**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.

PROGRAM:

class rectangle:

def \_\_init\_\_(self,le,br):

self.le=le

self.br=br

def area(self):

ar=self.le\*self.br

return(ar)

def perimeter(self):

pr=2\*(self.le+self.br)

return(pr)

print("First rectangle")

l1=int(input("Enter the length :"))

b1=int(input("Enter the breadth :"))

p1=rectangle(l1,b1)

print("Area=",p1.area())

print("Perimeter=",p1.perimeter())

print("---------------------")

print("Second rectangle")

l2=int(input("Enter the length :"))

b2=int(input("Enter the breadth :"))

p2=rectangle(l2,b2)

print("Area=",p2.area())

print("Perimeter=",p2.perimeter())

if(p1.area()>p2.area()):

print("Rectangle 1 area is large")

else:

print("Rectangle 2 area is large")

OUTPUT:

First rectangle

Enter the length :2

Enter the breadth :4

Area= 8

Perimeter= 12

---------------------

Second rectangle

Enter the length :3

Enter the breadth :6

Area= 18

Perimeter= 18

Rectangle 2 area is large

1. 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.

PROGRAM:

class bank:

def \_\_init\_\_(self,an,name,tp,bal=0):

self.an=an

self.name=name

self.tp=tp

self.bal=bal

def deposit(self,bal):

self.bal=self.bal+bal

def withdraw(self,bal):

if(bal<self.bal):

self.bal=self.bal-bal

else:

print("Insufficient Balance")

def dis(self):

print("Name:",self.name)

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

print("Account Type:",self.tp)

print("Balance Ammount:",self.bal)

an=int(input("Enter the account number: "))

name=input("Enter the name: ")

tp=input("Enter Account type:(AC/C)")

bn=bank(an,name,tp)

print("Enter your option: ")

print("1.Deposit")

print("2.Withdraw")

print("3.Display")

print("4.Exit")

while(True):

opt=input("Enter your option: ")

if(opt=='1'):

print("deposit")

am=int(input("Enter the amount to deposit: "))

bn.deposit(am)

elif(opt=='2'):

print("withdraw")

am1=int(input("Enter the amount to withdraw: "))

bn.withdraw(am1)

elif(opt=='3'):

bn.dis()

elif(opt=='4'):

break

else:

print("Invalid Input")

OUTPUT:

Enter the account number: 123

Enter the name: Anandhu

Enter Account type:(AC/C)AC

Enter your option:

1.Deposit

2.Withdraw

3.Display

4.Exit

Enter your option: 1

deposit

Enter the amount to deposit: 1000

Enter your option: 3

Name: Anandhu

Account number: 123

Account Type: AC

Balance Ammount: 1000

Enter your option: 2

withdraw

Enter the amount to withdraw: 500

Enter your option: 3

Name: Anandhu

Account number: 123

Account Type: AC

Balance Ammount: 500

Enter your option: 2

withdraw

Enter the amount to withdraw: 550

Insufficient Balance

Enter your option: 4

1. Create a class Rectangle with private attributes length and width. Overload “<”operator to compare the area of 2 rectangles.

PROGRAM:

class rect:

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

self.\_\_l=l

self.\_\_b=b

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

a1=self.\_\_l\*self.\_\_b

a2=a.\_\_l\*a.\_\_b

if(a1<a2):

return(True)

print("recatngle1")

l1=int(input("Enter the length: "))

b1=int(input("Enter the breadth: "))

print("recatngle2")

l2=int(input("Enter the length: "))

b2=int(input("Enter the breadth: "))

ar1=rect(l1,b1)

ar2=rect(l2,b2)

if(ar1<ar2):

print("rect1 area less")

else:

print("rect2 area less")

OUTPUT:

recatngle1

Enter the length: 4

Enter the breadth: 6

recatngle2

Enter the length: 2

Enter the breadth: 5

rect2 area less

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

PROGRAM:

class time:

def \_\_init\_\_(self,hr,mt,sec):

self.\_\_hr=hr

self.\_\_mt=mt

self.\_\_sec=sec

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

h=self.\_\_hr+a.\_\_hr

m=self.\_\_mt+a.\_\_mt

if(m>60):

q=int(m/60)

r=m%60

h=h+q

m=r

s=self.\_\_sec+a.\_\_sec

if(s>60):

q1=int(s/60)

r1=s%60

m=m+q1

s=r1

print("Added Time is:")

print(h,":",m,":",s)

print("Time 1")

h1=int(input("Enter Hour: "))

m1=int(input("Enter Minute: "))

s1=int(input("Enter Second: "))

tm1=time(h1,m1,s1)

print("Time 2")

h2=int(input("Enter Hour: "))

m2=int(input("Enter Minute: "))

s2=int(input("Enter Second: "))

tm2=time(h2,m2,s2)

tm1+tm2

OUTPUT:

Time 1

Enter Hour: 2

Enter Minute: 45

Enter Second: 33

Time 2

Enter Hour: 3

Enter Minute: 44

Enter Second: 22

Added Time is:

6 : 29 : 55

1. 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.

PROGRAM:

class publisher:

def \_\_init\_\_(self,name):

self.name=name

def display1(self):

print("Publisher:",self.name)

class book(publisher):

def TA(self,title,author):

self.title=title

self.author=author

def display1(self):

print("Title:",self.title)

print("Author:",self.author)

class python(book):

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

self.price=price

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

super().\_\_init\_\_(name)

def display(self):

print("Price:",self.price)

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

obj=python(1000,500,"Van Bossom")

obj.TA("Python","Van Bossom")

obj.display1()

obj.display()

OUTPUT:

Title: Python

Author: Van Bossom

Price: 1000

No Of Pages: 500