

PYTHON

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):
        self.length=int(input("Enter the Length: "))
        self.breadth=int(input("Enter the Breadth: "))
        self.area=self.length*self.breadth
        self.perimeter=2*(self.length+self.breadth)

    def display(self):
        print("Area of Rectangle: ",self.area)
        print("Perimeter of Rectangle: ",self.perimeter)

print("Details of Rectangle 1")
p1=Rectangle()
p1.display()
print("Details of Rectangle 2")
```

```
p2=Rectangle()
```

```
p2.display()
```

```
if p1.area>p2.area:
```

```
    print("Rectangle 1 with Area", p1.area, "has Larger Area")
```

```
else:
```

```
    print("Rectangle 2 with Area",p2.area,"has Larger Area")
```

OUTPUT

```
>>> %Run C04_01.py
```

```
Details of Rectangle 1
```

```
Enter the Length: 5
```

```
Enter the Breadth: 7
```

```
Area of Rectangle: 35
```

```
Perimeter of Rectangle: 24
```

```
Details of Rectangle 2
```

```
Enter the Length: 5
```

```
Enter the Breadth: 2
```

```
Area of Rectangle: 10
```

```
Perimeter of Rectangle: 14
```

```
Rectangle 1 with Area 35 has Larger Area
```

```
...
```

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:
```

```
    def __init__(self):
```

```
        self.acbal=0
```

```
    def details(self):
```

```
        print("\nEnter Your Account Details\n")
```

```
        self.acno=int(input("Enter Your Account Number: "))
```

```
        self.name=input("Enter Your Name: ")
```

```
        self.ctype=input("Enter Type of Account: ")
```

```
    def display(self):
```

```
        print("\n YOUR BANK ACCOUNT DETAILS \n")
```

```
        print("YOUR ACCOUNT NUMBER IS: ",self.acno)
```

```
        print("YOUR NAME IS: ",self.name)
```

```
        print("YOUR ACCOUNT TYPE IS: ",self.ctype)
```

```
        print("YOUR CURRENT ACCOUNT BALANCE IS: ",self.acbal)
```

```
    def deposit(self):
```

```
        self.amount=int(input("Enter the Amount to be Deposited: "))
```

```
        self.acbal=self.acbal+self.amount
```

```
print("Balance After Deposit: ",self.acbal)
```

```
def withdraw(self):
```

```
    self.amount=int(input("Enter the Amount to be Withdrawn: "))
```

```
    self.acbal=self.acbal-self.amount
```

```
    print("Balance After Withdrawal: ",self.acbal)
```

```
B=Bank()
```

```
B.details()
```

```
x=1
```

```
while(x!=0):
```

```
    print("\nEnter Your Choice \n 1.Deposit\n2.Withdraw\n3.View  
Account Details\n")
```

```
    x=int(input("Enter Choice: "))
```

```
    if x==1:
```

```
        B.deposit()
```

```
    elif x==2:
```

```
        B.withdraw()
```

```
    elif x==3:
```

```
        B.display()
```

```
    else:
```

```
        print("\n Invalid Operation")
```

OUTPUT

```
>>> %Run C04_02.py
```

```
Enter Your Account Details
```

```
Enter Your Account Number: 1111
```

```
Enter Your Name: AMALESH CV
```

```
Enter Type of Account: SAVINGS
```

```
Enter Your Choice
```

```
1.Deposite
```

```
2.Withdraw
```

```
3.View Account Details
```

```
Enter Choice: 1
```

```
Enter the Amount to be Deposited: 1500
```

```
Balance After Deposit: 1500
```

```
Enter Your Choice
```

```
1.Deposite
```

```
2.Withdraw
```

```
3.View Account Details
```

```
Enter Choice: 2
```

```
Enter the Amount to be Withdrawn: 500
```

```
Balance After Withdrawal: 1000
```

```
Enter Your Choice
```

```
1.Deposite
```

```
2.Withdraw
```

```
3.View Account Details
```

```
Enter Choice: 3
```

```
YOUR BANK ACCOUNT DETAILS
```

```
YOUR ACCOUNT NUMBER IS: 1111
```

```
YOUR NAME IS: AMALESH CV
```

```
YOUR ACCOUNT TYPE IS: SAVINGS
```

```
YOUR CURRENT ACCOUNT BALANCE IS: 1000
```

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,length,width):
        self.__length=length
        self.__width=width
    def __lt__(self,a1):
        area1=self.__length*self.__width
        area2=a1.__length*a1.__width
        if(area1<area2):
            return(True)
        else:
            return(False)
a1=int(input("Length of first Rectangle: "))
b1=int(input("Width first Rectangle: "))
r1=rectangle(a1,b1)

a2=int(input("Length second Rectangle: "))
b2=int(input("Width second Rectangle: "))
r2=rectangle(a2,b2)
if(r1<r2):
    print("Second Rectangle is Larger!!")
```

else:

print("First Rectangle is Larger!!")

OUTPUT

```
>>> %Run C04_03.py
Length of first Rectangle: 5
Width first Rectangle: 3
Length second Rectangle: 10
Width second Rectangle: 4
Second 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, h):

second=self.__second+h.__second

minute=self.__minute+h.__minute

hour=self.__hour+h.__hour

```
if(second>60):
```

```
    second=second-60
```

```
    minute=minute+1
```

```
if(minute>60):
```

```
    minute=minute-60
```

```
    hour=hour+1
```

```
if(hour>24):
```

```
    hour=hour-24
```

```
return hour,minute,second
```

```
print("Enter 1st time:")
```

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

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

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

```
t1=Time(h1,m1,s1)
```

```
print("Enter 2nd time:")
```

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

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



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

```
t2=Time(h2,m2,s2)
```

```
hr,min,sec=t1+t2
```

```
print("Sum of Time: ")
```

```
print(hr,end=":")
```

```
print(min,end=":")
```

```
print(sec,end=" ")
```

OUTPUT

```
>>> %Run C04_04.py
Enter 1st time:
Enter the Hour: 12
Enter the Minute: 12
Enter the Second: 30
Enter 2nd time:
Enter the Hour: 6
Enter the Minute: 18
Enter the Second: 29
Sum of Time:
18:30:59
```

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","M Mukundhan",1999,200)
p.display()
```

OUTPUT

```
>>> %Run C04_05.py
Title:  Python Programming
Author:  M Mukundhan
Price:  1999
No. of Pages:  200
```