**CYCLE : 5**

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 ,breadth, length):

self.breadth = breadth

self.length = length

def area(self):

return self.breadth \* self.length

def perimeter(self):

return 2 \* (self.breadth + self.length)

print("Rectangle 1")

a=int(input("enter the length:"))

b= int(input("enter the breadth:"))

obj=Rectangle(a,b)

print("Area 1 = ",obj.area())

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

print("Rectangle 2")

a=int(input("enter the length:"))

b= int(input("enter the breadth:"))

ob=Rectangle(a,b)

print("Area 2= ",ob.area())

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

if obj.area() == ob.area():

print("The 2 rectangle have same area")

else:

print("not equal")

**Output:**

**Rectangle 1**

**enter the length:3**

**enter the breadth:4**

**('Area 1 = ', 12)**

**('Perimeter = ', 14)**

**Rectangle 2**

**enter the length:6**

**enter the breadth:2**

**('Area 2= ', 12)**

**('Perimeter=', 16)**

**The 2 rectangle have same area**

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.

class Bank\_Account:

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

self.balance = 0

print("Hello!!! Welcome")

self.name = input("Enter your name : ")

self.ac\_no = input("Enter Account Number : ")

self.type = input("Enter Account Type : ")

def deposit(self):

amount = float(input("Enter amount to be Deposited: "))

self.balance = self.balance + amount

print("\n Amount Deposited:", amount)

def withdraw(self):

amount = float(input("Enter amount to be Withdrawn: "))

if self.balance >= amount:

self.balance = self.balance - amount

print("\n You Withdrew:", amount)

else:

print("\n Insufficient balance ")

def display(self):

print(self.name, ", Net Available Balance=", self.balance)

s = Bank\_Account()

s.deposit()

s.withdraw()

s.display()

**Output:**

**Hello!!! Welcome**

**Enter your name : Sandra**

**Enter Account Number : 2737114**

**Enter Account Type : Savings**

**Enter amount to be Deposited: 1000**

**Amount Deposited: 1000.0**

**Enter amount to be Withdrawn: 400**

**You Withdrew: 400.0**

**Sandra , Net Available Balance= 600.0**

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

class Rectangle:

def \_\_init\_\_(self,length ,width):

self.\_\_length = length

self.\_\_width = width

def area(self):

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

print("Area of Rectangle: "+ str(area) + "m^2")

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

a1 = self.\_\_length \* self.\_\_width

a2 = other.\_\_length \* other.\_\_width

if a1 < a2:

print("The greater is the second one")

else:

print("The greter is the first one")

leng1 = int(input("Enter length of First Rectangle:"))

wid1 = int(input("Enter bredth of First Rectangle:"))

leng2 = int(input("Enter length of Second Rectangle:"))

wid2 = int(input("Enter bredth of Second rectangle:"))

rect1 = Rectangle(leng1,wid1)

rect2 = Rectangle(leng2,wid2)

print("FIRST RECTANGLE\n")

rect1.area()

print("\nSECOND RECTANGLE\n")

rect2.area()

print(rect1 < rect2)

**Output:**

**Enter length of First Rectangle:4**

**Enter bredth of First Rectangle:3**

**Enter length of Second Rectangle:5**

**Enter bredth of Second rectangle:2**

**FIRST RECTANGLE**

**Area of Rectangle: 12m^2**

**SECOND RECTANGLE**

**Area of Rectangle: 10m^2**

**The greter is the first one**

**None**

1. 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, other):

return self.\_\_hour + other.\_\_hour, self.\_\_minute + other.\_\_minute, self.\_\_second + other.\_\_second

t1 = Time(2,10,10)

t2 = Time(4,15,20)

t3 = t1+t2

print(t3)

**Output:**

(**6, 25, 30)**

**Process finished with exit code 0**

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   aprogram that displays information about a Python book. Use base class constructor invocation and  
   method overriding.

class publisher:

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

print ("parent class")

class book(publisher):

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

self.title=title

self.author=author

def display(self):

print("The title of the book is ",self.title)

print("The author of the book is ",self.author)

class pyton(book):

def \_\_init\_\_(self,price, pages):

self.price=price

self.pages=pages

def display(self):

print("The price of the book is ",self.price)

print("Total pages of the book is ", self.pages)

c=book("Learning Python","khaled hussain")

c.display()

c=pyton(550,852)

c.display()

**Output:**

**('The title of the book is ', 'Learning Python')**

**('The author of the book is ', 'khaled hussain')**

**('The price of the book is ', 550)**

**('Total pages of the book is ', 852)**