**PYTHON ASSIGNMENT-3: Report  
Class relationships and separation of concerns**

**Banking Assignment**

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This python project describes how to use class and different functions to make a fluent program. This program was very helpful to me as we were just provided with a simple uml diagram and few rules on how to proceed with the assignment. First I studied all the instruction provided in the word document to mark the requirements asked by the assignment. After reading the word document clearly moved on to the uml part which asks to create specific classes and functions. Studying uml part felt like a case study to me where we had to analyse what we are supposed to after getting all the requirements I noted them down on a piece of paper. Moving on to coding part first I created the raw structure of code including all the classes, functions and methods. This part was still confusing to me to the point where I had to ask Mr. Asif to clear my doubts for which he was very helpful to me and towards solving all my problems. After clearing my doubts I first started with making class and initialisations.

#my program Bank

li=[]

class Account:

    def  \_\_init\_\_(self, accountno, accountholdername, openingbalance, currentbalance) :

        self.accountno = accountno

        self.accountholdername = accountholdername

        self.openingbalance=openingbalance

        self.rateofinterest = 4

        self.currentbalance = currentbalance

        self.deposit=0

        self.withdrawl=0

After doing that we move on to the next part where we take inputs from user regarding his account number with the condition being that account number cannot be blank.

##  Gets the Account number

    def getAccountNo(self):

        self.accountno = input("Enter your Account no. :")

        if self.accountno=='' :

            print("account no cannot be blank")

        return self.accountno

Next phase is asking the account holders name by the user for opening his new bank account

 ##gets account holders name

    def getAccountHolderName(self):

        self.accountholdername = input("Enter your Account Name. :")

        if self.accountholdername=='' :

            print("account holder name cannot be blank")

        return self.accountholdername

Next user is asked for opening balance for account since every new account needs a opening balance it is a important detail for further processes.

##asks for opening balance

    def getOpeningBalance(self):

        self.openingbalance= float(input("Enter A/c Opening Balalance. :"))

        if self.openingbalance==0 :

            print("account opening balance cannot be 0")

        return self.openingbalance

Moving on to the next part which is rate of interest in the bank which is set by bank initially

#asks for roi details

    def getRateOfInterest(self):

        self.rateofinterest = 10

        return self.rateofinterest

Now since sometimes user wants to check current balance this program also allows that service as well.

  #displays the current balance

    def getCurrentBalance(self):

        self.currentbalance = self.openingbalance + self.deposit - self.withdrawl

        return self.currentbalance

Then we move on to part where user wants to deposit the amount of money which he?she wishes to but depositing amount cannot be empty if so it will ask user again to enter the correct anmount of money to be deposited.

#deposists the money

    def Deposit(self) :

        self.deposit = float(input("Enter amount to deposit:"))

        if self.deposit<=0 :

            print("account deposit cannot be 0")

        if self.deposit >800 :

            print("Amount is being overdrafted")

        return self.deposit

Moving on to the next part where program asks user if wants to withdraw money from the bank, If so then it asks the amount to be deposited which cannot be 0 or more than 800 since its against the banks policy and is for users own safety.

 #for withrawal inputs by user

    def Withdrawl(self) :

        self.withdrawl = float(input("Enter amount to withdraw:"))

        if self.withdrawl<=0 :

            print("account withdrawal amount cannot be <0 ")

        if self.withdrawl >800 :

            print("Amount is being overdrafted")

        return self.withdrawl

In this part where it just shows the details that are being entered by the user regarding his bank account. This part is important for users own clarification.

 #this diplays the data entered by the user

    def dispData(self):

         print("Account information")

         print("===================")

         print("Account no      :",self.accountno)

         print("Account Name    :",self.accountholdername)

         print("Opening Balance :",self.openingbalance)

         print("Deposits        :",self.deposit)

         print("withdrawals     :",self.withdrawl)

         print("Account Balance :",self.currentbalance)

         print(li)

Calling all everything by making objects.

 #creating objects for all of them

ob1 = Account("","",0,0)

ob4 = ChecquingAccount()

ob3 = SavingsAccount()

Now making the main menu that help user ask what kind of service is being requested by the bank with 8 different choices this part helps user to navigate and withdraw or deposit the money of just see all of users account details.

#MAIN MENU

while True :

    print("Bank Account Information")

    print("=====================")

    print("1.get Account no.")

    print("2.get Account Holder")

    print("3.get Opeing Balance")

    print("4.get Deposits")

    print("5.get Withdrawals")

    print("6.Check Current Balance")

    print("7.Display Account info.")

    print("8.Shutdown")

    print("")

Since this program is not pre defined data entered system it is purely user input based as asked in the bonus part of the object so we will need to store that data for which we will use .append method to store lists.

  ans = int(input("Enter your Choice : 1-8 :"))

    if ans == 1 :

       ob1 = Account("","",0,0)

       while True :

        accno = ob1.getAccountNo()

        accname= ob1.getAccountHolderName()

        opbal = ob1.getOpeningBalance()

        currbal=opbal

        li.append(accno)

        li.append(accname)

        li.append(opbal)

        li.append(currbal)

        li.append(4)

        print(li)

After all the services being fulfilled program asks user if they wish to use banks service again with 2 option y or n where y means ye and no means ending the program. It also displays a text saying thanks to user on the behalf of the bank for using the their service.

Next is all the options that user wants to choose for which number 1 to 8 are used with if else method being used to take the users choice

    #CHOICES BY THE USER

    if ans == 2 :

       ob1.getAccountHolderName()

    if ans == 3 :

       ob1.getOpeningBalance()

    if ans == 4 :

       ob4.Deposit()

    if ans == 5 :

       ob3.Withdrawl()

    if ans == 6 :

       ob1.getCurrentBalance()

    if ans == 7 :

        print("your balance:", ob1.getCurrentBalance())

       #ob1.dispData()

    if ans == 8 :

        mclos = input("close application :y/n :")

        if mclos =='y' :

            break

#over

And ending the program

This program is 147 lines of code with time being taken around 2hours and 47 minutes this process had to be rushed since all of my disks memory was wiped and had to start coding again but since all of my concepts were clear and I actually remembered the code and all the variable and functions that I used and there were also few screenshots but still I was able to finish this code in time and the code is running properly.