 and char != "," and coma\_counter != 1 and coma\_counter == 7):

                    customer\_cash = customer\_cash+char

                if(char == ","):

                    coma\_counter = coma\_counter+1

                if (account\_no == customer\_account\_no and pin == customer\_pin):

                    while option != 4:

                        print("MAIN MENU>>CUSTOMER")

                        print("1.ACCOUNT DETAILS")

                        print("2.CHECK BALANCE")

                        print("3.BILL PAYMENT")

                        print("4.LOGOUT")

                        option = int(input("ENTER OPTION NUMBER ="))

                        if option == 1:

                            print("NAME =", customer\_name, "\nPHONE NUMBER =", customer\_phonenumber, "\nADDRESS =", customer\_address, "\nNATIONALITY =",

                                  customer\_nationality, "\nCUSTOMER CNIC =", customer\_cnic, "\nCUSTOMER ACCOUNT NUMBER =", customer\_account\_no, "\nPIN =", customer\_pin)

                        if option == 2:

                            print("YOUR ACCOUNT BALANCE IS =", customer\_cash)

                        if option == 3:

                            print("ONLY WATER  ELECTRICITY BILL CAN BE PAYED")

                            bill\_type = input("ENTER BILL TYPE =")

                            cash = int(input("ENTER AMMOUNT TO BE PAYED ="))

                            if(bill\_type == "WATER" or bill\_type == "ELECTRICITY"):

                                if(customer\_cash >= cash):

                                    customer\_cash = int(customer\_cash)

                                    customer\_cash = customer\_cash-cash

                                else:

                                    print("ACCOUNT BALANCE IS LOW")

                            else:

                                print("INVALID BILL TYPE ")

**LIMITITION-3:**

At this stage we were allowed to use the list and we could make any program with it buy at this stage data is not permanently stored in our systems and is erased gone when the program is terminated moreover if in the future we want to extend its capabilities in the future it would be ver difficult for use as ever statement in it is connected with the next statement and also we have to write the code again and again ever for the simple process as we until now are not allowed t use the function

**VERSION-4:**

**CODE:**

import os

customer\_record = []

employe\_record = ['Q,Q,1,']

customer\_record = []

account\_no = int(227771)

def header():

    print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

    print("                                      BANK MANAGEMENT SYSTEM                                      \n")

    print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

    print("---------------------------------------------------------------------------------------------------\n")

def welcome():

    print("WELCOME")

def main():

    print("MAIN")

    print("ENTER OPTION NUMBER TO LOGIN AS....")

    print("1-MANAGER")

    print("2-EMPLOYE")

    print("3-CUSTOMER")

    print("4-LOGOUT")

def manager():

    print("MAIN MENU>>MANAGER>>")

    print("1.ADD EMPLOYE")

    print("2.VIEW ALL EMPLOYE")

    print("3.DELETE EMPLOYE")

    print("4.VIEW EMPLOYE WITH LARGEST EXPERIENCES IN HIS/HER FIELD")

    print("5.CHANGE EMPLOYE DETAILS")

    print("6.LOGOUT")

def manager\_security():

    condition = False

    username = input("ENTER YOUR USERNAME =")

    password = input("ENTER YOUR PASSWORD =")

    if username == "MUSAWIR\_AHMED" and password == "1234":

        condition = True

    return condition

def get\_field(field, commano):

    commano = int(commano)

    comma\_counter = 0

    counter = 0

    diff = commano-1

    temp = ""

    while comma\_counter < commano:

        if comma\_counter >= diff and comma\_counter < commano:

            temp = temp+field[counter]

        if(field[counter+1] == ","):

            comma\_counter = comma\_counter+1

            counter = counter+1

        counter = counter+1

    return temp

def employe\_addition():

    global employe\_record

    employe\_id = input("ENTER NAME OF THE EMPLOYE  =")

    employe\_password = input("ENTER PASSWORD OS THE EMPLOYE =")

    employe\_experience = input(

        "ENTER EXPERIENCE OF THE EMPLOYE =")

    record = employe\_id+","+employe\_password+","+employe\_experience+","

    employe\_record.append(record)

    print("EMPLOYE HAS BEEN ADDED SUCESSFULLY.................")

def employe\_display():

    print("EMPLOYE ID \t EMPLOYE PASSWORD \t EMPLOYE EXPERIENCE ")

    global employe\_record

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            employe\_experience = get\_field(field, 3)

            if employe\_id != "":

                print(employe\_id, " \t ", employe\_password,

                      " \t ", employe\_experience)

def employe\_deletion():

    global employe\_record

    temp\_employe\_id = input("ENTER EMPLOYE ID =")

    for field in employe\_record:

        counter = int(0)

        employe\_id = ""

        employe\_experience = ""

        employe\_password = ""

        coma\_counter = int(0)

        for char in field:

            if(coma\_counter < 1 and char != ","):

                employe\_id = employe\_id+char

            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                employe\_password = employe\_password+char

            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                employe\_experience = employe\_experience+char

            if(char == ","):

                coma\_counter = coma\_counter+1

        if(temp\_employe\_id == employe\_id):

            employe\_record[counter] = ""

        counter = counter+1

def employe\_experience():

    employe\_experience\_sorted = []

    employe\_experience\_list = []

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            employe\_experience = get\_field(field, 3)

            employe\_experience\_list.append(int(employe\_experience))

    largest\_idx\_list = []

    counter = 0

    for field in range(0, len(employe\_experience\_list)):

        largest = -100000

        largest\_idx = 0

        counter = 0

        for i in employe\_experience\_list:

            if(largest < i):

                largest = i

                largest\_idx = counter

                counter = counter+1

        employe\_experience\_list[largest\_idx] = -1

        employe\_experience\_sorted.append(employe\_record[largest\_idx])

    print("EMPLOYE ID \t EMPLOYE PASSWORD \t EMPLOYE EXPERIENCE ")

    for field in employe\_experience\_sorted:

        employe\_id = get\_field(field, 1)

        employe\_password = get\_field(field, 2)

        employe\_experience = get\_field(field, 3)

        if employe\_id != "":

            print(employe\_id, " \t ", employe\_password,

                  " \t ", employe\_experience)

def change\_employedetails():

    global employe\_record

    temp\_employe\_id = input("ENTER EMPLOYE ID =")

    for field in employe\_record:

        counter = int(0)

        employe\_id = ""

        employe\_experience = ""

        employe\_password = ""

        coma\_counter = int(0)

        for char in field:

            if(coma\_counter < 1 and char != ","):

                employe\_id = employe\_id+char

            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                employe\_password = employe\_password+char

            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                employe\_experience = employe\_experience+char

            if(char == ","):

                coma\_counter = coma\_counter+1

            if(temp\_employe\_id == employe\_id):

                employe\_id = input("ENTER NAME OF THE EMPLOYE  =")

                employe\_password = input(

                    "ENTER PASSWORD OS THE EMPLOYE =")

                employe\_experience = input(

                    "ENTER EXPERIENCE OF THE EMPLOYE =")

                record = employe\_id+","+employe\_password+","+employe\_experience+","

                employe\_record[counter] = record

        counter = counter+1

def clear\_screen():

    os.system('cls' if os.name == 'nt' else 'clear')

def press\_key():

    input("PRESS ENTER TO CONTINUE................")

def employe\_menue():

    print("MAIN MENU >> EMPLOYE >>")

    print("1.OPEN CUSTOMER BANK ACCOUNT")

    print("2.TO SEE CUSTOMER INFORMATION")

    print("3.TO CHANGE CUSTOMER PIN")

    print("4.TO DEPOSIT CUSTOMER CASH")

    print("5.TO CHANGE CUSTOMERS DETAILS")

    print("6.TO CALCULATE PROFIT ON CASH")

    print("7.LOGOUT")

def open\_customeraccount():

    global customer\_record

    global account\_no

    name = input("ENTER YOUR NAME =")

    phone\_number = input("ENTER YOUR PHONE NUMBER =")

    adress = input("ENTER CUSTOMER ADRESS =")

    nationality = input("ENTER CUSTOMER NATIONALITY =")

    cnic = input("ENTER CUSTOMER CNIC =")

    print("YOU ACCOUNT NUMBER IS =", account\_no)

    pin = input("ENTER YOUR PIN =")

    cash = input("ENTER CASH TO DEPOSIT =")

    record = name+","+phone\_number+","+adress+","+nationality + \

        ","+cnic+","+str(account\_no)+","+pin+","+cash+","

    account\_no = account\_no+1

    customer\_record.append(record)

    print("RECORD HAS BEEN UPDATED ")

def customer\_information():

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        if field != "":

            customer\_name = get\_field(field, 1)

            customer\_phonenumber = get\_field(field, 2)

            customer\_address = get\_field(field, 3)

            customer\_nationality = get\_field(field, 4)

            customer\_cnic = get\_field(field, 5)

            customer\_accountno = get\_field(field, 6)

            customer\_pin = get\_field(field, 7)

            customer\_cash = get\_field(field, 8)

            print(customer\_accountno, customer\_pin)

            if account\_no == customer\_accountno and cnic == customer\_cnic:

                print("NAME =", customer\_name, "\nPHONE NUMBER =", customer\_phonenumber, "\nADDRESS =", customer\_address, "\nNATIONALITY =",

                      customer\_nationality, "\nCUSTOMER CNIC =", customer\_cnic, "\nCUSTOMER ACCOUNT NUMBER =", customer\_accountno, "\nPIN =", customer\_pin)

def customer\_pin():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            customer\_pin = input("ENTER NEW PIN =")

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def deposit\_cash():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            temp = int(input("ENTER AMOUNT OF  CASH ="))

            customer\_cash = int(customer\_cash)

            customer\_cash = customer\_cash+temp

            customer\_cash = str(customer\_cash)

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def change\_details():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            customer\_name = input("ENTER NAME OF THE CUSTOMER =")

            customer\_phonenumber = input(

                "ENTER PHONE NUMBER OF THE CUSTOMER =")

            customer\_address = input("ENTER ADRESS OF THE CUSTOMER =")

            customer\_nationality = input("ENTER NATONALITY OF THE CUSTOMER =")

            customer\_cnic = input("ENTER CNIC OF THE CUSTOMER =")

            customer\_accountno = input(

                "ENTER ACCOUNT NUMBER OF THE CUSTOMER =")

            customer\_pin = input("ENTER PIN OF THE CUSTOMER =")

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def profit():

    year = int(

        input("ENTER YEAR IN WHICH YOU DEPOSITED AMMOUNT="))

    ammount = int(input("ENTER AMMOUNT DEPOSITED ="))

    # on every year 1% profit is generated on the deposited ammount

    profit\_percentage = 0

    profit\_percentage = year/100

    profit = ammount\*profit\_percentage

    print("YOU HAVE GOT THE PROFIT OF RS =", profit)

    profit = ammount+profit

    print("NOW YOUR AMMOUNT IN YOUR ACCOUNT IS=", profit)

def employe\_security():

    global employe\_record

    condition = False

    temp\_id = input("ENTER EMPLOYE ID =")

    password = input("ENTER EMPLOYE PASSWORD =")

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            if temp\_id == employe\_id and password == employe\_password:

                condition = True

    return condition

def customer\_menue():

    print("MAIN MENU>>CUSTOMER")

    print("1.ACCOUNT DETAILS")

    print("2.CHECK BALANCE")

    print("3.BILL PAYMENT")

    print("4.LOGOUT")

def customer\_security():

    global customer\_record

    counter = 0

    condition = False

    index = 0

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    pin = input("ENTER PIN OF YOUR ACCOUNT =")

    for field in customer\_record:

        if field != "":

            customer\_accountno = get\_field(field, 6)

            customer\_pin = get\_field(field, 7)

        if account\_no == customer\_accountno and pin == customer\_pin:

            condition = True

            index = counter

        counter = counter+1

    if condition == True:

        return index

    else:

        return -1

def account\_details(counter):

    field = customer\_record[counter]

    customer\_name = get\_field(field, 1)

    customer\_phonenumber = get\_field(field, 2)

    customer\_address = get\_field(field, 3)

    customer\_nationality = get\_field(field, 4)

    customer\_cnic = get\_field(field, 5)

    customer\_accountno = get\_field(field, 6)

    customer\_pin = get\_field(field, 7)

    customer\_cash = get\_field(field, 8)

    print("NAME =", customer\_name, "\nPHONE NUMBER =", customer\_phonenumber, "\nADDRESS =", customer\_address, "\nNATIONALITY =",

          customer\_nationality, "\nCUSTOMER CNIC =", customer\_cnic, "\nCUSTOMER ACCOUNT NUMBER =", customer\_accountno, "\nPIN =", customer\_pin)

def check\_balance(counter):

    field = customer\_record[counter]

    customer\_cash = get\_field(field, 8)

    print("YOUR TOTAL ACCOUNT BALANCE IS =", customer\_cash)

def bill\_payment(counter):

    counter = 0

    global customer\_record

    field = customer\_record[counter]

    customer\_name = get\_field(field, 1)

    customer\_phonenumber = get\_field(field, 2)

    customer\_address = get\_field(field, 3)

    customer\_nationality = get\_field(field, 4)

    customer\_cnic = get\_field(field, 5)

    customer\_accountno = get\_field(field, 6)

    customer\_pin = get\_field(field, 7)

    customer\_cash = get\_field(field, 8)

    customer\_cash = int(customer\_cash)

    bill\_type = input("ENTER BILL TYPE =")

    cash = int(input("ENTER AMOUNT TO BE PAYED ="))

    if(bill\_type == "WATER" or bill\_type == "ELECTRICITY"):

        if(customer\_cash >= cash):

            customer\_cash = customer\_cash-cash

            print("BILL HAS BEEN PAYED SUCESSFULLY ")

        else:

            print("ACCOUNT BALANCE IS LOW")

    else:

        print("INVALID BILL TYPE ")

    customer\_cash = str(customer\_cash)

    record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

        ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

    customer\_record[counter] = record

program\_running = True

while program\_running == True:

    clear\_screen()

    header()

    main()

    option = int(input("ENTER ANY OPTION ="))

    if(option == 1):

        condition = manager\_security()

        if(condition == True):

            while option != 6:

                clear\_screen()

                header()

                manager()

                option = int(input("ENTER ANY OPTION ="))

                if(option == 1):

                    clear\_screen()

                    header()

                    employe\_addition()

                    press\_key()

                if(option == 2):

                    clear\_screen()

                    header()

                    employe\_display()

                    press\_key()

                if(option == 3):

                    clear\_screen()

                    header()

                    employe\_deletion()

                    press\_key()

                if(option == 4):

                    clear\_screen()

                    header()

                    employe\_experience()

                    press\_key()

                if(option == 5):

                    clear\_screen()

                    header()

                    change\_employedetails()

                    press\_key()

        else:

            print("USERNAME PASSWORD IS INCORRECT")

            press\_key()

    elif option == 2:

        condition = employe\_security()

        if condition == True:

            while option != 7:

                clear\_screen()

                employe\_menue()

                option = int(input("ENTER ANY OPTION  ="))

                if(option == 1):

                    clear\_screen()

                    open\_customeraccount()

                    press\_key()

                if(option == 2):

                    clear\_screen()

                    customer\_information()

                    press\_key()

                if(option == 3):

                    clear\_screen()

                    customer\_pin()

                    press\_key()

                if(option == 4):

                    clear\_screen()

                    deposit\_cash()

                    print("RECORD HAS BEEN UPDATED")

                    press\_key()

                if(option == 5):

                    clear\_screen()

                    change\_details()

                    print("RECORD HAS BEEN UPDATED")

                    press\_key()

                if(option == 6):

                    clear\_screen()

                    profit()

                    press\_key()

        else:

            print("SOME INFORMATION YOU ENTERED IS WRONG")

            press\_key()

    elif option == 3:

        condition = customer\_security()

        if condition != -1:

            while option != 4:

                clear\_screen()

                header()

                customer\_menue()

                option = int(input("ENTER ANY OF THE OPTIONS  ="))

                if option == 1:

                    clear\_screen()

                    header()

                    account\_details(condition)

                    press\_key()

                if option == 2:

                    clear\_screen()

                    header()

                    check\_balance(condition)

                    press\_key()

                if option == 3:

                    clear\_screen()

                    header()

                    bill\_payment(condition)

                    press\_key()

                if option == 4:

                    clear\_screen()

                    header()

                    bill\_payment(condition)

                    press\_key()

**LIMITITION-4:**

**At this stage when we were allowed to use functions this helped us so much number of lines of codes became less but theres still a problem it is easier than the prevous version to update (TO MAKE CHANGES IN IT) but still data could not be stored in the program permanently and more over we are not sure that the data data entered by the user is correct or not if in a list all the data is correct but one is incorrect it could destroy whole data integrity more over data would be erased if electricity is turned off .**

**VERSION-5:**

**CODE:**

import os

customer\_record = []

employe\_record = ['Q,Q,1,']

customer\_record = []

account\_no = int(227771)

def header():

    print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

    print("                                      BANK MANAGEMENT SYSTEM                                      \n")

    print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

    print("---------------------------------------------------------------------------------------------------\n")

def welcome():

    print("WELCOME")

def main():

    print("MAIN")

    print("ENTER OPTION NUMBER TO LOGIN AS....")

    print("1-MANAGER")

    print("2-EMPLOYE")

    print("3-CUSTOMER")

    print("4-LOGOUT")

def manager():

    print("MAIN MENU>>MANAGER>>")

    print("1.ADD EMPLOYE")

    print("2.VIEW ALL EMPLOYE")

    print("3.DELETE EMPLOYE")

    print("4.VIEW EMPLOYE WITH LARGEST EXPERIENCES IN HIS/HER FIELD")

    print("5.CHANGE EMPLOYE DETAILS")

    print("6.LOGOUT")

def manager\_security():

    condition = False

    username = input("ENTER YOUR USERNAME =")

    password = input("ENTER YOUR PASSWORD =")

    if username == "MUSAWIR\_AHMED" and password == "1234":

        condition = True

    return condition

def get\_field(field, commano):

    commano = int(commano)

    comma\_counter = 0

    counter = 0

    diff = commano-1

    temp = ""

    while comma\_counter < commano:

        if comma\_counter >= diff and comma\_counter < commano:

            temp = temp+field[counter]

        if(field[counter+1] == ","):

            comma\_counter = comma\_counter+1

            counter = counter+1

        counter = counter+1

    return temp

def employe\_validation(employe\_id, employe\_password, employe\_experience):

    condition = False

    password\_condition = False

    capital\_condition = False

    number\_condition = False

    if len(employe\_password) > 5:

        password\_condition = True

    for i in employe\_id:

        temp = ord(i)

        if(capital\_condition == False):

            if (temp >= 65 and temp <= 90):

                capital\_condition = True

        if(number\_condition == False):

            if (temp >= 48 and temp <= 57):

                number\_condition = True

    if(password\_condition == True and capital\_condition == True and number\_condition == True):

        condition = True

        return condition

    if(password\_condition == False):

        print("PASSWORD MUST BE OF 5 CHARACTER")

    if(capital\_condition == False):

        print("EMPLOYE ID MUST CONTAIN ONE CAPITAL LETTER ")

    if(number\_condition == False):

        print("EMPLOYE ID MUST CONTAIN ONE NUMBER ")

    return condition

def customer\_validation(name, pin, cnic, phone\_number):

    condition = False

    numeric\_pinn\_condition = False

    pinn\_condition = False

    capital\_condition = True

    cnic\_condition = False

    phone\_number\_condition = True

    for i in pin:

        temp = ord(i)

        if not(temp >= 48 and temp <= 57):

            numeric\_pinn\_condition = True

    if len(pin) > 5 and numeric\_pinn\_condition == True:

        pinn\_condition = True

    if len(cnic) < 13:

        cnic\_condition = True

    for field in name:

        temp = ord(field)

        if not(temp >= 65 and temp <= 90):

            capital\_condition = False

            break

    for field in phone\_number:

        temp = ord(field)

        if not(temp >= 47 and temp <= 58):

            phone\_number\_condition = False

    if(pinn\_condition == True and cnic\_condition == True and capital\_condition == True and phone\_number\_condition == True):

        condition = True

        return condition

    if(pinn\_condition == False):

        print("PIN MUST CONTAIN 6 NUMERIC VALUES")

    if(cnic\_condition == False):

        print("CNIC MUST BE OF 13 NUMERICAL DIGITS")

    if(capital\_condition == False):

        print("NAME MUST BE IN CAPITAL LETTERS ")

    if(phone\_number\_condition == False):

        print("PHONE NUMBER MUST BE NUMERIC")

    return condition

def employe\_addition():

    global employe\_record

    employe\_id = input("ENTER NAME OF THE EMPLOYE  =")

    employe\_password = input("ENTER PASSWORD OS THE EMPLOYE =")

    employe\_experience = input(

        "ENTER EXPERIENCE OF THE EMPLOYE =")

    condition = employe\_validation(

        employe\_id, employe\_password, employe\_experience)

    if condition == True:

        record = employe\_id+","+employe\_password+","+employe\_experience+","

        employe\_record.append(record)

        print("EMPLOYE HAS BEEN ADDED SUCESSFULLY.................")

def employe\_display():

    print("EMPLOYE ID \t EMPLOYE PASSWORD \t EMPLOYE EXPERIENCE ")

    global employe\_record

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            employe\_experience = get\_field(field, 3)

            if employe\_id != "":

                print(employe\_id, " \t ", employe\_password,

                      " \t ", employe\_experience)

def employe\_deletion():

    global employe\_record

    temp\_employe\_id = input("ENTER EMPLOYE ID =")

    for field in employe\_record:

        counter = int(0)

        employe\_id = ""

        employe\_experience = ""

        employe\_password = ""

        coma\_counter = int(0)

        for char in field:

            if(coma\_counter < 1 and char != ","):

                employe\_id = employe\_id+char

            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                employe\_password = employe\_password+char

            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                employe\_experience = employe\_experience+char

            if(char == ","):

                coma\_counter = coma\_counter+1

        if(temp\_employe\_id == employe\_id):

            employe\_record[counter] = ""

        counter = counter+1

def employe\_experience():

    employe\_experience\_sorted = []

    employe\_experience\_list = []

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            employe\_experience = get\_field(field, 3)

            employe\_experience\_list.append(int(employe\_experience))

    largest\_idx\_list = []

    counter = 0

    for field in range(0, len(employe\_experience\_list)):

        largest = -100000

        largest\_idx = 0

        counter = 0

        for i in employe\_experience\_list:

            if(largest < i):

                largest = i

                largest\_idx = counter

                counter = counter+1

        employe\_experience\_list[largest\_idx] = -1

        employe\_experience\_sorted.append(employe\_record[largest\_idx])

    print("EMPLOYE ID \t EMPLOYE PASSWORD \t EMPLOYE EXPERIENCE ")

    for field in employe\_experience\_sorted:

        employe\_id = get\_field(field, 1)

        employe\_password = get\_field(field, 2)

        employe\_experience = get\_field(field, 3)

        if employe\_id != "":

            print(employe\_id, " \t ", employe\_password,

                  " \t ", employe\_experience)

def change\_employedetails():

    global employe\_record

    temp\_employe\_id = input("ENTER EMPLOYE ID =")

    for field in employe\_record:

        counter = int(0)

        employe\_id = ""

        employe\_experience = ""

        employe\_password = ""

        coma\_counter = int(0)

        for char in field:

            if(coma\_counter < 1 and char != ","):

                employe\_id = employe\_id+char

            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                employe\_password = employe\_password+char

            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                employe\_experience = employe\_experience+char

            if(char == ","):

                coma\_counter = coma\_counter+1

            if(temp\_employe\_id == employe\_id):

                employe\_id = input("ENTER NAME OF THE EMPLOYE  =")

                employe\_password = input(

                    "ENTER PASSWORD OS THE EMPLOYE =")

                employe\_experience = input(

                    "ENTER EXPERIENCE OF THE EMPLOYE =")

                record = employe\_id+","+employe\_password+","+employe\_experience+","

                employe\_record[counter] = record

        counter = counter+1

def clear\_screen():

    os.system('cls' if os.name == 'nt' else 'clear')

def press\_key():

    input("PRESS ENTER TO CONTINUE................")

def employe\_menue():

    print("MAIN MENU >> EMPLOYE >>")

    print("1.OPEN CUSTOMER BANK ACCOUNT")

    print("2.TO SEE CUSTOMER INFORMATION")

    print("3.TO CHANGE CUSTOMER PIN")

    print("4.TO DEPOSIT CUSTOMER CASH")

    print("5.TO CHANGE CUSTOMERS DETAILS")

    print("6.TO CALCULATE PROFIT ON CASH")

    print("7.LOGOUT")

def open\_customeraccount():

    global customer\_record

    global account\_no

    name = input("ENTER YOUR NAME =")

    phone\_number = input("ENTER YOUR PHONE NUMBER =")

    adress = input("ENTER CUSTOMER ADRESS =")

    nationality = input("ENTER CUSTOMER NATIONALITY =")

    cnic = input("ENTER CUSTOMER CNIC =")

    print("YOU ACCOUNT NUMBER IS =", account\_no)

    pin = input("ENTER YOUR PIN =")

    cash = input("ENTER CASH TO DEPOSIT =")

    condition = customer\_validation(name, pin, cnic, phone\_number)

    if(condition == True):

        record = name+","+phone\_number+","+adress+","+nationality + \

            ","+cnic+","+str(account\_no)+","+pin+","+cash+","

        account\_no = account\_no+1

        customer\_record.append(record)

        print("RECORD HAS BEEN UPDATED ")

def customer\_information():

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        if field != "":

            customer\_name = get\_field(field, 1)

            customer\_phonenumber = get\_field(field, 2)

            customer\_address = get\_field(field, 3)

            customer\_nationality = get\_field(field, 4)

            customer\_cnic = get\_field(field, 5)

            customer\_accountno = get\_field(field, 6)

            customer\_pin = get\_field(field, 7)

            customer\_cash = get\_field(field, 8)

            print(customer\_accountno, customer\_pin)

            if account\_no == customer\_accountno and cnic == customer\_cnic:

                print("NAME =", customer\_name, "\nPHONE NUMBER =", customer\_phonenumber, "\nADDRESS =", customer\_address, "\nNATIONALITY =",

                      customer\_nationality, "\nCUSTOMER CNIC =", customer\_cnic, "\nCUSTOMER ACCOUNT NUMBER =", customer\_accountno, "\nPIN =", customer\_pin)

def customer\_pin():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            customer\_pin = input("ENTER NEW PIN =")

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def deposit\_cash():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            temp = int(input("ENTER AMOUNT OF  CASH ="))

            customer\_cash = int(customer\_cash)

            customer\_cash = customer\_cash+temp

            customer\_cash = str(customer\_cash)

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def change\_details():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            customer\_name = input("ENTER NAME OF THE CUSTOMER =")

            customer\_phonenumber = input(

                "ENTER PHONE NUMBER OF THE CUSTOMER =")

            customer\_address = input("ENTER ADRESS OF THE CUSTOMER =")

            customer\_nationality = input("ENTER NATONALITY OF THE CUSTOMER =")

            customer\_cnic = input("ENTER CNIC OF THE CUSTOMER =")

            customer\_accountno = input(

                "ENTER ACCOUNT NUMBER OF THE CUSTOMER =")

            customer\_pin = input("ENTER PIN OF THE CUSTOMER =")

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def profit():

    year = int(

        input("ENTER YEAR IN WHICH YOU DEPOSITED AMMOUNT="))

    ammount = int(input("ENTER AMMOUNT DEPOSITED ="))

    # on every year 1% profit is generated on the deposited ammount

    profit\_percentage = 0

    profit\_percentage = year/100

    profit = ammount\*profit\_percentage

    print("YOU HAVE GOT THE PROFIT OF RS =", profit)

    profit = ammount+profit

    print("NOW YOUR AMMOUNT IN YOUR ACCOUNT IS=", profit)

def employe\_security():

    global employe\_record

    condition = False

    temp\_id = input("ENTER EMPLOYE ID =")

    password = input("ENTER EMPLOYE PASSWORD =")

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            if temp\_id == employe\_id and password == employe\_password:

                condition = True

    return condition

def customer\_menue():

    print("MAIN MENU>>CUSTOMER")

    print("1.ACCOUNT DETAILS")

    print("2.CHECK BALANCE")

    print("3.BILL PAYMENT")

    print("4.LOGOUT")

def customer\_security():

    global customer\_record

    counter = 0

    condition = False

    index = 0

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    pin = input("ENTER PIN OF YOUR ACCOUNT =")

    for field in customer\_record:

        if field != "":

            customer\_accountno = get\_field(field, 6)

            customer\_pin = get\_field(field, 7)

        if account\_no == customer\_accountno and pin == customer\_pin:

            condition = True

            index = counter

        counter = counter+1

    if condition == True:

        return index

    else:

        return -1

def account\_details(counter):

    field = customer\_record[counter]

    customer\_name = get\_field(field, 1)

    customer\_phonenumber = get\_field(field, 2)

    customer\_address = get\_field(field, 3)

    customer\_nationality = get\_field(field, 4)

    customer\_cnic = get\_field(field, 5)

    customer\_accountno = get\_field(field, 6)

    customer\_pin = get\_field(field, 7)

    customer\_cash = get\_field(field, 8)

    print("NAME =", customer\_name, "\nPHONE NUMBER =", customer\_phonenumber, "\nADDRESS =", customer\_address, "\nNATIONALITY =",

          customer\_nationality, "\nCUSTOMER CNIC =", customer\_cnic, "\nCUSTOMER ACCOUNT NUMBER =", customer\_accountno, "\nPIN =", customer\_pin)

def check\_balance(counter):

    field = customer\_record[counter]

    customer\_cash = get\_field(field, 8)

    print("YOUR TOTAL ACCOUNT BALANCE IS =", customer\_cash)

def bill\_payment(counter):

    counter = 0

    global customer\_record

    field = customer\_record[counter]

    customer\_name = get\_field(field, 1)

    customer\_phonenumber = get\_field(field, 2)

    customer\_address = get\_field(field, 3)

    customer\_nationality = get\_field(field, 4)

    customer\_cnic = get\_field(field, 5)

    customer\_accountno = get\_field(field, 6)

    customer\_pin = get\_field(field, 7)

    customer\_cash = get\_field(field, 8)

    customer\_cash = int(customer\_cash)

    bill\_type = input("ENTER BILL TYPE =")

    cash = int(input("ENTER AMOUNT TO BE PAYED ="))

    if(bill\_type == "WATER" or bill\_type == "ELECTRICITY"):

        if(customer\_cash >= cash):

            customer\_cash = customer\_cash-cash

            print("BILL HAS BEEN PAYED SUCESSFULLY ")

        else:

            print("ACCOUNT BALANCE IS LOW")

    else:

        print("INVALID BILL TYPE ")

    customer\_cash = str(customer\_cash)

    record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

        ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

    customer\_record[counter] = record

program\_running = True

while program\_running == True:

    clear\_screen()

    header()

    main()

    option = int(input("ENTER ANY OPTION ="))

    if(option == 1):

        condition = manager\_security()

        if(condition == True):

            while option != 6:

                clear\_screen()

                header()

                manager()

                option = int(input("ENTER ANY OPTION ="))

                if(option == 1):

                    clear\_screen()

                    header()

                    employe\_addition()

                    press\_key()

                if(option == 2):

                    clear\_screen()

                    header()

                    employe\_display()

                    press\_key()

                if(option == 3):

                    clear\_screen()

                    header()

                    employe\_deletion()

                    press\_key()

                if(option == 4):

                    clear\_screen()

                    header()

                    employe\_experience()

                    press\_key()

                if(option == 5):

                    clear\_screen()

                    header()

                    change\_employedetails()

                    press\_key()

        else:

            print("USERNAME PASSWORD IS INCORRECT")

            press\_key()

    elif option == 2:

        condition = employe\_security()

        if condition == True:

            while option != 7:

                clear\_screen()

                employe\_menue()

                option = int(input("ENTER ANY OPTION  ="))

                if(option == 1):

                    clear\_screen()

                    open\_customeraccount()

                    press\_key()

                if(option == 2):

                    clear\_screen()

                    customer\_information()

                    press\_key()

                if(option == 3):

                    clear\_screen()

                    customer\_pin()

                    press\_key()

                if(option == 4):

                    clear\_screen()

                    deposit\_cash()

                    print("RECORD HAS BEEN UPDATED")

                    press\_key()

                if(option == 5):

                    clear\_screen()

                    change\_details()

                    print("RECORD HAS BEEN UPDATED")

                    press\_key()

                if(option == 6):

                    clear\_screen()

                    profit()

                    press\_key()

        else:

            print("SOME INFORMATION YOU ENTERED IS WRONG")

            press\_key()

    elif option == 3:

        condition = customer\_security()

        if condition != -1:

            while option != 4:

                clear\_screen()

                header()

                customer\_menue()

                option = int(input("ENTER ANY OF THE OPTIONS  ="))

                if option == 1:

                    clear\_screen()

                    header()

                    account\_details(condition)

                    press\_key()

                if option == 2:

                    clear\_screen()

                    header()

                    check\_balance(condition)

                    press\_key()

                if option == 3:

                    clear\_screen()

                    header()

                    bill\_payment(condition)

                    press\_key()

                if option == 4:

                    clear\_screen()

                    header()

                    bill\_payment(condition)

                    press\_key()

**LIMITITION-5:**

**At this stage we are sure about the integrity of the data because we have add validation in our program aso incorrect data cannot be added in it but theres atill a problem data is not stored permanently and if we want to exceed the program it would not be fruit full because if data is not stored permanently it could only be used for the tasks that dosnt require permanent storeage of data more over if we wants to update theprogram the functions are so related with each other that it would cause many errors and bugs**

**VERSION-6:**

**CODE:**

import os

customer\_record = []

employe\_record = ['Q,Q,1,']

customer\_record = []

account\_no = int(227771)

def employe\_file\_read():

    global employe\_record

    myfile = open("employe.txt", "r")

    employe\_record = myfile.read().splitlines()

    myfile.close

def customer\_file\_read():

    global customer\_record

    myfile = open("customer.txt", "r")

    customer\_record = myfile.read().splitlines()

    myfile.close

employe\_file\_read()

customer\_file\_read()

input("PRESS ENTER KEY =")

def header():

    print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

    print("                                      BANK MANAGEMENT SYSTEM                                      \n")

    print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n")

    print("---------------------------------------------------------------------------------------------------\n")

def welcome():

    print("WELCOME")

def main():

    print("MAIN")

    print("ENTER OPTION NUMBER TO LOGIN AS....")

    print("1-MANAGER")

    print("2-EMPLOYE")

    print("3-CUSTOMER")

    print("4-LOGOUT")

def manager():

    print("MAIN MENU>>MANAGER>>")

    print("1.ADD EMPLOYE")

    print("2.VIEW ALL EMPLOYE")

    print("3.DELETE EMPLOYE")

    print("4.VIEW EMPLOYE WITH LARGEST EXPERIENCES IN HIS/HER FIELD")

    print("5.CHANGE EMPLOYE DETAILS")

    print("6.LOGOUT")

def manager\_security():

    condition = False

    username = input("ENTER YOUR USERNAME =")

    password = input("ENTER YOUR PASSWORD =")

    if username == "MUSAWIR\_AHMED" and password == "1234":

        condition = True

    return condition

def get\_field(field, commano):

    commano = int(commano)

    comma\_counter = 0

    counter = 0

    diff = commano-1

    temp = ""

    while comma\_counter < commano:

        if comma\_counter >= diff and comma\_counter < commano:

            temp = temp+field[counter]

        if(field[counter+1] == ","):

            comma\_counter = comma\_counter+1

            counter = counter+1

        counter = counter+1

    return temp

def employe\_validation(employe\_id, employe\_password, employe\_experience):

    condition = False

    password\_condition = False

    capital\_condition = False

    number\_condition = False

    if len(employe\_password) > 5:

        password\_condition = True

    for i in employe\_id:

        temp = ord(i)

        if(capital\_condition == False):

            if (temp >= 65 and temp <= 90):

                capital\_condition = True

        if(number\_condition == False):

            if (temp >= 48 and temp <= 57):

                number\_condition = True

    if(password\_condition == True and capital\_condition == True and number\_condition == True):

        condition = True

        return condition

    if(password\_condition == False):

        print("PASSWORD MUST BE OF 5 CHARACTER")

    if(capital\_condition == False):

        print("EMPLOYE ID MUST CONTAIN ONE CAPITAL LETTER ")

    if(number\_condition == False):

        print("EMPLOYE ID MUST CONTAIN ONE NUMBER ")

    return condition

def customer\_validation(name, pin, cnic, phone\_number):

    condition = False

    numeric\_pinn\_condition = True

    pinn\_condition = False

    capital\_condition = True

    cnic\_condition = False

    phone\_number\_condition = True

    for i in pin:

        temp = ord(i)

        if not(temp >= 48 and temp <= 57):

            numeric\_pinn\_condition = False

    if len(pin) > 5 and numeric\_pinn\_condition == True:

        pinn\_condition = True

    if len(cnic) > 13:

        cnic\_condition = True

    for field in name:

        temp = ord(field)

        if not(temp >= 65 and temp <= 90):

            capital\_condition = False

            break

    for field in phone\_number:

        temp = ord(field)

        if not(temp >= 47 and temp <= 58):

            phone\_number\_condition = False

    if(pinn\_condition == True and cnic\_condition == True and capital\_condition == True and phone\_number\_condition == True):

        condition = True

        return condition

    if(pinn\_condition == False):

        print("PIN MUST CONTAIN 6 NUMERIC VALUES")

    if(cnic\_condition == False):

        print("CNIC MUST BE OF 13 NUMERICAL DIGITS")

    if(capital\_condition == False):

        print("NAME MUST BE IN CAPITAL LETTERS ")

    if(phone\_number\_condition == False):

        print("PHONE NUMBER MUST BE NUMERIC")

    return condition

def employe\_file(record):

    myfile = open("employe.txt", "a")

    print(record, file=myfile, sep="\n")

    myfile.close()

def employe\_addition():

    global employe\_record

    employe\_id = input("ENTER NAME OF THE EMPLOYE  =")

    employe\_password = input("ENTER PASSWORD OS THE EMPLOYE =")

    employe\_experience = input(

        "ENTER EXPERIENCE OF THE EMPLOYE =")

    condition = employe\_validation(

        employe\_id, employe\_password, employe\_experience)

    if condition == True:

        record = employe\_id+","+employe\_password+","+employe\_experience+","

        employe\_record.append(record)

        employe\_file(record)

        print("EMPLOYE HAS BEEN ADDED SUCESSFULLY.................")

def employe\_display():

    print("EMPLOYE ID \t EMPLOYE PASSWORD \t EMPLOYE EXPERIENCE ")

    global employe\_record

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            employe\_experience = get\_field(field, 3)

            if employe\_id != "":

                print(employe\_id, " \t ", employe\_password,

                      " \t ", employe\_experience)

def employe\_deletion():

    global employe\_record

    temp\_employe\_id = input("ENTER EMPLOYE ID =")

    for field in employe\_record:

        counter = int(0)

        employe\_id = ""

        employe\_experience = ""

        employe\_password = ""

        coma\_counter = int(0)

        for char in field:

            if(coma\_counter < 1 and char != ","):

                employe\_id = employe\_id+char

            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                employe\_password = employe\_password+char

            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                employe\_experience = employe\_experience+char

            if(char == ","):

                coma\_counter = coma\_counter+1

        if(temp\_employe\_id == employe\_id):

            employe\_record[counter] = ""

        counter = counter+1

def employe\_experience():

    employe\_experience\_sorted = []

    employe\_experience\_list = []

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            employe\_experience = get\_field(field, 3)

            employe\_experience\_list.append(int(employe\_experience))

    largest\_idx\_list = []

    counter = 0

    for field in range(0, len(employe\_experience\_list)):

        largest = -100000

        largest\_idx = 0

        counter = 0

        for i in employe\_experience\_list:

            if(largest < i):

                largest = i

                largest\_idx = counter

                counter = counter+1

        employe\_experience\_list[largest\_idx] = -1

        employe\_experience\_sorted.append(employe\_record[largest\_idx])

    print("EMPLOYE ID \t EMPLOYE PASSWORD \t EMPLOYE EXPERIENCE ")

    for field in employe\_experience\_sorted:

        employe\_id = get\_field(field, 1)

        employe\_password = get\_field(field, 2)

        employe\_experience = get\_field(field, 3)

        if employe\_id != "":

            print(employe\_id, " \t ", employe\_password,

                  " \t ", employe\_experience)

def change\_employedetails():

    global employe\_record

    temp\_employe\_id = input("ENTER EMPLOYE ID =")

    for field in employe\_record:

        counter = int(0)

        employe\_id = ""

        employe\_experience = ""

        employe\_password = ""

        coma\_counter = int(0)

        for char in field:

            if(coma\_counter < 1 and char != ","):

                employe\_id = employe\_id+char

            if(coma\_counter < 2 and char != "," and coma\_counter == 1):

                employe\_password = employe\_password+char

            if(coma\_counter < 3 and char != "," and coma\_counter != 1 and coma\_counter == 2):

                employe\_experience = employe\_experience+char

            if(char == ","):

                coma\_counter = coma\_counter+1

            if(temp\_employe\_id == employe\_id):

                employe\_id = input("ENTER NAME OF THE EMPLOYE  =")

                employe\_password = input(

                    "ENTER PASSWORD OS THE EMPLOYE =")

                employe\_experience = input(

                    "ENTER EXPERIENCE OF THE EMPLOYE =")

                record = employe\_id+","+employe\_password+","+employe\_experience+","

                employe\_record[counter] = record

        counter = counter+1

def clear\_screen():

    os.system('cls' if os.name == 'nt' else 'clear')

def press\_key():

    input("PRESS ENTER TO CONTINUE................")

def employe\_menue():

    print("MAIN MENU >> EMPLOYE >>")

    print("1.OPEN CUSTOMER BANK ACCOUNT")

    print("2.TO SEE CUSTOMER INFORMATION")

    print("3.TO CHANGE CUSTOMER PIN")

    print("4.TO DEPOSIT CUSTOMER CASH")

    print("5.TO CHANGE CUSTOMERS DETAILS")

    print("6.TO CALCULATE PROFIT ON CASH")

    print("7.LOGOUT")

def customer\_file(record):

    myfile = open("customer.txt", "a")

    print(record, file=myfile, sep="\n")

    myfile.close()

def open\_customeraccount():

    global customer\_record

    global account\_no

    name = input("ENTER YOUR NAME =")

    phone\_number = input("ENTER YOUR PHONE NUMBER =")

    adress = input("ENTER CUSTOMER ADRESS =")

    nationality = input("ENTER CUSTOMER NATIONALITY =")

    cnic = input("ENTER CUSTOMER CNIC =")

    print("YOU ACCOUNT NUMBER IS =", account\_no)

    pin = input("ENTER YOUR PIN =")

    cash = input("ENTER CASH TO DEPOSIT =")

    condition = customer\_validation(name, pin, cnic, phone\_number)

    if(condition == True):

        record = name+","+phone\_number+","+adress+","+nationality + \

            ","+cnic+","+str(account\_no)+","+pin+","+cash+","

        customer\_file(record)

        account\_no = account\_no+1

        customer\_record.append(record)

        print("RECORD HAS BEEN UPDATED ")

def customer\_information():

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        if field != "":

            customer\_name = get\_field(field, 1)

            customer\_phonenumber = get\_field(field, 2)

            customer\_address = get\_field(field, 3)

            customer\_nationality = get\_field(field, 4)

            customer\_cnic = get\_field(field, 5)

            customer\_accountno = get\_field(field, 6)

            customer\_pin = get\_field(field, 7)

            customer\_cash = get\_field(field, 8)

            print(customer\_accountno, customer\_pin)

            if account\_no == customer\_accountno and cnic == customer\_cnic:

                print("NAME =", customer\_name, "\nPHONE NUMBER =", customer\_phonenumber, "\nADDRESS =", customer\_address, "\nNATIONALITY =",

                      customer\_nationality, "\nCUSTOMER CNIC =", customer\_cnic, "\nCUSTOMER ACCOUNT NUMBER =", customer\_accountno, "\nPIN =", customer\_pin)

def customer\_pin():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            customer\_pin = input("ENTER NEW PIN =")

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def deposit\_cash():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            temp = int(input("ENTER AMOUNT OF  CASH ="))

            customer\_cash = int(customer\_cash)

            customer\_cash = customer\_cash+temp

            customer\_cash = str(customer\_cash)

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def change\_details():

    counter = 0

    global customer\_record

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    cnic = input("ENTER CNIC OF THE USER =")

    for field in customer\_record:

        customer\_name = get\_field(field, 1)

        customer\_phonenumber = get\_field(field, 2)

        customer\_address = get\_field(field, 3)

        customer\_nationality = get\_field(field, 4)

        customer\_cnic = get\_field(field, 5)

        customer\_accountno = get\_field(field, 6)

        customer\_pin = get\_field(field, 7)

        customer\_cash = get\_field(field, 8)

        if account\_no == customer\_accountno and cnic == customer\_cnic:

            customer\_name = input("ENTER NAME OF THE CUSTOMER =")

            customer\_phonenumber = input(

                "ENTER PHONE NUMBER OF THE CUSTOMER =")

            customer\_address = input("ENTER ADRESS OF THE CUSTOMER =")

            customer\_nationality = input("ENTER NATONALITY OF THE CUSTOMER =")

            customer\_cnic = input("ENTER CNIC OF THE CUSTOMER =")

            customer\_accountno = input(

                "ENTER ACCOUNT NUMBER OF THE CUSTOMER =")

            customer\_pin = input("ENTER PIN OF THE CUSTOMER =")

            record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

                ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

            customer\_record[counter] = record

        counter = counter+1

def profit():

    year = int(

        input("ENTER YEAR IN WHICH YOU DEPOSITED AMMOUNT="))

    ammount = int(input("ENTER AMMOUNT DEPOSITED ="))

    # on every year 1% profit is generated on the deposited ammount

    profit\_percentage = 0

    profit\_percentage = year/100

    profit = ammount\*profit\_percentage

    print("YOU HAVE GOT THE PROFIT OF RS =", profit)

    profit = ammount+profit

    print("NOW YOUR AMMOUNT IN YOUR ACCOUNT IS=", profit)

def employe\_security():

    global employe\_record

    condition = False

    temp\_id = input("ENTER EMPLOYE ID =")

    password = input("ENTER EMPLOYE PASSWORD =")

    for field in employe\_record:

        if field != "":

            employe\_id = get\_field(field, 1)

            employe\_password = get\_field(field, 2)

            if temp\_id == employe\_id and password == employe\_password:

                condition = True

    return condition

def customer\_menue():

    print("MAIN MENU>>CUSTOMER")

    print("1.ACCOUNT DETAILS")

    print("2.CHECK BALANCE")

    print("3.BILL PAYMENT")

    print("4.LOGOUT")

def customer\_security():

    global customer\_record

    counter = 0

    condition = False

    index = 0

    account\_no = input("ENTER ACCOUNT NUMBER OF THE USER =")

    pin = input("ENTER PIN OF YOUR ACCOUNT =")

    for field in customer\_record:

        if field != "":

            customer\_accountno = get\_field(field, 6)

            customer\_pin = get\_field(field, 7)

        if account\_no == customer\_accountno and pin == customer\_pin:

            condition = True

            index = counter

        counter = counter+1

    if condition == True:

        return index

    else:

        return -1

def account\_details(counter):

    field = customer\_record[counter]

    customer\_name = get\_field(field, 1)

    customer\_phonenumber = get\_field(field, 2)

    customer\_address = get\_field(field, 3)

    customer\_nationality = get\_field(field, 4)

    customer\_cnic = get\_field(field, 5)

    customer\_accountno = get\_field(field, 6)

    customer\_pin = get\_field(field, 7)

    customer\_cash = get\_field(field, 8)

    print("NAME =", customer\_name, "\nPHONE NUMBER =", customer\_phonenumber, "\nADDRESS =", customer\_address, "\nNATIONALITY =",

          customer\_nationality, "\nCUSTOMER CNIC =", customer\_cnic, "\nCUSTOMER ACCOUNT NUMBER =", customer\_accountno, "\nPIN =", customer\_pin)

def check\_balance(counter):

    field = customer\_record[counter]

    customer\_cash = get\_field(field, 8)

    print("YOUR TOTAL ACCOUNT BALANCE IS =", customer\_cash)

def bill\_payment(counter):

    counter = 0

    global customer\_record

    field = customer\_record[counter]

    customer\_name = get\_field(field, 1)

    customer\_phonenumber = get\_field(field, 2)

    customer\_address = get\_field(field, 3)

    customer\_nationality = get\_field(field, 4)

    customer\_cnic = get\_field(field, 5)

    customer\_accountno = get\_field(field, 6)

    customer\_pin = get\_field(field, 7)

    customer\_cash = get\_field(field, 8)

    customer\_cash = int(customer\_cash)

    bill\_type = input("ENTER BILL TYPE =")

    cash = int(input("ENTER AMOUNT TO BE PAYED ="))

    if(bill\_type == "WATER" or bill\_type == "ELECTRICITY"):

        if(customer\_cash >= cash):

            customer\_cash = customer\_cash-cash

            print("BILL HAS BEEN PAYED SUCESSFULLY ")

        else:

            print("ACCOUNT BALANCE IS LOW")

    else:

        print("INVALID BILL TYPE ")

    customer\_cash = str(customer\_cash)

    record = customer\_name+","+customer\_phonenumber+","+customer\_address+","+customer\_nationality + \

        ","+customer\_cnic+","+customer\_accountno+","+customer\_pin+","+customer\_cash+","

    customer\_record[counter] = record

program\_running = True

while program\_running == True:

    clear\_screen()

    header()

    main()

    option = int(input("ENTER ANY OPTION ="))

    if(option == 1):

        condition = manager\_security()

        if(condition == True):

            while option != 6:

                clear\_screen()

                header()

                manager()

                option = int(input("ENTER ANY OPTION ="))

                if(option == 1):

                    clear\_screen()

                    header()

                    employe\_addition()

                    press\_key()

                if(option == 2):

                    clear\_screen()

                    header()

                    employe\_display()

                    press\_key()

                if(option == 3):

                    clear\_screen()

                    header()

                    employe\_deletion()

                    press\_key()

                if(option == 4):

                    clear\_screen()

                    header()

                    employe\_experience()

                    press\_key()

                if(option == 5):

                    clear\_screen()

                    header()

                    change\_employedetails()

                    press\_key()

        else:

            print("USERNAME PASSWORD IS INCORRECT")

            press\_key()

    elif option == 2:

        condition = employe\_security()

        if condition == True:

            while option != 7:

                clear\_screen()

                employe\_menue()

                option = int(input("ENTER ANY OPTION  ="))

                if(option == 1):

                    clear\_screen()

                    open\_customeraccount()

                    press\_key()

                if(option == 2):

                    clear\_screen()

                    customer\_information()

                    press\_key()

                if(option == 3):

                    clear\_screen()

                    customer\_pin()

                    press\_key()

                if(option == 4):

                    clear\_screen()

                    deposit\_cash()

                    print("RECORD HAS BEEN UPDATED")

                    press\_key()

                if(option == 5):

                    clear\_screen()

                    change\_details()

                    print("RECORD HAS BEEN UPDATED")

                    press\_key()

                if(option == 6):

                    clear\_screen()

                    profit()

                    press\_key()

        else:

            print("SOME INFORMATION YOU ENTERED IS WRONG")

            press\_key()

    elif option == 3:

        condition = customer\_security()

        if condition != -1:

            while option != 4:

                clear\_screen()

                header()

                customer\_menue()

                option = int(input("ENTER ANY OF THE OPTIONS  ="))

                if option == 1:

                    clear\_screen()

                    header()

                    account\_details(condition)

                    press\_key()

                if option == 2:

                    clear\_screen()

                    header()

                    check\_balance(condition)

                    press\_key()

                if option == 3:

                    clear\_screen()

                    header()

                    bill\_payment(condition)

                    press\_key()

                if option == 4:

                    clear\_screen()

                    header()

                    bill\_payment(condition)

                    press\_key()

**LIMITITION-6:**

**At this stage data is stored in the system permanently and we could make functions of the part of the programs that neend to execute again and afain at diffremt positions we could make there function and could call them any where more our data is also stored in the system permanently buts thers one problem its very time cosuing process to read data from the file again and again and more over if in the future we want to extend the capabilities of the program it could be a little harder as every function is related to every other function.**