CO4 Programs

1. Create Rectangle class with attributes length and breadth and methods to find area and perimeter. Compare two Rectangle objects by their area.

class Rectangle:

def \_\_init\_\_(self,l,b):

self.l=l

self.b=b

self.area=self.l\*self.b

self.p=2\*(self.l+self.b)

def display(self):

print("Area:",self.area)

print("Perimeter:",self.p)

p1=Rectangle(3,2)

p2=Rectangle(2,4)

print("R1")

p1.display()

print("R2")

p2.display()

if p1.area>p2.area:

print(" Rectangle with area ",p1.area,"is larger")

else:

print(" Rectangle with area ",p2.area,"is larger")

Output

R1

Area: 6

Perimeter: 10

R2

Area: 8

Perimeter: 12

Rectangle with area 8 is larger

2. Create a Bank account with members account number, name, type of account and balance. Write constructor and methods to deposit at the bank and withdraw an amount from the bank.

class bank:

bal=0

def \_\_init\_\_(self,accno,name,ac\_type,bal):

self.accno=accno

self.name=name

self.ac\_type=ac\_type

self.bal=bal

def display(self):

print("\nAccount info:")

print("Account number:",self.accno)

print("Account name:",self.name)

print("Account type:",self.ac\_type)

print("Account balance:",self.bal)

def deposit(self):

dep=int(input("Enter amount deposit:"))

self.bal=self.bal+dep

def withdraw(self):

w=int(input("Enter amount withdraw:"))

if w > self.bal:

print("Insufficient Balance")

else:

self.bal=self.bal-w

print("Rs",w,"Successfully Withdrawn")

acc\_no=int(input("Enter Account Number:"))

acc\_name=input("Enter name:")

acc\_type=input("Enter account type(savings/current):")

balance=int(input("Enter initial balance:"))

b1=bank(acc\_no,acc\_name,acc\_type,balance)

while(1):

print("\n1.Account info\n2.Deposit\n3.Withdraw\n4.Exit")

opt=int(input("Select your option:"))

if opt == 1:

b1.display()

elif opt == 2:

b1.deposit()

elif opt == 3:

b1.withdraw()

elif opt == 4:

print("Exit")

break

else:

print("Invalid Option")

Output

1.Account info

2.Deposit

3.Withdraw

4.Exit

Select your option:1

Account info:

Account number: 12467932

Account name: Devu

Account type: current

Account balance: 50000

1.Account info

2.Deposit

3.Withdraw

4.Exit

Select your option:2

Enter amount deposit:2000

1.Account info

2.Deposit

3.Withdraw

4.Exit

Select your option:3

Enter amount withdraw:2000

Rs 2000 Successfully Withdrawn

1.Account info

2.Deposit

3.Withdraw

4.Exit

Select your option:1

Account info:

Account number: 12467932

Account name: Devu

Account type: current

Account balance: 50000

1.Account info

2.Deposit

3.Withdraw

4.Exit

3. Create a class Rectangle with private attributes length and width. Overload ‘<’ operator to compare the area of 2 rectangles.

class rectangle:

def \_\_init\_\_(self,l,b):

self.\_\_length=l

self.\_\_breadth=b

def area(self):

self.area=self.\_\_length\*self.\_\_breadth

print("Area=",self.area)

def \_\_lt\_\_(self,second):

if self.area < second.area:

return True

else:

return False

print("first Rectangle:")

len1=int(input("Enter the length:"))

bread1=int(input("Enter the breadth:"))

obj1=rectangle(len1,bread1)

obj1.area()

print("\nSecond Rectangle:")

len2=int(input("Enter the length:"))

bread2=int(input("Enter the breadth:"))

obj2=rectangle(len2,bread2)

obj2.area()

if obj1 < obj2 :

print("\nArea of second rectangle is larger:")

else:

print("\nArea of first rectangle is larger:")

Output

First Rectangle

Enter the length:6

Enter the breadth:7

Area= 42

Second Rectangle

Enter the length:4

Enter the breadth:9

Area= 36

Area of first rectangle is larger

4. Create a class Time with private attributes hour, minute and second. Overload ‘+’ operator to find sum of 2 time.

class Time:

def \_\_init\_\_(self,hour,minute,second):

self.\_\_hour=hour

self.\_\_minute=minute

self.\_\_second=second

def \_\_add\_\_(self,a2):

second=self.\_\_second+a2.\_\_second

minute=self.\_\_minute+a2.\_\_minute

hour=self.\_\_hour+a2.\_\_hour

if(second>60):

second=second-60

minute=minute+1

if(minute>60):

minute=minute-60

hour=hour+1

return hour,minute,second

print("Enter time1:")

h1=int(input("hour:"))

m1=int(input("minute:"))

s1=int(input("second"))

t1=Time(h1,m1,s1)

print("Enter time2:")

h2=int(input("hour:"))

m2=int(input("minute:"))

s2=int(input("second"))

t2=Time(h2,m2,s2)

hr,min,sec=t1+t2

print(hr,end=":")

print(min,end=":")

print(sec,end=" ")

Output

Enter time1:

hour:12

minute:27

second38

Enter time2:

hour:11

minute:45

second23

24:13:1

5. Create a class Publisher (name). Derive class Book from Publisher with attributes title and author. Derive class Python from Book with attributes price and no\_of\_pages. Write a program that displays information about a Python book. Use base class constructor invocation and method overriding.

class publisher:

def \_\_init\_\_(self,title,author):

self.title=title

self.author=author

def display(self):

print("Title:",self.title)

print("Author:",self.author)

class book(publisher):

def \_\_init\_\_(self,price,no\_of\_page):

self.price=price

self.no\_of\_page=no\_of\_page

def display(self):

print("Price:",self.price)

print("No. of Pages:",self.no\_of\_page)

class python(book):

def \_\_init\_\_(self,title,author,price,no\_of\_page):

publisher.\_\_init\_\_(self,title,author)

book.\_\_init\_\_(self,price,no\_of\_page)

def display(self):

print("Title:",self.title)

print("Author:",self.author)

print("Price:",self.price)

print("No. of Pages:",self.no\_of\_page)

p=python("Python Programming","ezhuthachan",1000,1000)

p.display()

output:

Title: Python Programming

Author: ezhuthachan

Price: 1000

No. of Pages: 1000