A

Project Report on

BANK MANAGEMENT SYSTEM

Submitted in partial fulfillment of the requirements for the award of the degree of

BACHELOR OF ENGINEERING

COMPUTER SCIENCE AND ENGINEERING

BY

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ACKNOWLEDGEMENT

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TABLE OF CONTENTS

1. ABSTRACT

Customer experience is an integral part of a bank's operations. That's why banks focus a lot on improving customer experience by removing hassles and enhancing the facilities they provide. Opening a new account in a bank usually requires a person to visit the bank, fill out a form, and submit the necessary papers. All of these tasks take up a lot of time and dampen the overall customer experience.

We can solve this problem by creating a software solution where people can sign up and open a new account in a bank digitally. This way, the person wouldn't have to visit the bank physically and thus, would save a lot of time and effort.

This program can also allow the user to make transactions, deposit and withdraw funds, and check the account balance.

In this we have an admin section which looks after the users' accounts and a store all the user's information in a file.

Modules imported: Tkinter, os , datetime

The following program has these features:

->It allows users to open new accounts

->Users can make transactions by entering the respective amounts

->Users can check the balance of their accounts

->Admin can view a list of users to see how many users there are

along with their details.

INTRODUCTION

A. OVERVIEW

The Bank Management **System** is an application for maintaining a person's account in a bank. ... To develop a project for solving financial applications of a customer in banking environment in order to nurture the needs of an end banking user by providing various ways to perform banking tasks. This software is developed using python.It is used to Keep the records of clients,employee, etc in Bank.The bank management system is an application for maintaining a persons account in a bank . It has two modules.
Admin Module – In which we can create account,check account summary,close an bank account**.**

Customer Module – In which we can create an deposit and withdraw the cash

From the account.

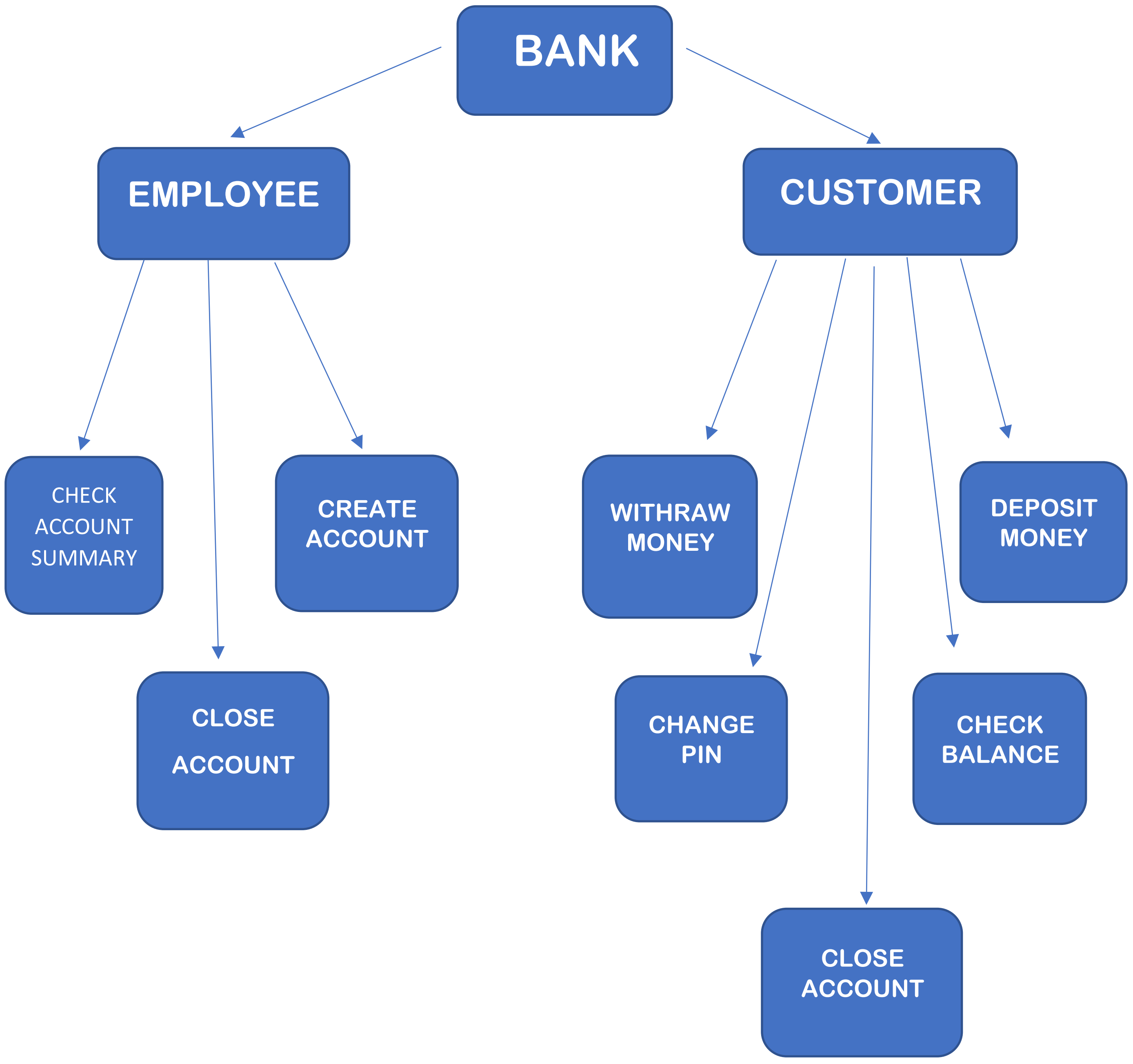
Close the account in the bank, check account balance , change PIN and check transaction details.

B. Objective

The main aim of an application is to somewhere automate records on the system. It gives all sortsof functions which are required by the bank in order to run a stable system. In addition to that it also helps to manually check the records of the pre-existing system like transactions that are made in the past. The application also changes or manipulates the new data that is being added and is then re-recorded. One can also check their present transactions that are in process and keep a check on their accounts via this application. It's not only useful for the customers but also

for the admin.

C.DESIGN


BANK
EMPLOYEE
CUSTOMER
CHECK ACCOUNT SUMMARY
CREATE ACCOUNT
CLOSE ACCOUNT
WITHRAW MONEY
DEPOSIT MONEY
CHANGE PIN
CHECK BALANCE
CLOSE ACCOUNT

D. Scope

This application can be easily implemented under various situations. We can add new features as and when we require. Reusability is possible as and when require in this application. There is flexibility in all the modules.

•**Extensibility**: This software is extendable in ways that its original developers may not expect. The following principles enhances extensibility like hide data structure, avoid traversing multiple links or methods, avoid case statements on object type and distinguish public and private operations.

•**Reusability**: Reusability is possible as and when require in this application. We can update it next version. Reusable software reduces design, coding and testing cost by amortizing effort over several designs. Reducing the amount of code also simplifies understanding, which increases the likelihood that the code is correct. We follow up both types of reusability: Sharing of newly written code within a project and reuse of previously written code on new projects.

•**Understandability**: A method is understandable if someone other than the creator of the method can understand the code(as well as the creator after a time lapse). We use the method, which small and coherent helps to accomplish this.

• **Cost**- effectiveness: Its cost is under the budget and make within given time period. It is desirable to aim for a system with a minimum cost subject to the condition that it must satisfy the entire requirement.

Scope of this document is to put down the requirements, clearly identifying the information needed by the user, the source of the information and outputs expected from the system.

3. SRS

A Software Requirements Specification (SRS) is a complete set of information about the system on which the developed project will be running. It includes all the hardware as well as the recommended system requirement for running the software is also mentioned in detail separately. The aim of this document is to gather and analyze and give in-depth insight of the complete software requirement of the BANK MANAGEMENT SYSTEM.

a Hardware Required:

- Processor: Intel i3 or Above
- RAM: 2GB or above
- Hard Disk: 1 GB or above
- Input Devices: Keyboard, Mouse
- Output Devices: Monitor

b Software Required:

- Operating System: Linux, Ubuntu, Mac, Windows 10
- Frontend: Tkinter
- Backend: Python
- IDE: PyCharm, VS Code

4. IMPLEMENTATION OF CODE

```
import os
from datetime import date
import tkinter as tk
from tkinter import *


def is_valid(customer_account_number):
    try:
        customer_database = 
open("./database/Customer/customerDatabase.txt")
    except FileNotFoundError:
        os.makedirs("./database/Customer/customerDatabase.txt", 
exist_ok=True)
        print("# Customer database doesn't exists!\n# New Customer database 
created automatically.")
        customer_database = 
open("./database/Customer/customerDatabase.txt", "a")
    else:
        if check_credentials(customer_account_number, "DO_NOT_CHECK", 
2, True):
            return False
        else:
            return True
    customer_database.close()


def check_leap(year):
    return ((int(year) % 4 == 0) and (int(year) % 100 != 0)) or (int(year) % 
400 == 0)


def check_date(date):
    days_in_months = ["31", "28", "31", "30", "31", "30", "31", "31", "30", 
"31", "30", "31"]
    days_in_months_in_leap_year = ["31", "29", "31", "30", "31", "30", "31", 
"31", "30", "31", "30", "31"]

    if date == "":
        return False

    date_elements = date.split("/")
    day = int(date_elements[0])
    month = int(date_elements[1])
    year = int(date_elements[2])
    if (year > 2021 or year < 0) or (month > 12 or month < 1):
        return False
    else:
        if check_leap(year):
            numOfDays = days_in_months_in_leap_year[month - 1]
        else:
            numOfDays = days_in_months[month - 1]
        return int(numOfDays) >= day >= 1


def is_valid_mobile(mobile_number):
    if mobile_number.__len__() == 10 and mobile_number.isnumeric():
        return True
    else:
        return False


def append_data(database_path, data):
    customer_database = open(database_path, "a")
    customer_database.write(data)


def display_account_summary(identity, choice):  # choice 1 for full
summary; choice 2 for only account balance.
    flag = 0
    customer_database = open("./database/Customer/customerDatabase.txt")
    output_message = ""
    for line in customer_database:
        if identity == line.replace("\n", ""):
            if choice == 1:
                output_message += "Account number : " + line.replace("\n", "") +
"\n"
                customer_database.__next__()  # skipping pin
                output_message += "Current balance : " +
customer_database.__next__().replace("\n", "") + "\n"
                output_message += "Date of account creation : " +
customer_database.__next__().replace("\n", "") + "\n"
                output_message += "Name of account holder : " +
customer_database.__next__().replace("\n", "") + "\n"
                output_message += "Type of account : " +
customer_database.__next__().replace("\n", "") + "\n"
                output_message += "Date of Birth : " +
customer_database.__next__().replace("\n", "") + "\n"
                output_message += "Mobile number : " +
customer_database.__next__().replace("\n", "") + "\n"
                output_message += "Gender : " +
customer_database.__next__().replace("\n", "") + "\n"
                output_message += "Nationality : " +
customer_database.__next__().replace("\n", "") + "\n"
                output_message += "KYC : " +
customer_database.__next__().replace("\n", "") + "\n"
```

```
            else:
                customer_database.readline()  # skipped pin
                output_message += "Current balance : " +
customer_database.readline().replace("\n", "") + "\n"
            flag = 1
            break

        else:
            for index in range(11):
                fetched_line = customer_database.readline()
                if fetched_line is not None:
                    continue
                else:
                    break
    if flag == 0:
        print("\n# No account associated with the entered account number
exists! #")
    return output_message


def delete_customer_account(identity, choice):  # choice 1 for admin, choice
2 for customer
    customer_database = open("./database/Customer/customerDatabase.txt")
    data_collector = ""
    flag = 0
    for line in customer_database:
        if identity == line.replace("\n", ""):
            flag = 1
            for index in range(11):
                customer_database.readline()  # skipping the line
        else:
            data_collector += line
            for index in range(11):
                data_collector += customer_database.readline()
    customer_database = open("./database/Customer/customerDatabase.txt",
"w")
    customer_database.write(data_collector)
    if flag == 1:
        output_message = "Account with account no." + str(identity) + " closed
successfully!"
        if choice == 1:
            adminMenu.printMessage_outside(output_message)
        print(output_message)
    else:
        output_message = "Account not found !"
        if choice == 1:
            adminMenu.printMessage_outside(output_message)
        print(output_message)
```

```
def create_admin_account(identity, password):
    admin_database = open("./database/Admin/adminDatabase.txt", "a")
    admin_id = identity
    admin_password = password
    append_data("./database/Admin/adminDatabase.txt", admin_id + "\n" +
admin_password + "\n" + "*\n")
    output_message = "Admin account created successfully !"
    adminMenu.printMessage_outside(output_message)
    print(output_message)
    admin_database.close()


def delete_admin_account(identity):
    admin_database = open("./database/Admin/adminDatabase.txt")
    data_collector = ""
    flag = 0
    for line in admin_database:
        if identity == line.replace("\n", ""):
            flag = 1
            for index in range(2):
                admin_database.readline()
        else:
            data_collector += line
            for index in range(2):
                data_collector += admin_database.readline()
    admin_database = open("./database/Admin/adminDatabase.txt", "w")
    admin_database.write(data_collector)
    if flag == 1:
        output_message = "Account with account id " + identity + " closed
successfully!"
        print(output_message)
        adminMenu.printMessage_outside(output_message)
    else:
        output_message = "Account not found :("
        adminMenu.printMessage_outside(output_message)
        print(output_message)


def change_PIN(identity, new_PIN):
    customer_database = open("./database/Customer/customerDatabase.txt")
    data_collector = ""
    for line in customer_database:
        if identity == line.replace("\n", ""):
            data_collector += line  # ID
            data_collector += str(new_PIN) + "\n"  # PIN changed
            customer_database.readline()
            for index in range(10):
                data_collector += customer_database.readline()
        else:
            data_collector += line
            for index in range(11):
                data_collector += customer_database.readline()
    customer_database.close()
    customer_database = open("./database/Customer/customerDatabase.txt",
"w")
    customer_database.write(data_collector)

    output_message = "PIN changed successfully."
    customerMenu.printMessage_outside(output_message)
    print(output_message)


def transaction(identity, amount, choice):  # choice 1 for deposit; choice 2
for withdraw
    customer_database = open("./database/Customer/customerDatabase.txt")
    data_collector = ""
    balance = 0
    for line in customer_database:
        if identity == line.replace("\n", ""):
            data_collector += line  # ID
            data_collector += customer_database.readline()  # PIN
            balance = float(customer_database.readline().replace("\n", ""))
            if choice == 2 and balance - amount < 10000:  # Minimum balance
10000
                return -1
            else:
                if choice == 1:
                    balance += amount
                else:
                    balance -= amount
            data_collector += str(balance) + "\n"
            for index in range(9):
                data_collector += customer_database.readline()
        else:
            data_collector += line
            for index in range(11):
                data_collector += customer_database.readline()

    customer_database.close()
    customer_database = open("./database/Customer/customerDatabase.txt",
"w")
    customer_database.write(data_collector)
    return balance


def check_credentials(identity, password, choice,
                      admin_access):  # checks credentials of admin/customer and
returns True or False
    folder_name = "./database/Admin" if (choice == 1) else
"./database/Customer"
```

```
    file_name = "/adminDatabase.txt" if (choice == 1) else
"/customerDatabase.txt"

    try:
        os.makedirs(folder_name, exist_ok=True)
        database = open(folder_name + file_name, "r")
    except FileNotFoundError:
        print("#", folder_name[2:], "database doesn't exists!\n# New",
folder_name[2:],
              "database created automatically.")
        database = open(folder_name + file_name, "a")
        if choice == 1:
            database.write("admin\nadmin@123\n*\n")
    else:
        is_credentials_correct = False
        for line in database:
            id_fetched = line.replace("\n", "")
            password_fetched = database.__next__().replace("\n", "")
            if id_fetched == identity:
                if ((password == "DO_NOT_CHECK_ADMIN" and choice == 1
and admin_access == False) or (
                        password == "DO_NOT_CHECK" and choice == 2 and
admin_access == True) or password_fetched == password):
                    is_credentials_correct = True
                    database.close()
                    return True
            if choice == 1:  # skips unnecessary lines in admin database.
                database.__next__()  # skipping line
            else:  # skips unnecessary lines in customer database.
                for index in range(10):
                    fetched_line = database.readline()
                    if fetched_line is not None:
                        continue
                    else:
                        break
        if is_credentials_correct:
            print("Success!")
        else:
            print("Failure!")

    database.close()
    return False


# Backend python functions code ends.

# Tkinter GUI code starts :
class welcomeScreen:
    def __init__(self, window=None):
        self.master = window
        window.geometry("600x450+383+106")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Welcome to VASAVI BANK")
        p1 = PhotoImage(file='./images/bank1.png')
        window.iconphoto(True, p1)
        window.configure(background="#023047")
        window.configure(cursor="arrow")

        self.Canvas1 = tk.Canvas(window, background="#ffff00",
borderwidth="0", insertbackground="black",
                                 relief="ridge",
                                 selectbackground="blue", selectforeground="white")
        self.Canvas1.place(relx=0.190, rely=0.228, relheight=0.496,
relwidth=0.622)

        self.Button1 = tk.Button(self.Canvas1, command=self.selectEmployee,
activebackground="#ececec",
                                 activeforeground="#000000", background="#023047",
disabledforeground="#a3a3a3",
                                 foreground="#fbfbfb", borderwidth="0",
highlightbackground="#d9d9d9",
                                 highlightcolor="black", pady="0",
                                 text='''EMPLOYEE''')
        self.Button1.configure(font="-family {Segoe UI} -size 10 -weight
bold")
        self.Button1.place(relx=0.161, rely=0.583, height=24, width=87)

        self.Button2 = tk.Button(self.Canvas1, command=self.selectCustomer,
activebackground="#ececec",
                                 activeforeground="#000000", background="#023047",
disabledforeground="#a3a3a3",
                                 foreground="#f9f9f9", borderwidth="0",
highlightbackground="#d9d9d9",
                                 highlightcolor="black", pady="0",
                                 text='''CUSTOMER''')
        self.Button2.configure(font="-family {Segoe UI} -size 10 -weight
bold")
        self.Button2.place(relx=0.617, rely=0.583, height=24, width=87)

        self.Label1 = tk.Label(self.Canvas1, background="#ffff00",
disabledforeground="#a3a3a3",
                               font="-family {Segoe UI} -size 13 -weight bold",
foreground="#000000",
                               text='''Please select your role''')
        self.Label1.place(relx=0.241, rely=0.224, height=31, width=194)

    def selectEmployee(self):
        self.master.withdraw()
        adminLogin(Toplevel(self.master))

    def selectCustomer(self):
        self.master.withdraw()
        CustomerLogin(Toplevel(self.master))


class Error:
    def __init__(self, window=None):
        global master
        master = window
        window.geometry("411x117+485+248")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Error")
        window.configure(background="#f2f3f4")

        global Label2

        self.Button1 = tk.Button(window, background="#d3d8dc",
borderwidth="1", disabledforeground="#a3a3a3",
                                 font="-family {Segoe UI} -size 9",
foreground="#000000", highlightbackground="#d9d9d9",
                                 highlightcolor="black", pady="0", text="'OK'",
command=self.goback)
        self.Button1.place(relx=0.779, rely=0.598, height=24, width=67)

        global _img0
        _img0 = tk.PhotoImage(file="./images/error_image.png")
        self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                               image=_img0, text="'Label'")
        self.Label1.place(relx=0.024, rely=0.0, height=81, width=84)

    def setMessage(self, message_shown):
        Label2 = tk.Label(master, background="#f2f3f4",
disabledforeground="#a3a3a3",
                          font="-family {Segoe UI} -size 16", foreground="#000000",
highlightcolor="#646464646464",
                          text=message_shown)
        Label2.place(relx=0.210, rely=0.171, height=41, width=214)

    def goback(self):
        master.withdraw()



class adminLogin:
    def __init__(self, window=None):
        self.master = window
        window.geometry("743x494+338+92")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Admin")
        window.configure(background="#ffff00")

        global Canvas1
        Canvas1 = tk.Canvas(window, background="#ffffff",
insertbackground="black", relief="ridge",
                            selectbackground="blue", selectforeground="white")
        Canvas1.place(relx=0.108, rely=0.142, relheight=0.715,
relwidth=0.798)

        self.Label1 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3",
                               font="-family {Segoe UI} -size 14 -weight bold",
foreground="#00254a",
                               text="Admin Login")
        self.Label1.place(relx=0.135, rely=0.142, height=41, width=154)

        global Label2
        Label2 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        Label2.place(relx=0.067, rely=0.283, height=181, width=233)
        global _img0
        _img0 = tk.PhotoImage(file="./images/adminLogin1.png")
        Label2.configure(image=_img0)

        self.Entry1 = tk.Entry(Canvas1, background="#e2e2e2",
borderwidth="2", disabledforeground="#a3a3a3",
                               font="TkFixedFont", foreground="#000000",
highlightbackground="#b6b6b6",
                               highlightcolor="#004080", insertbackground="black")
        self.Entry1.place(relx=0.607, rely=0.453, height=20, relwidth=0.26)

        self.Entry1_1 = tk.Entry(Canvas1, show='*', background="#e2e2e2",
borderwidth="2",
                                 disabledforeground="#a3a3a3", font="TkFixedFont",
foreground="#000000",
                                 highlightbackground="#d9d9d9",
highlightcolor="#004080", insertbackground="black",
                                 selectbackground="blue", selectforeground="white")
        self.Entry1_1.place(relx=0.607, rely=0.623, height=20, relwidth=0.26)

        self.Label3 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        self.Label3.place(relx=0.556, rely=0.453, height=21, width=34)
        global _img1
        _img1 = tk.PhotoImage(file="./images/user1.png")
        self.Label3.configure(image=_img1)

        self.Label4 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        self.Label4.place(relx=0.556, rely=0.623, height=21, width=34)
        global _img2
        _img2 = tk.PhotoImage(file="./images/lock1.png")
        self.Label4.configure(image=_img2)

        self.Label5 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        self.Label5.place(relx=0.670, rely=0.142, height=71, width=74)
        global _img3
        _img3 = tk.PhotoImage(file="./images/bank1.png")
        self.Label5.configure(image=_img3)

        self.Button = tk.Button(Canvas1, text="Login", borderwidth="0",
width=10, background="#ffff00",
                                foreground="#00254a",
                                font="-family {Segoe UI} -size 10 -weight bold",
                                command=lambda: self.login(self.Entry1.get(),
self.Entry1_1.get()))
        self.Button.place(relx=0.765, rely=0.755)

        self.Button_back = tk.Button(Canvas1, text="Back", borderwidth="0",
width=10, background="#ffff00",
                                     foreground="#00254a",
                                     font="-family {Segoe UI} -size 10 -weight bold",
                                     command=self.back)
        self.Button_back.place(relx=0.545, rely=0.755)

        global admin_img
        admin_img = tk.PhotoImage(file="./images/adminLogin1.png")

    def back(self):
        self.master.withdraw()
        welcomeScreen(Toplevel(self.master))

    @staticmethod
    def setImg():
        Label2 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        Label2.place(relx=0.067, rely=0.283, height=181, width=233)
        Label2.configure(image=admin_img)

    def login(self, admin_id, admin_password):
        global admin_idNO
        admin_idNO = admin_id
        if check_credentials(admin_id, admin_password, 1, True):
            self.master.withdraw()
            adminMenu(Toplevel(self.master))
        else:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Invalid Credentials!")
            self.setImg()


class CustomerLogin:
    def __init__(self, window=None):
        self.master = window
        window.geometry("743x494+338+92")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Customer")
        window.configure(background="#00254a")

        global Canvas1
        Canvas1 = tk.Canvas(window, background="#ffffff",
insertbackground="black", relief="ridge",
                           selectbackground="blue", selectforeground="white")
        Canvas1.place(relx=0.108, rely=0.142, relheight=0.715,
relwidth=0.798)

        Label1 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3",
                          font="-family {Segoe UI} -size 14 -weight bold",
foreground="#00254a",
                          text="Customer Login")
        Label1.place(relx=0.135, rely=0.142, height=41, width=154)

        global Label2
        Label2 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        Label2.place(relx=0.067, rely=0.283, height=181, width=233)
        global _img0
        _img0 = tk.PhotoImage(file="./images/customer.png")
        Label2.configure(image=_img0)

        self.Entry1 = tk.Entry(Canvas1, background="#e2e2e2",
borderwidth="2", disabledforeground="#a3a3a3",
                               font="TkFixedFont", foreground="#000000",
highlightbackground="#b6b6b6",
                               highlightcolor="#004080", insertbackground="black")
        self.Entry1.place(relx=0.607, rely=0.453, height=20, relwidth=0.26)

        self.Entry1_1 = tk.Entry(Canvas1, show='*', background="#e2e2e2",
borderwidth="2",
                                 disabledforeground="#a3a3a3", font="TkFixedFont",
foreground="#000000",
                                highlightbackground="#d9d9d9",
highlightcolor="#004080", insertbackground="black",
                                selectbackground="blue", selectforeground="white")
        self.Entry1_1.place(relx=0.607, rely=0.623, height=20, relwidth=0.26)

        self.Label3 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        self.Label3.place(relx=0.556, rely=0.453, height=21, width=34)

        global _img1
        _img1 = tk.PhotoImage(file="./images/user1.png")
        self.Label3.configure(image=_img1)

        self.Label4 = tk.Label(Canvas1)
        self.Label4.place(relx=0.556, rely=0.623, height=21, width=34)
        global _img2
        _img2 = tk.PhotoImage(file="./images/lock1.png")
        self.Label4.configure(image=_img2, background="#ffffff")

        self.Label5 = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        self.Label5.place(relx=0.670, rely=0.142, height=71, width=74)
        global _img3
        _img3 = tk.PhotoImage(file="./images/bank1.png")
        self.Label5.configure(image=_img3)

        self.Button = tk.Button(Canvas1, text="Login", borderwidth="0",
width=10, background="#00254a",
                                foreground="#ffffff",
                                font="-family {Segoe UI} -size 10 -weight bold",
                                command=lambda: self.login(self.Entry1.get(),
self.Entry1_1.get()))
        self.Button.place(relx=0.765, rely=0.755)

        self.Button_back = tk.Button(Canvas1, text="Back", borderwidth="0",
width=10, background="#00254a",
                                     foreground="#ffffff",
                                     font="-family {Segoe UI} -size 10 -weight bold",
                                     command=self.back)
        self.Button_back.place(relx=0.545, rely=0.755)

        global customer_img
        customer_img = tk.PhotoImage(file="./images/customer.png")

    def back(self):
        self.master.withdraw()
        welcomeScreen(Toplevel(self.master))

    @staticmethod
    def setImg():
        settingIMG = tk.Label(Canvas1, background="#ffffff",
disabledforeground="#a3a3a3", foreground="#000000")
        settingIMG.place(relx=0.067, rely=0.283, height=181, width=233)
        settingIMG.configure(image=customer_img)

    def login(self, customer_account_number, customer_PIN):
        if check_credentials(customer_account_number, customer_PIN, 2,
False):
            global customer_accNO
            customer_accNO = str(customer_account_number)
            self.master.withdraw()
            customerMenu(Toplevel(self.master))
        else:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Invalid Credentials!")
            self.setImg()



class adminMenu:
    def __init__(self, window=None):
        self.master = window
        window.geometry("743x494+329+153")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Admin Section")
        window.configure(background="#ffff00")

        self.Labelframe1 = tk.LabelFrame(window, relief='groove', font="-
family {Segoe UI} -size 13 -weight bold",
                                         foreground="#001c37", text="Select your option",
background="#fffffe")
        self.Labelframe1.place(relx=0.081, rely=0.081, relheight=0.415,
relwidth=0.848)

        self.Button1 = tk.Button(self.Labelframe1,
activebackground="#ececec", activeforeground="#000000",
                                 background="#00254a", borderwidth="0",
disabledforeground="#a3a3a3",
                                 font="-family {Segoe UI} -size 11",
foreground="#fffffe",
                                 highlightbackground="#d9d9d9",
highlightcolor="black", pady="0",
                                 text="Close bank account",
command=self.closeAccount)
        self.Button1.place(relx=0.667, rely=0.195, height=34, width=181,
bordermode='ignore')

        self.Button2 = tk.Button(self.Labelframe1,
activebackground="#ececec", activeforeground="#000000",
                              background="#00254a", borderwidth="0",
disabledforeground="#a3a3a3",
                              font="-family {Segoe UI} -size 11",
foreground="#fffffe",
                              highlightbackground="#d9d9d9",
highlightcolor="black", pady="0",
                              text="Create bank account",
command=self.createCustaccount)
        self.Button2.place(relx=0.04, rely=0.195, height=34, width=181,
bordermode='ignore')

        self.Button3 = tk.Button(self.Labelframe1,
activebackground="#ececec", activeforeground="#000000",
                              background="#00254a", borderwidth="0",
disabledforeground="#a3a3a3",
                              font="-family {Segoe UI} -size 11",
foreground="#fffffe",
                              highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="Exit",
                              command=self.exit)
        self.Button3.place(relx=0.667, rely=0.683, height=34, width=181,
bordermode='ignore')

        self.Button4 = tk.Button(self.Labelframe1,
activebackground="#ececec", activeforeground="#000000",
                              background="#00254a", borderwidth="0",
disabledforeground="#a3a3a3",
                              font="-family {Segoe UI} -size 11",
foreground="#fffffe",
                              highlightbackground="#d9d9d9",
highlightcolor="black", pady="0",
                              text="Create admin account",
command=self.createAdmin)
        self.Button4.place(relx=0.04, rely=0.439, height=34, width=181,
bordermode='ignore')

        self.Button5 = tk.Button(self.Labelframe1,
activebackground="#ececec", activeforeground="#000000",
                              background="#00254a", borderwidth="0",
disabledforeground="#a3a3a3",
                              font="-family {Segoe UI} -size 11",
foreground="#fffffe",
                              highlightbackground="#d9d9d9",
highlightcolor="black", pady="0",
                              text="Close admin account",
command=self.deleteAdmin)
        self.Button5.place(relx=0.667, rely=0.439, height=34, width=181,
bordermode='ignore')
```

```
        self.Button6 = tk.Button(self.Labelframe1,
activebackground="#ececec", activeforeground="#000000",
                                background="#00254a", foreground="#fffffe",
borderwidth="0",
                                disabledforeground="#a3a3a3", font="-family {Segoe
UI} -size 11",
                                highlightbackground="#d9d9d9",
highlightcolor="black", pady="0",
                                text="Check account summary",
command=self.showAccountSummary)
        self.Button6.place(relx=0.04, rely=0.683, height=34, width=181,
bordermode='ignore')

        global Frame1
        Frame1 = tk.Frame(window, relief='groove', borderwidth="2",
background="#fffffe")
        Frame1.place(relx=0.081, rely=0.547, relheight=0.415, relwidth=0.848)

    def closeAccount(self):
        CloseAccountByAdmin(Toplevel(self.master))

    def createCustaccount(self):
        createCustomerAccount(Toplevel(self.master))

    def createAdmin(self):
        createAdmin(Toplevel(self.master))

    def deleteAdmin(self):
        deleteAdmin(Toplevel(self.master))

    def showAccountSummary(self):
        checkAccountSummary(Toplevel(self.master))

    def printAccountSummary(identity):
        # clearing the frame
        for widget in Frame1.winfo_children():
            widget.destroy()
        # getting output_message and displaying it in the frame
        output = display_account_summary(identity, 1)
        output_message = Label(Frame1, text=output, background="#fffffe")
        output_message.pack(pady=20)

    def printMessage_outside(output):
        # clearing the frame
        for widget in Frame1.winfo_children():
            widget.destroy()
        # getting output_message and displaying it in the frame
        output_message = Label(Frame1, text=output, background="#fffffe")
        output_message.pack(pady=20)
    def exit(self):
        self.master.withdraw()
        adminLogin(Toplevel(self.master))


class CloseAccountByAdmin:
    def __init__(self, window=None):
        self.master = window
        window.geometry("411x117+498+261")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Close customer account")
        window.configure(background="#f2f3f4")

        self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3",
                              text='''Enter account number:''')
        self.Label1.place(relx=0.232, rely=0.220, height=20, width=120)

        self.Entry1 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                              foreground="#000000", insertbackground="black")
        self.Entry1.place(relx=0.536, rely=0.220, height=20, relwidth=0.232)

        self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", borderwidth="0",
                                background="#004080",
disabledforeground="#a3a3a3", foreground="#ffffff",
                                highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="Back",
                                command=self.back)
        self.Button1.place(relx=0.230, rely=0.598, height=24, width=67)

        self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                borderwidth="0", disabledforeground="#a3a3a3",
foreground="#ffffff",
                                highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="Proceed",
                                command=lambda: self.submit(self.Entry1.get()))
        self.Button2.place(relx=0.598, rely=0.598, height=24, width=67)

    def back(self):
        self.master.withdraw()

    def submit(self, identity):
        if not is_valid(identity):
            delete_customer_account(identity, 1)
        else:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Account doesn't exist!")
            return
        self.master.withdraw()


class createCustomerAccount:
    def __init__(self, window=None):
        self.master = window
        window.geometry("411x403+437+152")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Create account")
        window.configure(background="#f2f3f4")
        window.configure(highlightbackground="#d9d9d9")
        window.configure(highlightcolor="black")

        self.Entry1 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                               foreground="#000000",
highlightbackground="#d9d9d9", highlightcolor="black",
                               insertbackground="black", selectbackground="blue",
selectforeground="white")
        self.Entry1.place(relx=0.511, rely=0.027, height=20, relwidth=0.302)

        self.Label1 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                               disabledforeground="#a3a3a3", foreground="#000000",
highlightbackground="#d9d9d9",
                               highlightcolor="black", text='''Account number:''')
        self.Label1.place(relx=0.219, rely=0.025, height=26, width=120)

        self.Label2 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                               disabledforeground="#a3a3a3", foreground="#000000",
highlightbackground="#d9d9d9",
                               highlightcolor="black", text='''Full name:''')
        self.Label2.place(relx=0.316, rely=0.099, height=27, width=75)

        self.Entry2 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3",
                               font="TkFixedFont", foreground="#000000",
highlightbackground="#d9d9d9",
                               highlightcolor="black", insertbackground="black",
selectbackground="blue",
                               selectforeground="white")
        self.Entry2.place(relx=0.511, rely=0.099, height=20, relwidth=0.302)
        self.Label3 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                        disabledforeground="#a3a3a3", foreground="#000000",
highlightbackground="#d9d9d9",
                        highlightcolor="black", text='''Account type:''')
        self.Label3.place(relx=0.287, rely=0.169, height=26, width=83)

        global acc_type
        acc_type = StringVar()

        self.Radiobutton1 = tk.Radiobutton(window,
activebackground="#ececec", activeforeground="#000000",
                                background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                                highlightbackground="#d9d9d9",
highlightcolor="black", justify='left',
                                text='''Savings''', variable=acc_type,
value="Savings")
        self.Radiobutton1.place(relx=0.511, rely=0.174, relheight=0.057,
relwidth=0.151)

        self.Radiobutton1_1 = tk.Radiobutton(window,
activebackground="#ececec", activeforeground="#000000",
                                  background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                                  highlightbackground="#d9d9d9",
highlightcolor="black", justify='left',
                                  text='''Current''', variable=acc_type,
value="Current")
        self.Radiobutton1_1.place(relx=0.706, rely=0.174, relheight=0.057,
relwidth=0.175)

        self.Radiobutton1.deselect()
        self.Radiobutton1_1.deselect()

        self.Label5 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                        disabledforeground="#a3a3a3", foreground="#000000",
                        highlightcolor="black", text='''Mobile number:''')
        self.Label5.place(relx=0.268, rely=0.323, height=22, width=85)

        self.Label4 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                        disabledforeground="#a3a3a3", foreground="#000000",
                        highlightcolor="black", text='''Birth date
(DD/MM/YYYY):''')
        self.Label4.place(relx=0.090, rely=0.238, height=27, width=175)

        self.Entry5 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                        foreground="#000000",
highlightbackground="#d9d9d9", highlightcolor="black",
                        insertbackground="black", selectbackground="blue",
selectforeground="white")
        self.Entry5.place(relx=0.511, rely=0.323, height=20, relwidth=0.302)

        self.Entry4 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                        foreground="#000000",
highlightbackground="#d9d9d9", highlightcolor="black",
                        insertbackground="black", selectbackground="blue",
selectforeground="white")
        self.Entry4.place(relx=0.511, rely=0.248, height=20, relwidth=0.302)

        self.Label6 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                        disabledforeground="#a3a3a3", foreground="#000000",
                        highlightcolor="black", text='''Gender:''')
        self.Label6.place(relx=0.345, rely=0.402, height=15, width=65)

        global gender
        gender = StringVar()

        self.Radiobutton3 = tk.Radiobutton(window,
activebackground="#ececec", activeforeground="#000000",
                                background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                                highlightcolor="black", justify='left',
                                text='''Male''', variable=gender, value="Male")
        self.Radiobutton3.place(relx=0.481, rely=0.397, relheight=0.055,
relwidth=0.175)

        self.Radiobutton4 = tk.Radiobutton(window,
activebackground="#ececec", activeforeground="#000000",
                                background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                                highlightbackground="#d9d9d9",
highlightcolor="black", justify='left',
                                text='''Female''', variable=gender,
value="Female")
        self.Radiobutton4.place(relx=0.706, rely=0.397, relheight=0.055,
relwidth=0.175)

        self.Radiobutton3.deselect()
        self.Radiobutton4.deselect()

        self.Label7 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                        disabledforeground="#a3a3a3", foreground="#000000",
highlightbackground="#d9d9d9",
                         highlightcolor="black", text='''Nationality:''')
        self.Label7.place(relx=0.309, rely=0.471, height=21, width=75)

        self.Entry7 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3",
                         font="TkFixedFont", foreground="#000000",
highlightbackground="#d9d9d9",
                         highlightcolor="black", insertbackground="black",
selectbackground="blue",
                         selectforeground="white")
        self.Entry7.place(relx=0.511, rely=0.471, height=20, relwidth=0.302)

        self.Entry9 = tk.Entry(window, show="*", background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                         foreground="#000000",
highlightbackground="#d9d9d9", highlightcolor="black",
                         insertbackground="black", selectbackground="blue",
selectforeground="white")
        self.Entry9.place(relx=0.511, rely=0.623, height=20, relwidth=0.302)

        self.Entry10 = tk.Entry(window, show="*", background="#cae4ff",
disabledforeground="#a3a3a3",
                          font="TkFixedFont",
                          foreground="#000000",
highlightbackground="#d9d9d9", highlightcolor="black",
                          insertbackground="black", selectbackground="blue",
selectforeground="white")
        self.Entry10.place(relx=0.511, rely=0.7, height=20, relwidth=0.302)

        self.Entry11 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                          foreground="#000000",
highlightbackground="#d9d9d9", highlightcolor="black",
                          insertbackground="black", selectbackground="blue",
selectforeground="white")
        self.Entry11.place(relx=0.511, rely=0.777, height=20, relwidth=0.302)

        self.Label9 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                         disabledforeground="#a3a3a3", foreground="#000000",
highlightbackground="#d9d9d9",
                         highlightcolor="black", text='''PIN:''')
        self.Label9.place(relx=0.399, rely=0.62, height=21, width=35)

        self.Label10 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                          disabledforeground="#a3a3a3", foreground="#000000",
highlightbackground="#d9d9d9",
                          highlightcolor="black", text='''Re-enter PIN:''')
        self.Label10.place(relx=0.292, rely=0.695, height=21, width=75)
        self.Label11 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                        disabledforeground="#a3a3a3", foreground="#000000",
highlightbackground="#d9d9d9",
                        highlightcolor="black", text='''Initial balance:''')
        self.Label11.place(relx=0.292, rely=0.779, height=21, width=75)

        self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                         borderwidth="0", disabledforeground="#a3a3a3",
foreground="#ffffff",
                         highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text='''Back''',
                         command=self.back)
        self.Button1.place(relx=0.243, rely=0.893, height=24, width=67)

        self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                         borderwidth="0", disabledforeground="#a3a3a3",
foreground="#ffffff",
                         highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text='''Proceed''',
                         command=lambda: self.create_acc(self.Entry1.get(),
self.Entry2.get(), acc_type.get(),
                                                         self.Entry4.get(), self.Entry5.get(),
gender.get(),
                                                         self.Entry7.get(), self.Entry8.get(),
                                                         self.Entry9.get(), self.Entry10.get(),
                                                         self.Entry11.get()))
        self.Button2.place(relx=0.633, rely=0.893, height=24, width=67)

        self.Label8 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                        text='''KYC document name:''')
        self.Label8.place(relx=0.18, rely=0.546, height=24, width=122)

        self.Entry8 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                        foreground="#000000", insertbackground="black")
        self.Entry8.place(relx=0.511, rely=0.546, height=20, relwidth=0.302)

    def back(self):
        self.master.withdraw()

    def create_acc(self, customer_account_number, name, account_type,
date_of_birth, mobile_number, gender, nationality,
                   KYC_document,
                   PIN, confirm_PIN, initial_balance):
```

```
    if is_valid(customer_account_number) and
customer_account_number.isnumeric():
        if name != "":
            if account_type == "Savings" or account_type == "Current":
                if check_date(date_of_birth):
                    if is_valid_mobile(mobile_number):
                        if gender == "Male" or gender == "Female":
                            if nationality.__len__() != 0:
                                if KYC_document.__len__() != 0:
                                    if PIN.isnumeric() and PIN.__len__() == 4:
                                        if confirm_PIN == PIN:
                                            if initial_balance.isnumeric():
                                                output_message = "Customer account
created successfully!"
                                                print(output_message)

adminMenu.printMessage_outside(output_message)
                                            else:
                                                Error(Toplevel(self.master))
                                                Error.setMessage(self,
message_shown="Invalid balance!")
                                                return
                                        else:
                                            Error(Toplevel(self.master))
                                            Error.setMessage(self, message_shown="PIN
mismatch!")
                                            return
                                    else:
                                        Error(Toplevel(self.master))
                                        Error.setMessage(self, message_shown="Invalid
PIN!")
                                        return
                                else:
                                    Error(Toplevel(self.master))
                                    Error.setMessage(self, message_shown="Enter
KYC document!")
                                    return
                            else:
                                Error(Toplevel(self.master))
                                Error.setMessage(self, message_shown="Enter
Nationality!")
                                return
                        else:
                            Error(Toplevel(self.master))
                            Error.setMessage(self, message_shown="Select
gender!")
                            return
                    else:
                        Error(Toplevel(self.master))
                        Error.setMessage(self, message_shown="Invalid mobile
number!")
                        return
                else:
                    Error(Toplevel(self.master))
                    Error.setMessage(self, message_shown="Invalid date!")
                    return
            else:
                Error(Toplevel(self.master))
                Error.setMessage(self, message_shown="Select account type!")
                return
        else:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Name can't be empty!")
            return
    else:
        Error(Toplevel(self.master))
        Error.setMessage(self, message_shown="Acc-number is invalid!")
        return

    today = date.today()  # set date of account creation
    date_of_account_creation = today.strftime("%d/%m/%Y")

    # adding in database
    data = customer_account_number + "\n" + PIN + "\n" + initial_balance
+ "\n" + date_of_account_creation + "\n" + name + "\n" + account_type +
"\n" + date_of_birth + "\n" + mobile_number + "\n" + gender + "\n" +
nationality + "\n" + KYC_document + "\n" + "*\n"
    append_data("./database/Customer/customerDatabase.txt", data)

    self.master.withdraw()


class createAdmin:
  def __init__(self, window=None):
    self.master = window
    window.geometry("411x150+512+237")
    window.minsize(120, 1)
    window.maxsize(1370, 749)
    window.resizable(0, 0)
    window.title("Create admin account")
    window.configure(background="#f2f3f4")

    self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                    text='''Enter admin ID:''')
    self.Label1.place(relx=0.219, rely=0.067, height=27, width=104)

    self.Label2 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                    text='''Enter password:''')
    self.Label2.place(relx=0.219, rely=0.267, height=27, width=104)

    self.Entry1 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                    foreground="#000000", insertbackground="black")
    self.Entry1.place(relx=0.487, rely=0.087, height=20, relwidth=0.326)

    self.Entry2 = tk.Entry(window, show="*", background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                    foreground="#000000", insertbackground="black")
    self.Entry2.place(relx=0.487, rely=0.287, height=20, relwidth=0.326)

    self.Label3 = tk.Label(window, activebackground="#f9f9f9",
activeforeground="black", background="#f2f3f4",
                    disabledforeground="#a3a3a3", foreground="#000000",
highlightbackground="#d9d9d9",
                    highlightcolor="black", text='''Confirm password:''')
    self.Label3.place(relx=0.195, rely=0.467, height=27, width=104)

    self.Entry3 = tk.Entry(window, show="*", background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                    foreground="#000000", insertbackground="black")
    self.Entry3.place(relx=0.487, rely=0.487, height=20, relwidth=0.326)

    self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                         borderwidth="0", disabledforeground="#a3a3a3",
foreground="#ffffff",
                         highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="Proceed",
                         command=lambda:
self.create_admin_account(self.Entry1.get(), self.Entry2.get(),
self.Entry3.get()))

    self.Button1.place(relx=0.598, rely=0.733, height=24, width=67)

    self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                         borderwidth="0", disabledforeground="#a3a3a3",
foreground="#ffffff",
                         highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="Back",
                         command=self.back)
    self.Button2.place(relx=0.230, rely=0.733, height=24, width=67)

  def back(self):
    self.master.withdraw()

  def create_admin_account(self, identity, password, confirm_password):
    if check_credentials(identity, "DO_NOT_CHECK_ADMIN", 1, False):
        Error(Toplevel(self.master))
        Error.setMessage(self, message_shown="ID is unavailable!")
    else:
        if password == confirm_password and len(password) != 0:
            create_admin_account(identity, password)
            self.master.withdraw()
        else:
            Error(Toplevel(self.master))
            if password != confirm_password:
                Error.setMessage(self, message_shown="Password Mismatch!")
            else:
                Error.setMessage(self, message_shown="Invalid password!")


class deleteAdmin:
  def __init__(self, window=None):
    self.master = window
    window.geometry("411x117+504+268")
    window.minsize(120, 1)
    window.maxsize(1370, 749)
    window.resizable(0, 0)
    window.title("Delete admin account")
    window.configure(background="#f2f3f4")

    self.Entry1 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                       foreground="#000000", insertbackground="black")
    self.Entry1.place(relx=0.487, rely=0.092, height=20, relwidth=0.277)

    self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                       text='''Enter admin ID:''')
    self.Label1.place(relx=0.219, rely=0.092, height=21, width=104)

    self.Label2 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                       text='''Enter password:''')
    self.Label2.place(relx=0.209, rely=0.33, height=21, width=109)

    self.Entry1_1 = tk.Entry(window, show="*", background="#cae4ff",
disabledforeground="#a3a3a3",
                         font="TkFixedFont",
                         foreground="#000000",
highlightbackground="#d9d9d9", highlightcolor="black",
                         insertbackground="black", selectbackground="blue",
selectforeground="white")
    self.Entry1_1.place(relx=0.487, rely=0.33, height=20, relwidth=0.277)
        self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                borderwidth="0", disabledforeground="#a3a3a3",
foreground="#ffffff",
                                highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="'Back'",
                                command=self.back)
        self.Button1.place(relx=0.243, rely=0.642, height=24, width=67)

        self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                borderwidth="0", disabledforeground="#a3a3a3",
foreground="#ffffff",
                                highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="'Proceed'",
                                command=lambda: self.delete_admin(self.Entry1.get(),
self.Entry1_1.get()))
        self.Button2.place(relx=0.608, rely=0.642, height=24, width=67)

    def delete_admin(self, admin_id, password):
        if admin_id == "aayush" or admin_id == admin_idNO:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Operation Denied!")
            return
        if check_credentials(admin_id, password, 1, True):
            delete_admin_account(admin_id)
            self.master.withdraw()
        else:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Invalid Credentials!")

    def back(self):
        self.master.withdraw()


class customerMenu:
    def __init__(self, window=None):
        self.master = window
        window.geometry("743x494+329+153")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Customer Section")
        window.configure(background="#00254a")

        self.Labelframe1 = tk.LabelFrame(window, relief='groove', font="-
family {Segoe UI} -size 13 -weight bold",
                                        foreground="#000000", text="'Select your option'",
background="#fffffe")
```

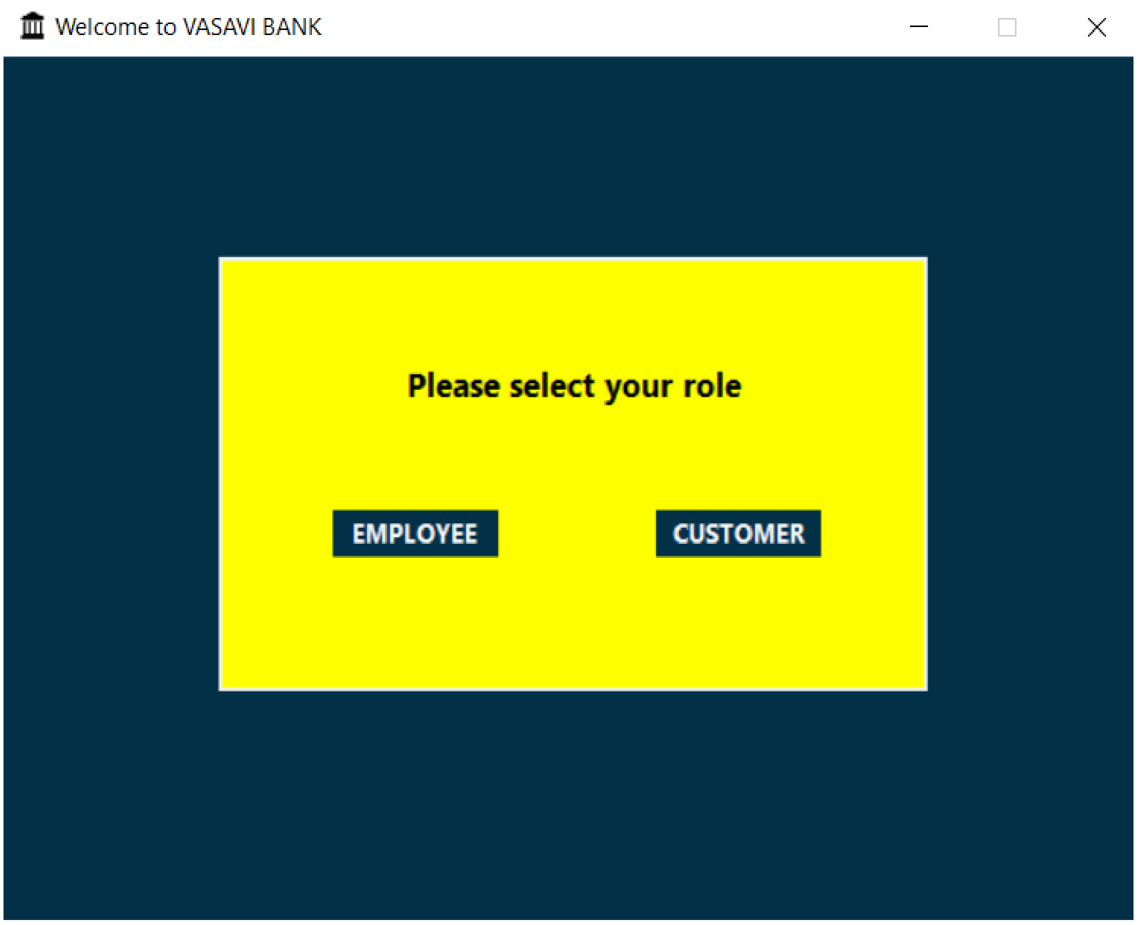
```
        self.Labelframe1.place(relx=0.081, rely=0.081, relheight=0.415,
relwidth=0.848)

        self.Button1 = tk.Button(self.Labelframe1,
command=self.selectWithdraw, activebackground="#ececec",
                        activeforeground="#000000", background="#39a9fc",
borderwidth="0",
                        disabledforeground="#a3a3a3", font="-family {Segoe
UI} -size 11", foreground="#fffffe",
                        highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="'Withdraw'")
        self.Button1.place(relx=0.667, rely=0.195, height=34, width=181,
bordermode='ignore')

        self.Button2 = tk.Button(self.Labelframe1,
command=self.selectDeposit, activebackground="#ececec",
                        activeforeground="#000000", background="#39a9fc",
borderwidth="0",
                        disabledforeground="#a3a3a3", font="-family {Segoe
UI} -size 11", foreground="#fffffe",
                        highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="'Deposit'")
        self.Button2.place(relx=0.04, rely=0.195, height=34, width=181,
bordermode='ignore')

        self.Button3 = tk.Button(self.Labelframe1, command=self.exit,
activebackground="#ececec",
                        activeforeground="#000000",
                        background="#39a9fc",
                        borderwidth="0", disabledforeground="#a3a3a3",
font="-family {Segoe UI} -size 11",
                        foreground="#fffffe", highlightbackground="#d9d9d9",
highlightcolor="black", pady="0",
                        text="'Exit'")
        self.Button3.place(relx=0.667, rely=0.683, height=34, width=181,
bordermode='ignore')

        self.Button4 = tk.Button(self.Labelframe1,
command=self.selectChangePIN, activebackground="#ececec",
                        activeforeground="#000000", background="#39a9fc",
borderwidth="0",
                        disabledforeground="#a3a3a3", font="-family {Segoe
UI} -size 11", foreground="#fffffe",
                        highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text="'Change PIN'")
        self.Button4.place(relx=0.04, rely=0.439, height=34, width=181,
bordermode='ignore')

        self.Button5 = tk.Button(self.Labelframe1,
command=self.selectCloseAccount, activebackground="#ececec",
                                activeforeground="#000000", background="#39a9fc",
borderwidth="0",
                                disabledforeground="#a3a3a3", font="-family {Segoe
UI} -size 11", foreground="#fffffe",
                                highlightbackground="#d9d9d9",
highlightcolor="black", pady="0",
                                text='''Close account''')
        self.Button5.place(relx=0.667, rely=0.439, height=34, width=181,
bordermode='ignore')

        self.Button6 = tk.Button(self.Labelframe1,
activebackground="#ececec", activeforeground="#000000",
                                background="#39a9fc", borderwidth="0",
disabledforeground="#a3a3a3",
                                font="-family {Segoe UI} -size 11",
foreground="#fffffe",
                                highlightbackground="#d9d9d9",
highlightcolor="black", pady="0",
                                text='''Check your balance''',
command=self.checkBalance)
        self.Button6.place(relx=0.04, rely=0.683, height=34, width=181,
bordermode='ignore')

        global Frame1_1_2
        Frame1_1_2 = tk.Frame(window, relief='groove', borderwidth="2",
background="#fffffe")
        Frame1_1_2.place(relx=0.081, rely=0.547, relheight=0.415,
relwidth=0.848)

    def selectDeposit(self):
        depositMoney(Toplevel(self.master))

    def selectWithdraw(self):
        withdrawMoney(Toplevel(self.master))

    def selectChangePIN(self):
        changePIN(Toplevel(self.master))

    def selectCloseAccount(self):
        self.master.withdraw()
        closeAccount(Toplevel(self.master))

    def exit(self):
        self.master.withdraw()
        CustomerLogin(Toplevel(self.master))

    def checkBalance(self):
        output = display_account_summary(customer_accNO, 2)
        self.printMessage(output)
        print("check balance function called.")
```

```
  def printMessage(self, output):
    # clearing the frame
    for widget in Frame1_1_2.winfo_children():
      widget.destroy()
    # getting output_message and displaying it in the frame
    output_message = Label(Frame1_1_2, text=output,
background="#fffffe")
    output_message.pack(pady=20)

  def printMessage_outside(output):
    # clearing the frame
    for widget in Frame1_1_2.winfo_children():
      widget.destroy()
    # getting output_message and displaying it in the frame
    output_message = Label(Frame1_1_2, text=output,
background="#fffffe")
    output_message.pack(pady=20)


class depositMoney:
  def __init__(self, window=None):
    self.master = window
    window.geometry("411x117+519+278")
    window.minsize(120, 1)
    window.maxsize(1370, 749)
    window.resizable(0, 0)
    window.title("Deposit money")
    p1 = PhotoImage(file='./images/deposit_icon.png')
    window.iconphoto(True, p1)
    window.configure(borderwidth="2")
    window.configure(background="#f2f3f4")

    self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3",
                font="-family {Segoe UI} -size 9",
foreground="#000000", borderwidth="0",
                text='''Enter amount to deposit :''')
    self.Label1.place(relx=0.146, rely=0.171, height=21, width=164)

    self.Entry1 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                foreground="#000000", insertbackground="black",
selectforeground="#ffffffffffff")
    self.Entry1.place(relx=0.535, rely=0.171, height=20, relwidth=0.253)

    self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                 disabledforeground="#a3a3a3", borderwidth="0",
foreground="#ffffff",
                                highlightbackground="#000000",
                                highlightcolor="black", pady="0", text='''Proceed''',
                                command=lambda: self.submit(self.Entry1.get()))
        self.Button1.place(relx=0.56, rely=0.598, height=24, width=67)

        self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                disabledforeground="#a3a3a3", font="-family {Segoe
UI} -size 9", foreground="#ffffff",
                                highlightbackground="#d9d9d9", borderwidth="0",
highlightcolor="black", pady="0",
                                text='''Back''',
                                command=self.back)
        self.Button2.place(relx=0.268, rely=0.598, height=24, width=67)

    def submit(self, amount):
        if amount.isnumeric():
            if 25000 >= float(amount) > 0:
                output = transaction(customer_accNO, float(amount), 1)
            else:
                Error(Toplevel(self.master))
                if float(amount) > 25000:
                    Error.setMessage(self, message_shown="Limit exceeded!")
                else:
                    Error.setMessage(self, message_shown="Positive value
expected!")
                return
        else:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Invalid amount!")
            return
        if output == -1:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Transaction failed!")
            return
        else:
            output = "Amount of rupees " + str(amount) + " deposited
successfully.\nUpdated balance : " + str(output)
            customerMenu.printMessage_outside(output)
            self.master.withdraw()

    def back(self):
        self.master.withdraw()


class withdrawMoney:
    def __init__(self, window=None):
        self.master = window
        window.geometry("411x117+519+278")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Withdraw money")
        p1 = PhotoImage(file='./images/withdraw_icon.png')
        window.iconphoto(True, p1)
        window.configure(borderwidth="2")
        window.configure(background="#f2f3f4")

        self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3",
                               font="-family {Segoe UI} -size 9",
foreground="#000000",
                               text='''Enter amount to withdraw :''')
        self.Label1.place(relx=0.146, rely=0.171, height=21, width=164)

        self.Entry1 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                               foreground="#000000", insertbackground="black",
selectforeground="#ffffffffffff")
        self.Entry1.place(relx=0.535, rely=0.171, height=20, relwidth=0.253)

        self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                 disabledforeground="#a3a3a3", borderwidth="0",
foreground="#ffffff",
                                 highlightbackground="#000000",
                                 highlightcolor="black", pady="0", text='''Proceed''',
                                 command=lambda: self.submit(self.Entry1.get()))
        self.Button1.place(relx=0.56, rely=0.598, height=24, width=67)

        self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                 disabledforeground="#a3a3a3", borderwidth="0",
font="-family {Segoe UI} -size 9",
                                 foreground="#ffffff",
                                 highlightbackground="#d9d9d9",
highlightcolor="black", pady="0", text='''Back''',
                                 command=self.back)
        self.Button2.place(relx=0.268, rely=0.598, height=24, width=67)

    def submit(self, amount):
        if amount.isnumeric():
            if 25000 >= float(amount) > 0:
                output = transaction(customer_accNO, float(amount), 2)
            else:
                Error(Toplevel(self.master))
                if float(amount) > 25000:
                    Error.setMessage(self, message_shown="Limit exceeded!")
                else:
```

```
                Error.setMessage(self, message_shown="Positive value
expected!")
              return
        else:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Invalid amount!")
            return
        if output == -1:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Transaction failed!")
            return
        else:
            output = "Amount of rupees " + str(amount) + " withdrawn
successfully.\nUpdated balance : " + str(output)
            customerMenu.printMessage_outside(output)
            self.master.withdraw()

    def back(self):
        self.master.withdraw()


class changePIN:
    def __init__(self, window=None):
        self.master = window
        window.geometry("411x111+505+223")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Change PIN")
        window.configure(background="#f2f3f4")

        self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                               text="'Enter new PIN:'")
        self.Label1.place(relx=0.243, rely=0.144, height=21, width=93)

        self.Label2 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                               text="'Confirm PIN:'")
        self.Label2.place(relx=0.268, rely=0.414, height=21, width=82)

        self.Entry1 = tk.Entry(window, show="*", background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                               foreground="#000000", insertbackground="black")
        self.Entry1.place(relx=0.528, rely=0.144, height=20, relwidth=0.229)

        self.Entry2 = tk.Entry(window, show="*", background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                               foreground="#000000", insertbackground="black")
        self.Entry2.place(relx=0.528, rely=0.414, height=20, relwidth=0.229)
        self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                disabledforeground="#a3a3a3", foreground="#ffffff",
borderwidth="0",
                                highlightbackground="#d9d9d9",
                                highlightcolor="black", pady="0", text="'Proceed'",
                                command=lambda: self.submit(self.Entry1.get(),
self.Entry2.get()))
        self.Button1.place(relx=0.614, rely=0.721, height=24, width=67)

        self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                disabledforeground="#a3a3a3", foreground="#ffffff",
borderwidth="0",
                                highlightbackground="#d9d9d9",
                                highlightcolor="black", pady="0", text="Back",
command=self.back)
        self.Button2.place(relx=0.214, rely=0.721, height=24, width=67)

    def submit(self, new_PIN, confirm_new_PIN):
        if new_PIN == confirm_new_PIN and str(new_PIN).__len__() == 4
and new_PIN.isnumeric():
            change_PIN(customer_accNO, new_PIN)
            self.master.withdraw()
        else:
            Error(Toplevel(self.master))
            if new_PIN != confirm_new_PIN:
                Error.setMessage(self, message_shown="PIN mismatch!")
            elif str(new_PIN).__len__() != 4:
                Error.setMessage(self, message_shown="PIN length must be 4!")
            else:
                Error.setMessage(self, message_shown="Invalid PIN!")
            return

    def back(self):
        self.master.withdraw()


class closeAccount:
    def __init__(self, window=None):
        self.master = window
        window.geometry("411x117+498+261")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Close Account")
        window.configure(background="#f2f3f4")
        self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                               text='''Enter your PIN:''')
        self.Label1.place(relx=0.268, rely=0.256, height=21, width=94)

        self.Entry1 = tk.Entry(window, show="*", background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                               foreground="#000000", insertbackground="black")
        self.Entry1.place(relx=0.511, rely=0.256, height=20, relwidth=0.229)

        self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                 disabledforeground="#a3a3a3", foreground="#ffffff",
borderwidth="0",
                                 highlightbackground="#d9d9d9",
                                 highlightcolor="black", pady="0", text='''Proceed''',
                                 command=lambda: self.submit(self.Entry1.get()))
        self.Button1.place(relx=0.614, rely=0.712, height=24, width=67)

        self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                 disabledforeground="#a3a3a3", foreground="#ffffff",
borderwidth="0",
                                 highlightbackground="#d9d9d9",
                                 highlightcolor="black", pady="0", text="Back",
command=self.back)
        self.Button2.place(relx=0.214, rely=0.712, height=24, width=67)

    def submit(self, PIN):
        print("Submit pressed.")
        print(customer_accNO, PIN)
        if check_credentials(customer_accNO, PIN, 2, False):
            print("Correct accepted.")
            delete_customer_account(customer_accNO, 2)
            self.master.withdraw()
            CustomerLogin(Toplevel(self.master))
        else:
            print("Incorrect accepted.")
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Invalid PIN!")

    def back(self):
        self.master.withdraw()
        customerMenu(Toplevel(self.master))


class checkAccountSummary:
    def __init__(self, window=None):
        self.master = window
        window.geometry("411x117+498+261")
        window.minsize(120, 1)
        window.maxsize(1370, 749)
        window.resizable(0, 0)
        window.title("Check Account Summary")
        window.configure(background="#f2f3f4")

        self.Label1 = tk.Label(window, background="#f2f3f4",
disabledforeground="#a3a3a3", foreground="#000000",
                              text='''Enter ID :''')
        self.Label1.place(relx=0.268, rely=0.256, height=21, width=94)

        self.Entry1 = tk.Entry(window, background="#cae4ff",
disabledforeground="#a3a3a3", font="TkFixedFont",
                              foreground="#000000", insertbackground="black")
        self.Entry1.place(relx=0.511, rely=0.256, height=20, relwidth=0.229)

        self.Button1 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                disabledforeground="#a3a3a3", foreground="#ffffff",
borderwidth="0",
                                highlightbackground="#d9d9d9",
                                highlightcolor="black", pady="0", text='''Proceed''',
                                command=lambda: self.submit(self.Entry1.get()))
        self.Button1.place(relx=0.614, rely=0.712, height=24, width=67)

        self.Button2 = tk.Button(window, activebackground="#ececec",
activeforeground="#000000", background="#004080",
                                disabledforeground="#a3a3a3", foreground="#ffffff",
borderwidth="0",
                                highlightbackground="#d9d9d9",
                                highlightcolor="black", pady="0", text="Back",
command=self.back)
        self.Button2.place(relx=0.214, rely=0.712, height=24, width=67)

    def back(self):
        self.master.withdraw()

    def submit(self, identity):
        if not is_valid(identity):
            adminMenu.printAccountSummary(identity)
        else:
            Error(Toplevel(self.master))
            Error.setMessage(self, message_shown="Id doesn't exist!")
            return
        self.master.withdraw()


root = tk.Tk()
top = welcomeScreen(root)
root.mainloop()
```

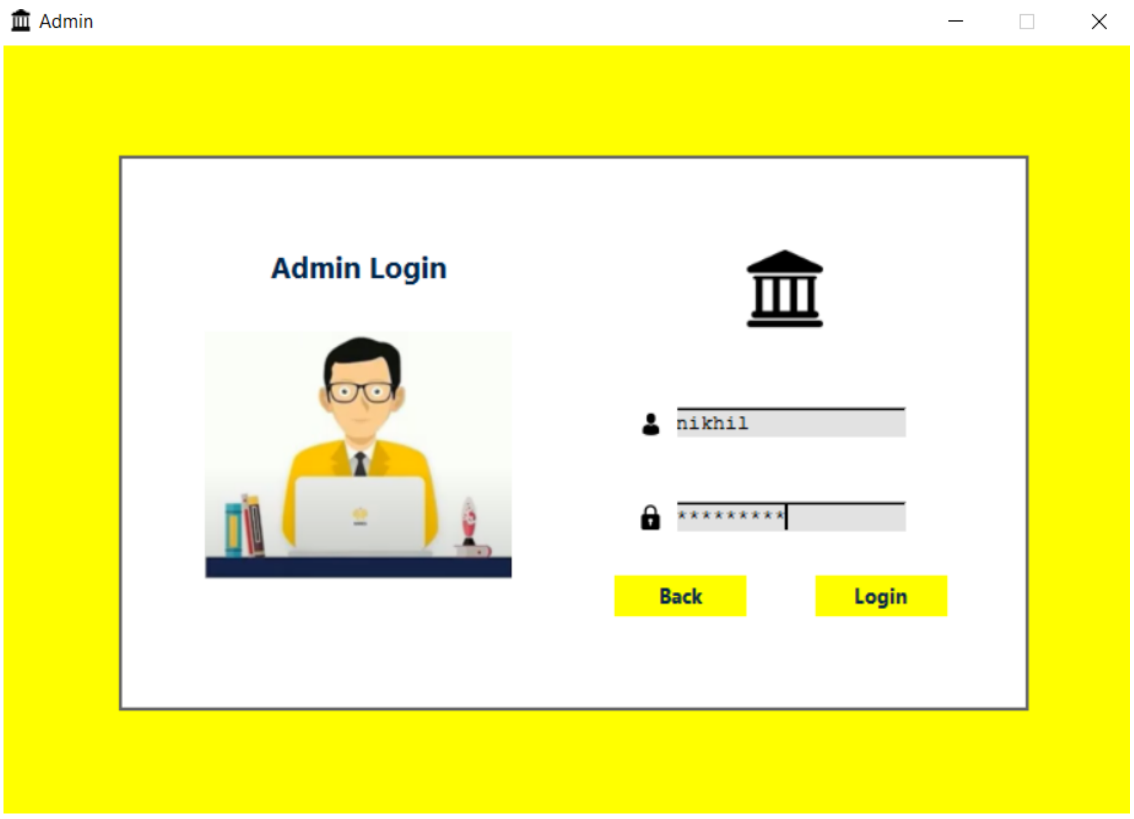
6. OUTPUT SCREENSHOTS

1.User Interface



User can login through Admin Module if the user is an Admin or login through the customer module if the user is an employee.

1.a Admin Section



nikhil

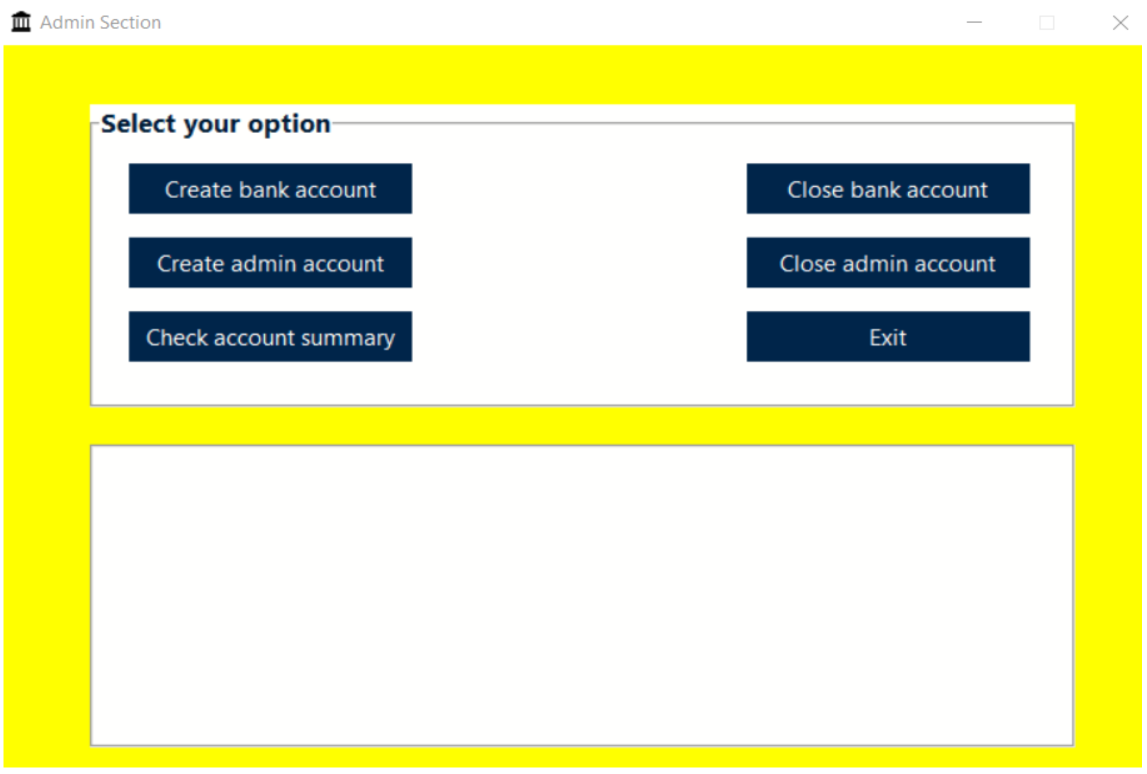
****

Login in the Admin section through the Admin Details.

1.Enter Account Number

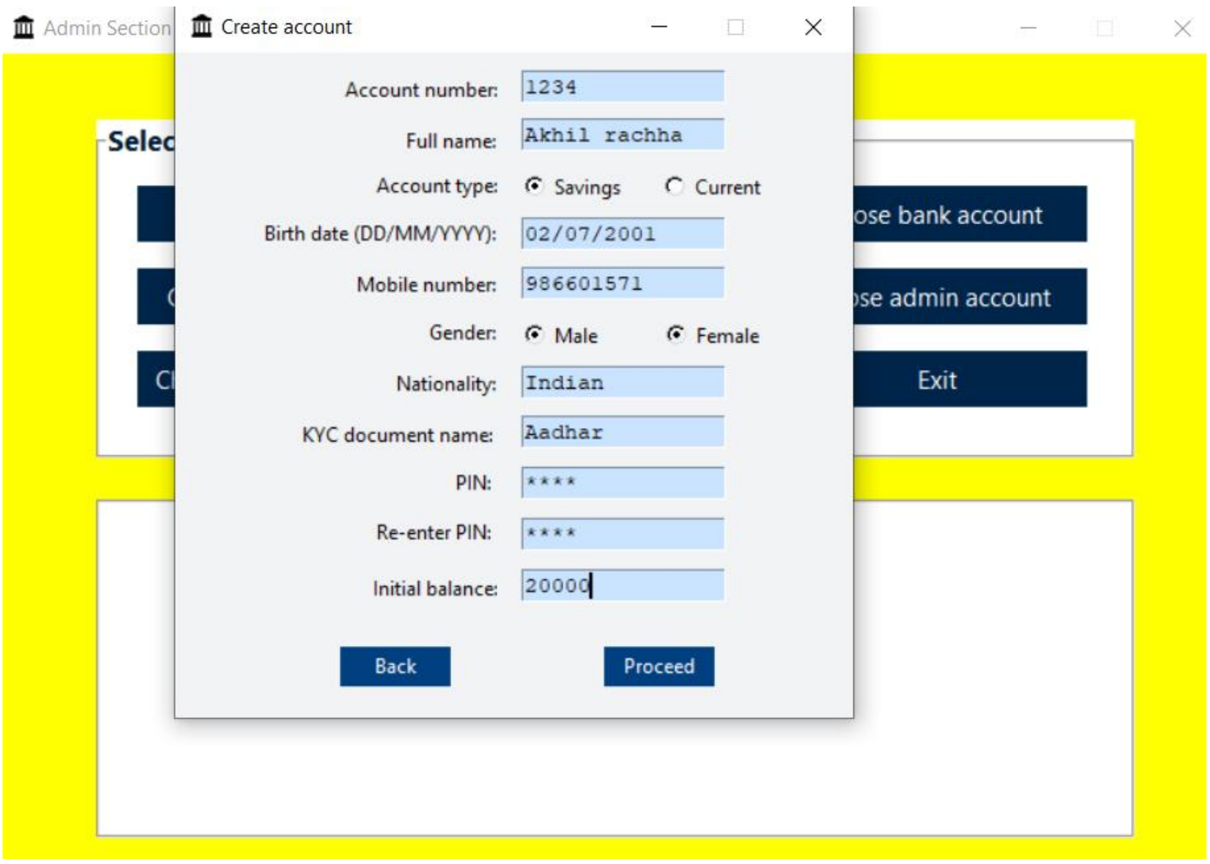
2.Enter Password.

b. Admin Section



IN THIS SECTION,WE CAN EITHER CREATE A NEW BANK ACCOUNT,ADMIN ACCOUNT,CHECK THE ACCOUNT BALANCE OF THE ACCOUNT HOLDERS AND CLOSE ANY ACCOUNT IN THE BANK.

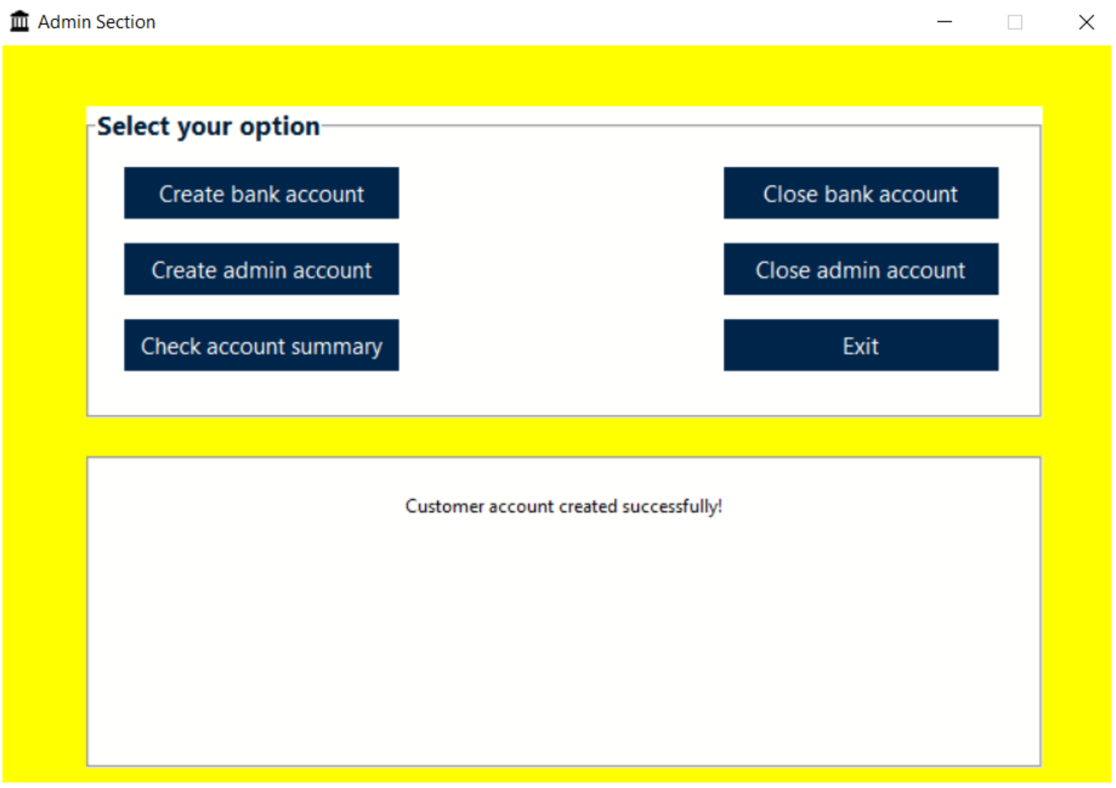
C.CREATE AN ACCOUNT



Account number:	1234
Full name:	Akhil rachha
Account type:	[✓ Savings] Current
Birth date (DD/MM/YYYY):	02/07/2001
Mobile number:	986601571
Gender:	[✓ Male] [✓ Female]
Nationality:	Indian
KYC document name:	Aadhar
PIN:	****
Re-enter PIN:	****
Initial balance:	20000

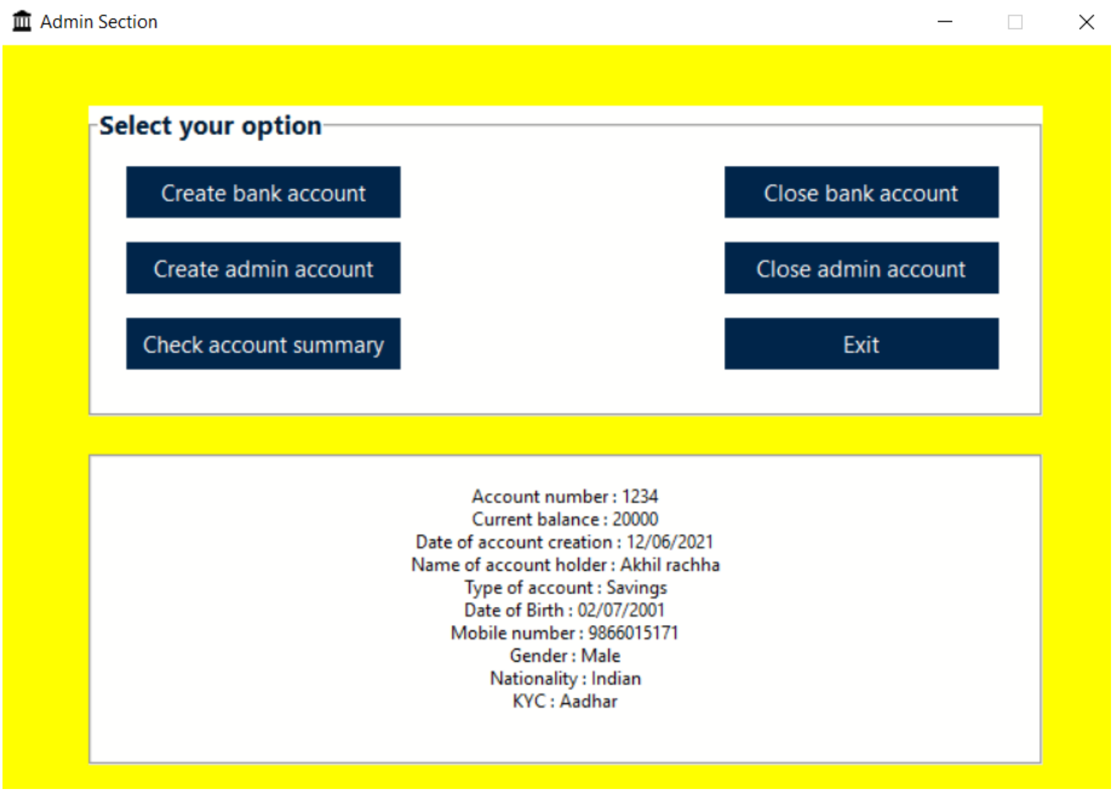
FOR CREATING A BANK ACCOUNT , ENTER ACCOUNT NUMBER,FULL NAME,DATE OF BIRTH,MOBILE NUMBER,GENDER ,NATIONALITY,KYC ,PIN AND THE ENTER THE INITIAL BALANCE TO START AN ACCOUNT IN THE BANK.

D.ACCOUNT CREATION VERIFICATION MESSAGE



Customer account created successfully!

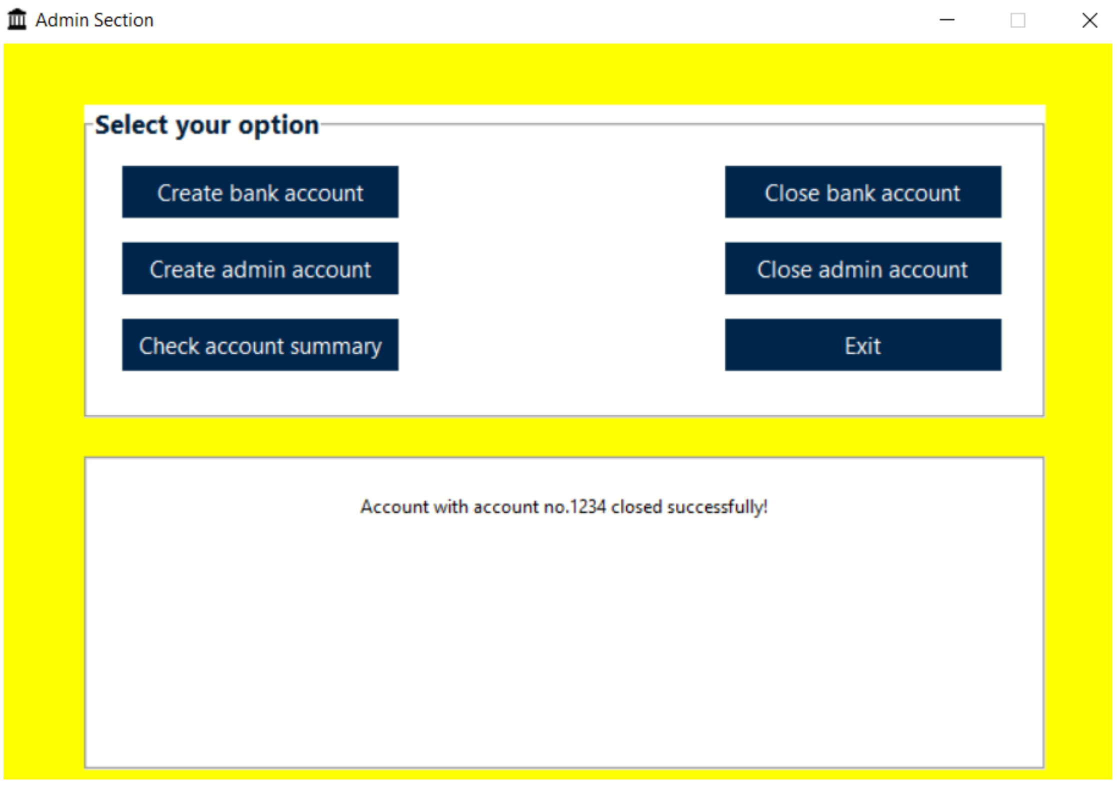
E.DISPLAY ACCOUNT DETAILS



```
Account number : 1234
Current balance : 20000
Date of account creation : 12/06/2021
Name of account holder : Akhil rachha
Type of account : Savings
Date of Birth : 02/07/2001
Mobile number : 9866015171
Gender : Male
Nationality : Indian
KYC : Aadhar
```

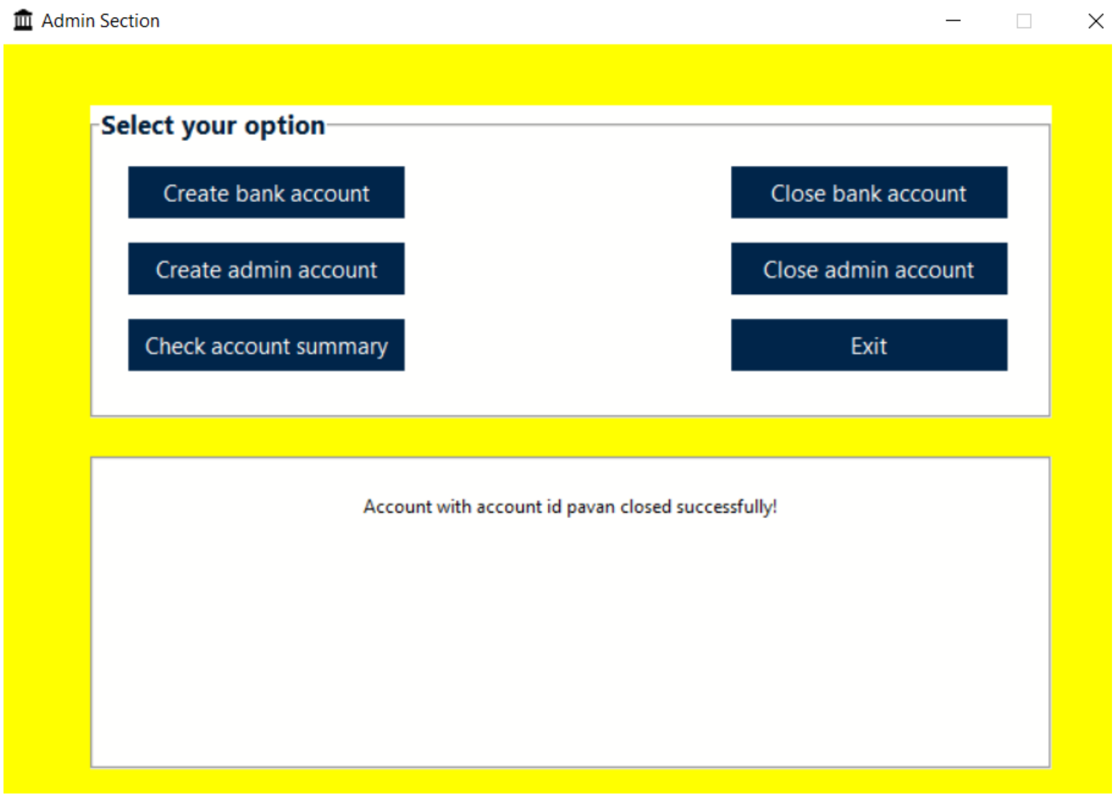
F. CLOSE AN ACCOUNT

1.CUSTOMER ACCOUNT



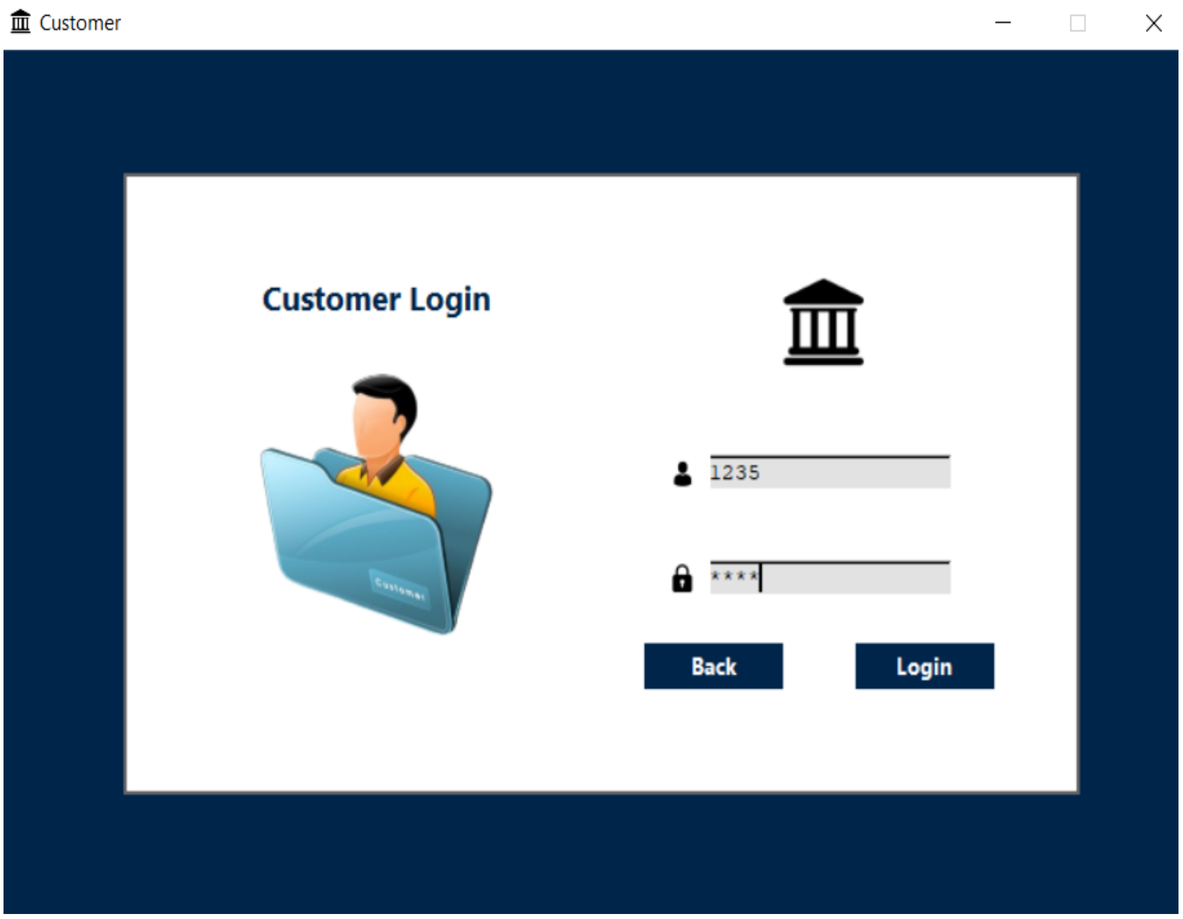
Account with account no.1234 closed successfully!

2.ADMIN ACCOUNT



Account with account id pavan closed successfully!

2.B CUSTOMER LOGIN

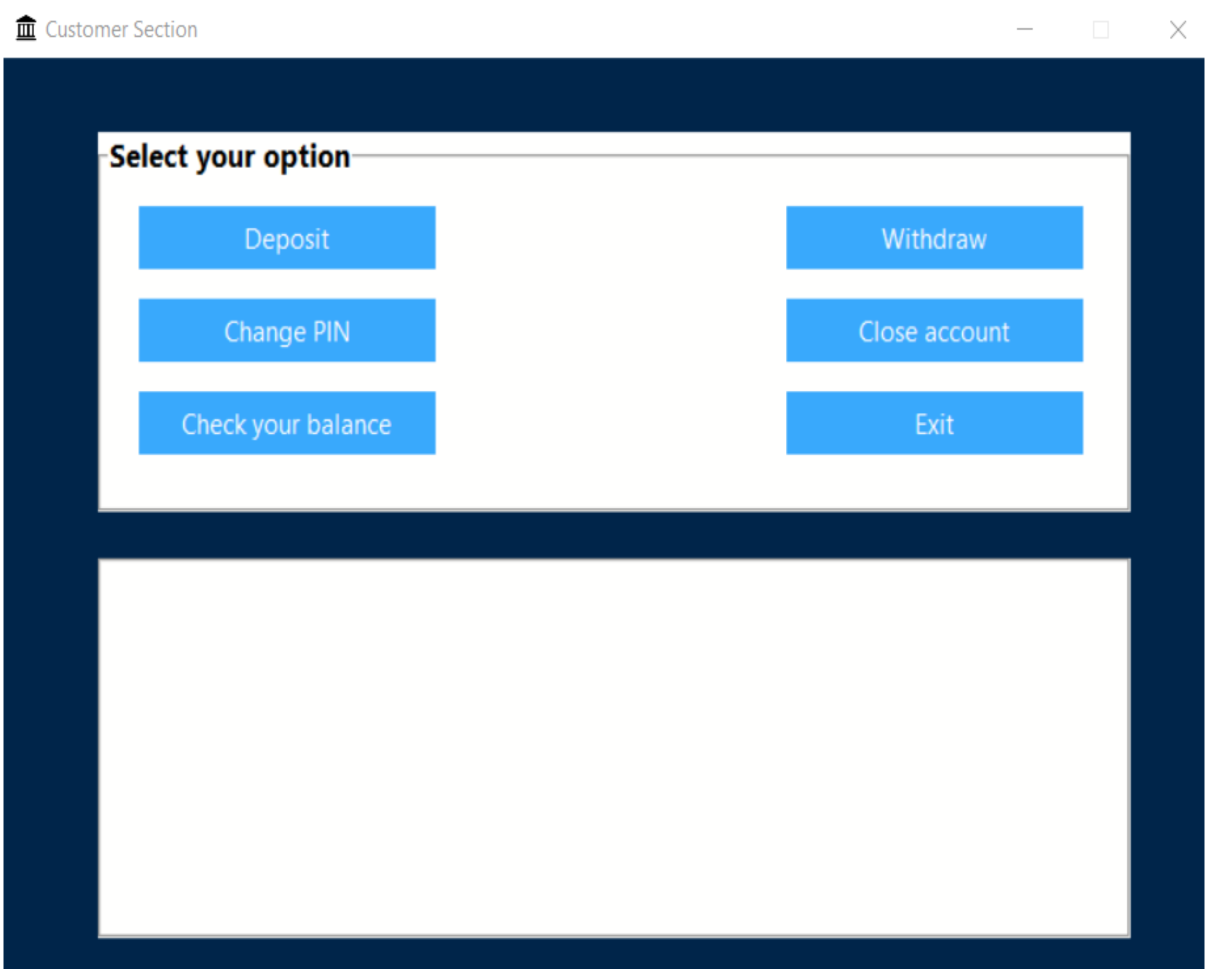


LOGIN INTO THE USER LOGIN SYSTEM BY ENTERING THE FOLLOWING DETAILS.

1.ENTER THE ACCOUNT NUMBER

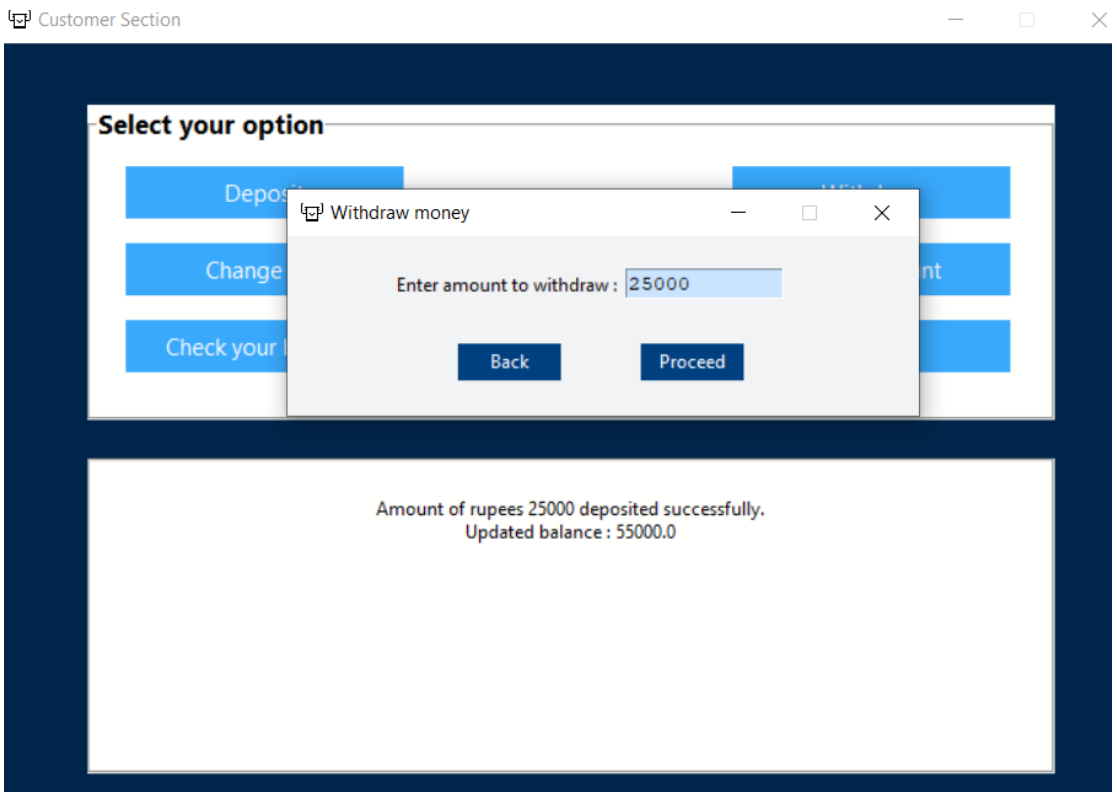
2.ENTER THE PASSWORD

A . CUSTOMER SECTION



HERE IN THE CUSTOMER SECTION,THE USER CAN EITHER DEPOSIT , WITHDRAW MONEY,CHANGE PIN , CLOSE BANK ACCOUNT AND CHECK THE BALANCE IN YOUR ACCOUNT.

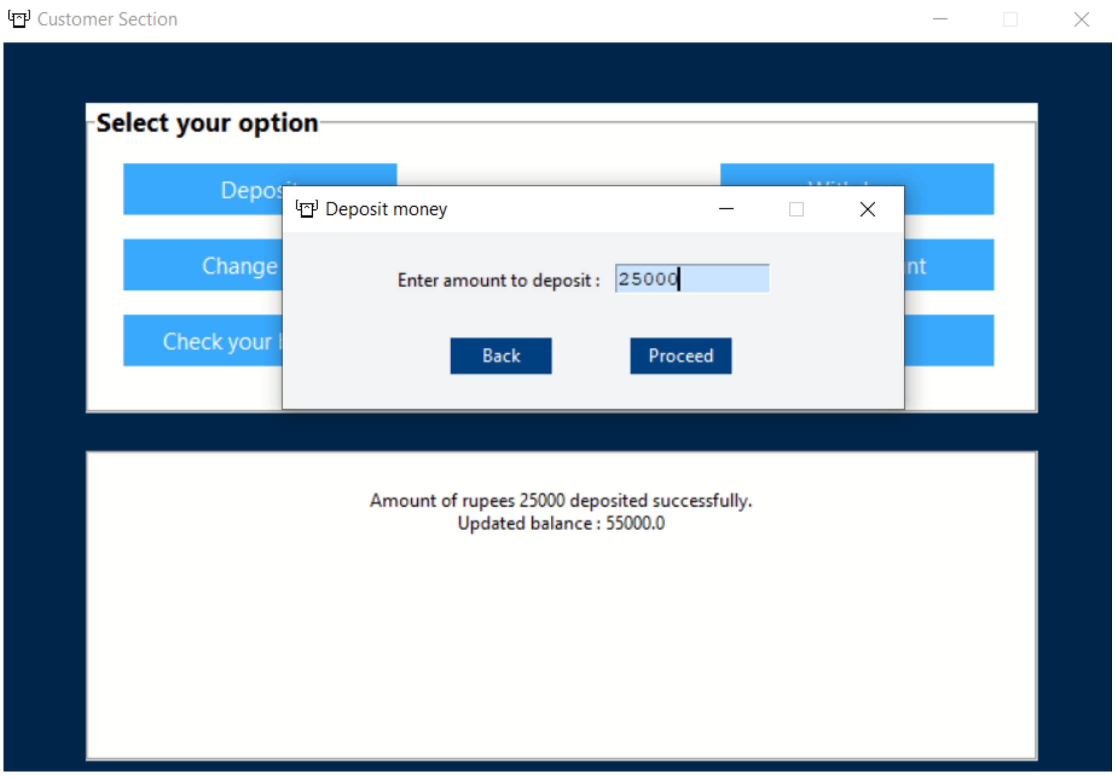
B.WITHDRAW MONEY



Enter amount to withdraw : 25000

Amount of rupees 25000 deposited successfully.
Updated balance : 55000.0

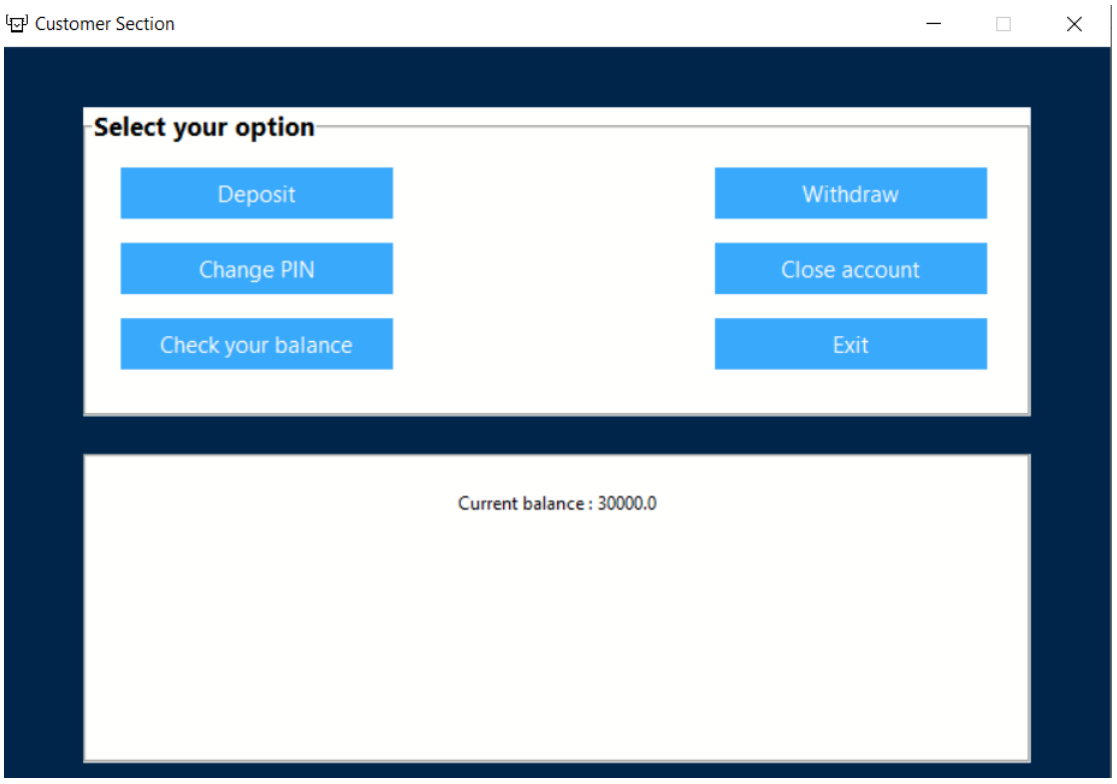
C.DEPOSIT MONEY



Enter amount to deposit : 25000

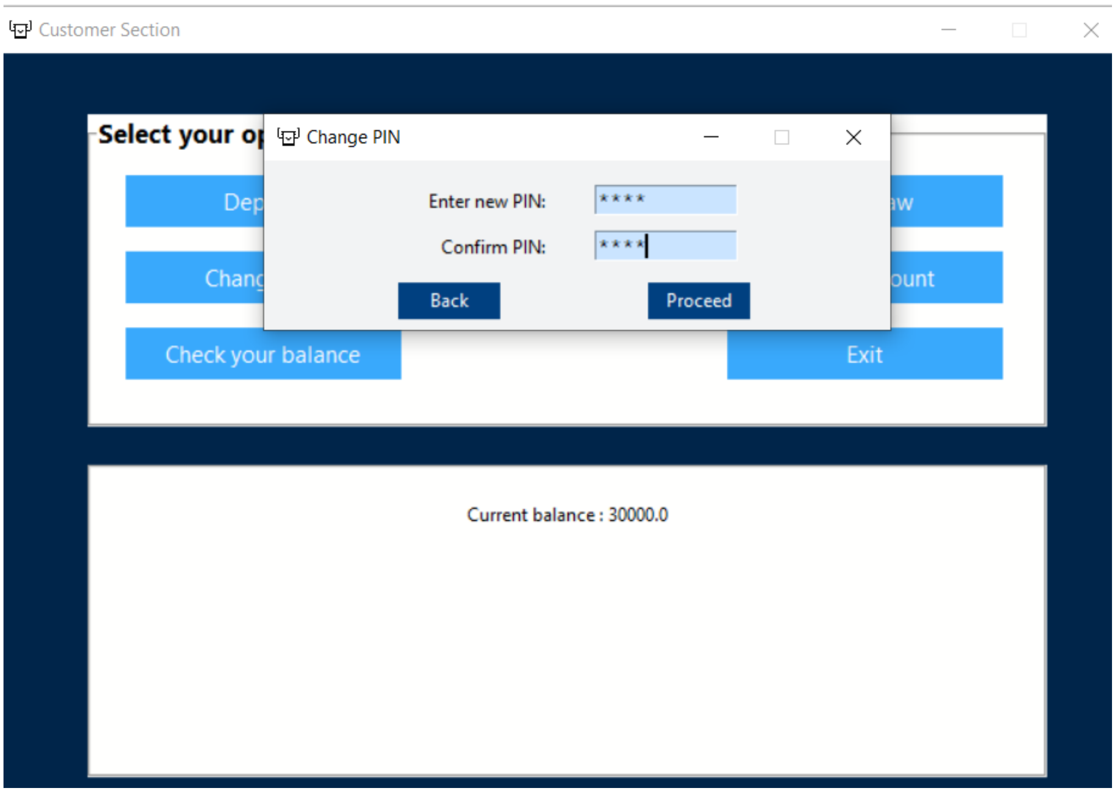
Amount of rupees 25000 deposited successfully.
Updated balance : 55000.0

D.CHECK BALANCE



Current balance : 30000.0

E.CHANGE PIN

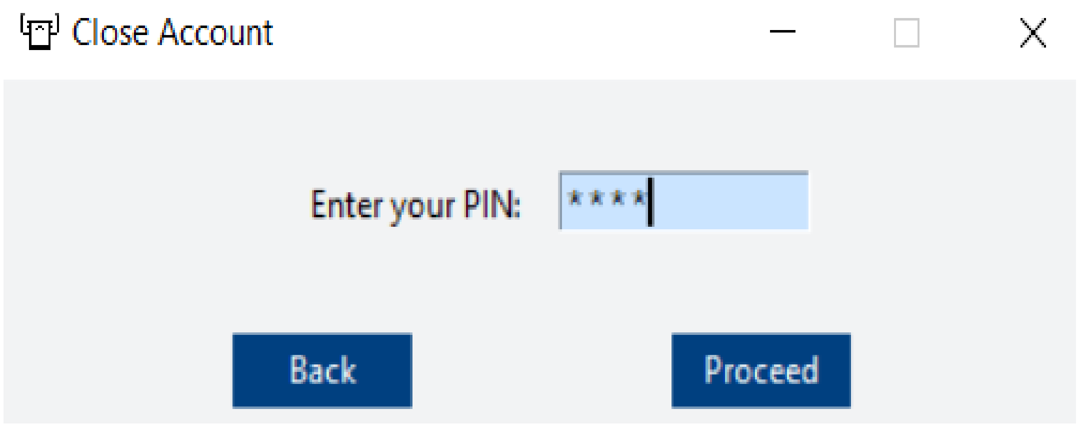


Enter new PIN: ****

Confirm PIN: ****

Current balance : 30000.0

G. CLOSE ACCOUNT



6. TECHNOLOGY USED

TKINTER:

Tkinter is a Python binding to the Tk GUI toolkit. It is the standard Python interface to the Tk GUI toolkit, and is Python's de facto standard GUI. Tkinter is included with standard Linux, Microsoft Windows and Mac OS X installs of Python. The name Tkinter comes from Tk interface.

Most of the time, tkinter is all you really need, but a number of additional modules are available as well. The Tk interface is located in a binary module named _tkinter. This module contains the low-level interface to Tk, and should never be used directly by application programmers. It is usually a shared library (or DLL), but might in some cases be statically linked with the Python interpreter.

In addition to the Tk interface module, tkinter includes a number of Python modules, tkinter.constants being one of the most important. Importing tkinter will automatically import tkinter.constants, so, usually, to use Tkinter all you need is a simple import statement:

7. ADVANTAGES

A core banking system, when implemented well, ensures accurate and error-free delivery of financial services to customers, thus adding to the banks' efficiency and performance.
Some of the most positive impacts of deploying CBS in banks:

- Makes the internal staff more competent
- Minimises human intervention thereby limiting errors
- Helps prevent frauds and thefts with real-time banking facilities
- Reduces operational costs
- Aids in studying changing customer demands
- Facilitates decision making through reporting and analytics.

8. Futures Aspects

For any system, present satisfaction is important, but it is also necessary to see and visualizes the future scope. Future enhancement is necessary for any system as the limitations that cannot be denied by anybody. These limitations can be overcome by better technologies.
In my project, records of the customers and transactions are maintained. It will be helpful for the organization and customer.

The scope of the Bank Management System extends to all the users who wish for easy banking facilities.This software product will be used for storing user’s account information and the transactions made by them.

Banking system is a way to maintain few records which bank holds in order to keep a track of everything in the bank so a software application is required in order to make the work easier, for example- maintenance of international value of INR and other currency are also a part of the job of banking system. The bank management is also required to act as the currency distributor and to serve the work for the nation’s well-being. This application is built to make it easier for the customers to track every transaction that is being made.

9.CONCLUSION

This project is developed to nuture the needs of a user in a banking sector by embedding all the tasks of transactions in a bank.

This banking system will serve as a useful approach to deposit and withdraw the money for the person.

It reduces the time taken by the user to save the money.

Banking System developed is user friendly.

It reduces manual work.

Future version of this software will still be much enhanced than the current version.Thus the bank management system it is developed and executed successfully.

10. REFERENCES

https://docs.python.org python Documentation

https://www.tkdocs.com tkinter Documentation

https://www.pythonanywhere.com, Pythonanywhere

https://www.fullstack.com/