

Aayush Shah

D1 - 19BCE245

20 March 2021

Practical 4

- A. Define a class Bank that keeps track of bank customers. The class should contain the following data member...

Code :

```
1. class Bank:
2.     def __init__(self, name, accountNum, type, amount):
3.         self.name = name
4.         self.accountNum = accountNum
5.         self.type = type
6.         self.amount = amount
7.         self.interest = self.findInterest()
8.
9.     def deposit(self, dep_money):
10.        self.amount += dep_money
11.
12.    def withdrawal(self, wit_money):
13.        self.amount -= wit_money
14.
15.    def findInterest(self):
16.        if(self.amount < 100000):
17.            return (self.amount*.03)
18.        elif(self.amount < 300000):
19.            return (self.amount*.05)
20.        elif(self.amount < 500000):
21.            return (self.amount*.07)
22.        else:
23.            return (self.amount*.08)
24.
25.    def details(self):
26.        print("Name : ",self.name)
27.        print("Account number : ",self.accountNum)
28.        print("Account type : ",self.type)
```

```
29.         print("Interest : ",self.interest)
30.
31. if __name__ == "__main__":
32.     customer1 = Bank("Aayush", 1234, "Savings", 200000)
33.     customer1 = Bank(str(input("Enter name : ")),
        int(input("Enter account number : ")), str(input("Enter
        account type : ")), int(input("Enter amount : ")))
34.
35. while (True):
36.     print("MENU : ")
37.     print("\t[1.] Account details")
38.     print("\t[2.] Check Balance")
39.     print("\t[3.] Deposit amount")
40.     print("\t[4.] Withdraw amount")
41.     print("\t[5.] Exit")
42.     choice = int(input("Enter choice : "))
43.     if(choice == 1):
44.         customer1.details()
45.     elif(choice == 2):
46.         print("Current Balance : ",customer1.amount)
47.     elif(choice == 3):
48.         customer1.deposit(float(input("Enter amount :
        "))))
49.         print("Updated balance : ",customer1.amount)
50.     elif(choice == 4):
51.         customer1.withdrawal(float(input("Enter
        amount : ")))
52.         print("Updated balance : ",customer1.amount)
53.     elif(choice == 5):
54.         print("Thank you!")
55.         break
56.     else:
57.         print("Invalid choice :(")
```

Output :

```
Enter name : Aayush
Enter account number : 1234
Enter account type : Savings
Enter amount : 10000
MENU :
    [1.] Account details
    [2.] Check Balance
    [3.] Deposit amount
    [4.] Withdraw amount
    [5.] Exit
Enter choice : 1
Name : Aayush
Account number : 1234
Account type : Savings
Interest : 300.0
MENU :
    [1.] Account details
    [2.] Check Balance
    [3.] Deposit amount
    [4.] Withdraw amount
    [5.] Exit
Enter choice : 2
Current Balance : 10000
MENU :
    [1.] Account details
    [2.] Check Balance
    [3.] Deposit amount
    [4.] Withdraw amount
    [5.] Exit
Enter choice : 3
Enter amount : 100
Updated balance : 10100.0
MENU :
    [1.] Account details
    [2.] Check Balance
    [3.] Deposit amount
    [4.] Withdraw amount
    [5.] Exit
Enter choice : 4
Enter amount : 300
Updated balance : 9800.0
MENU :
    [1.] Account details
    [2.] Check Balance
    [3.] Deposit amount
    [4.] Withdraw amount
    [5.] Exit
Enter choice : 5
Thank you!
```

Run Succeeded | Time 72 ms | Peak Memory 7.5M

f __init__ | Tabs: 4 | 1 Character

- B. Define a base class Person, having attributes name, birthdate and city. Define the class Student that derives from Person class which is having attributes like ...

Code :

```
1. import abc
2.
3. class Person():
4.     def __init__(self, name, birthdate, city):
5.         self.name = name
6.         self.birthdate = birthdate
7.         self.city = city
8.     def percentage(self):
9.         pass
10.
11. class Student(Person, abc.ABC):
12.     def
13.         __init__(self, name, birthdate, city, rollno, branch, year, marks):
14.             self.rollno = rollno
15.             self.branch = branch
16.             self.year = year
17.             self.marks = marks
18.             super().__init__(name, birthdate, city)
19.     @abc.abstractmethod
20.     def percentage(self):
21.         pass
22.
23. class Grad(Student):
24.     def
25.         __init__(self, name, birthdate, city, rollno, branch, year, marks):
26.             super().__init__(name, birthdate, city, rollno, branch, year, marks)
27.             self.total_marks = 600
28.     def percentage(self):
```

```
28.#         str_for_input = "Enter total marks out of " +
           str(self.total_marks) + " : "
29.#         marks = float(input(str_for_input))
30.         return ((self.marks/self.total_marks)*100)
31.
32.class PostGrad(Student):
33.     def
34.         __init__(self,name,birthdate,city,rollno,branch,year,marks):
35.             super().__init__(name,birthdate,city,rollno,branch,year,mark
s)
36.             self.total_marks = 400
37.     def percentage(self):
38.#         str_for_input = "Enter total marks out of " +
           str(self.total_marks) + " : "
39.#         marks = float(input(str_for_input))
40.         return ((self.marks/self.total_marks)*100)
41.
42.if __name__ == "__main__":
43.    list_of_student = []
44.    while True:
45.        print("\nMENU : ")
46.        print("[1.] Add Student of PostGrad")
47.        print("[2.] Add Student of Grad")
48.        print("[3.] Show data")
49.        print("[4.] Exit")
50.        choice = int(input("Enter choice : "))
51.        if (choice == 1):
52.            student = PostGrad(str(input("Enter name : ")),
str(input("Enter birthdate : ")), str(input("Enter city :
")), str(input("Enter roll number : ")), str(input("Enter
branch : ")), int(input("Enter year of study : ")),
float(input("Enter total_marks obtained out of 400 : ")))
53.            list_of_student.append(student)
54.        elif (choice == 2):
55.            student = Grad(str(input("Enter name : ")),
str(input("Enter birthdate : ")), str(input("Enter city :
")), str(input("Enter roll number : ")), str(input("Enter
branch : ")), int(input("Enter year of study : ")),
float(input("Enter total_marks obtained out of 600 : ")))
56.            list_of_student.append(student)
57.        elif(choice == 3):
58.            print("Stored data : ")
59.            for i in list_of_student:
60.                print(i)
61.            print("\n")
62.        elif(choice == 4):
63.            break
```

```
58.         for student in list_of_student:
59.             print("Name : ",student.name)
60.             print("BirthDate : ",student.birthdate)
61.             print("City : ",student.city)
62.             print("Roll Number : ",student.rollno)
63.             print("Branch : ",student.branch)
64.             print("Year : ",student.year,)
65.             print("Percentage : 
",round(student.percentage(),2),"\n")
66.         elif(choice == 4):
67.             print("Thank you !")
68.             break
69.         else:
70.             print("Invalid choice :(")
```

Output :

```
MENU :
[1.] Add Student of PostGrad
[2.] Add Student of Grad
[3.] Show data
[4.] Exit
Enter choice : 1
Enter name : Aayush
Enter birthdate : 08/12/2000
Enter city : Vadodara
Enter roll number : 245
Enter branch : CSE
Enter year of study : 2
Enter total_marks obtained out of 400 : 300

MENU :
[1.] Add Student of PostGrad
[2.] Add Student of Grad
[3.] Show data
[4.] Exit
Enter choice : 2
Enter name : Random
Enter birthdate : 12/1/2001
Enter city : Surat
Enter roll number : 542
Enter branch : MECH
Enter year of study : 1
Enter total_marks obtained out of 600 : 300


MENU :
[1.] Add Student of PostGrad
```

```
[2.] Add Student of Grad
[3.] Show data
[4.] Exit
Enter choice : 3
Stored data :
Name : Aayush
BirthDate : 08/12/2000
City : Vadodara
Roll Number : 245
Branch : CSE
Year : 2
Percentage : 75.0

Name : Random
BirthDate : 12/1/2001
City : Surat
Roll Number : 542
Branch : MECH
Year : 1
Percentage : 50.0

MENU :
[1.] Add Student of PostGrad
[2.] Add Student of Grad
[3.] Show data
[4.] Exit
Enter choice : 4
Thank you !
```

✓ Run Succeeded | Time 65 ms | Peak Memory 7.4M

 __init__ | Tabs: 4 | Line 22, Column 9