# COURSE OUTCOME 4

**DATE:14-11-2024**

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,l,b):
                self.l=l
                self.b=b
        def area(self):
                return self.l*self.b
        def perimeter(self):
                return 2*(self.l+self.b)
l=int(input("Enter the lenght of rectangle :"))
b=int(input("Enter the breadth of rectangle :"))
l1=int(input("Enter the lenght of 2nd rectangle :"))
b1=int(input("Enter the breadth of 2nd rectangle :"))
r1=rectangle(l,b)
r2=rectangle(l1,b1)
area1=r1.area()
perimeter1=r1.perimeter()
print("Area = ",area1)
print("Perimeter = ",perimeter1)
area2=r2.area()
perimeter2=r2.perimeter()
print("Area = ",area2)
print("Perimeter = ",perimeter2)
if area1 > area2:
  print("Area of the first rectangle is greater than second rectangle")
elif area1 < area2:
        print("Area of the first rectangle is less than second rectangle")
```

else:

       print("Area of the first and second rectangle are the same")

**OUTPUT**

Enter the lenght of rectangle :2
Enter the breadth of rectangle :3
Enter the lenght of 2nd rectangle :5
Enter the breadth of 2nd rectangle :6
Area =  6
Perimeter =  10
Area =  30
Perimeter =  22
Area of the first rectangle is less than second rectangle

Enter the lenght of rectangle :3
Enter the breadth of rectangle :4
Enter the lenght of 2nd rectangle :1
Enter the breadth of 2nd rectangle :2
Area =  12
Perimeter =  14
Area =  2
Perimeter =  6
Area of the first rectangle is greater than second rectangle

Enter the lenght of rectangle :1
Enter the breadth of rectangle :2
Enter the lenght of 2nd rectangle :1
Enter the breadth of 2nd rectangle :2
Area =  2
Perimeter =  6
Area =  2
Perimeter =  6
Area of the first and second rectangle are the same

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.

**PROGRAM**
```python
class bank:
        def __init__(self,acc_no,name,type,balance):
                self.acc_no=acc_no
                self.name=name
                self.type=type
                self.balance=balance
        def deposit(self,amt):
                if amt>0:
                        self.balance+=amt
                        print("Successfully deposited amount")
                else:
                        print("Invalid amount")
        def withdraw(self,amt):
                if amt>self.balance:
                        print("Insufficent balance")
                else:
                        print("Successfully withdraw amount")
                        self.balance-=amt
        def view_details(self):
                print("Account Number :" ,self.acc_no)
                print("Name  :" ,self.name)
                print("Account Type :" ,self.type)
                print("Account balance :" ,self.balance)
        def current_balance(self):
                print("Current balance :" ,amt)
n=int(input("Enetr the account number:"))
name=input("Enter your name:")
typ=input("Enter the type")
```

```python
balance=int(input("Enter the balance:"))
c1=bank(n,name,type,balance)
while True:
        print("\n
Menu\n1.Deposit\n2.Withdraw\n3.Currentbalance\n4.View
Details\n5.Exit")
        ch=int(input("Enter your choice:"))
        if ch==1:
                amt=int(input("Enter the amount to be deposited:"))
                c1.deposit(amt)
        elif ch==2:
                amt=int(input("Enter the amount to be withdraw:"))
                c1.withdraw(amt)
        elif ch==3:
                print("Current balance",c1.balance)
        elif ch==4:
                c1.view_details()
        elif ch==5:
                break
```

**OUTPUT**

1)

Enter the account number: 213404567
Enter your name: Athul
Enter the type: savings
Enter the balance: 500

 Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit

Enter your choice: 1
Enter the amount to be deposited 5000
Successfully deposited amount

 Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice: 2
Enter the amount to be withdraw 30000
Insufficent balance

 Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice: 3
Current balance: 5500

 Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice: 4
Account Number : 213404567
Name  :  Athul
Account Type :  savings
Account balance : 5500

Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice: 5

2)
Enter the account number 7896541230
Enter your name: Amal
Enter the type: savings
Enter the balance: 5600

Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice:1
Enter the amount to be deposited: 4000
Successfully deposited amount

Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice: 2
Enter the amount to be withdraw: 5000
Successfully withdraw amount

Menu

1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice: 3
Current balance 4900

Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice: 4
Account Number : 7896541230
Name  :  Amal
Account Type :  savings
Account balance : 4900

Menu
1.Deposit
2.Withdraw
3.Currentbalance
4.View Details
5.Exit
Enter your choice 5

**DATE:14-11-2024**

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

**PROGRAM**
```
class rectangle:
  def __init__(self,length,width):
     self.length=length
     self.width=width
 def area(self):
     return self.length*self.width
 def __lt__(self,other):
     return self.area()<other.area()
length=int(input("Enter the length of rectangle :"))
width=int(input("Enter the breadth of rectangle :"))
length1=int(input("Enter the length of rectangle :"))
width1=int(input("Enter the breadth of rectangle :"))
rectangle1=rectangle(length,width)
rectangle2=rectangle(length1,width1)
if rectangle1<rectangle2:
 print("Area of rectangle 1 is smaller than area of rectangle 2 ")
elif rectangle1>rectangle2:
 print("Area of rectangle 1 is greater than area of rectangle 2 ")
else :
  print("Both rectangles have same area")
```

**OUTPUT**

Enter the lenght of rectangle :5
Enter the breadth of rectangle :6
Enter the length of rectangle :2
Enter the breadth of rectangle :5
Area of rectangle 1 is greater than area of rectangle 2


Enter the length of rectangle :6

Enter the breadth of rectangle :8
Enter the length of rectangle :2
Enter the breadth of rectangle :4
Area of rectangle 1 is greater than area of rectangle 2

**DATE:14-11-2024**

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

**PROGRAM**

```python
class Time:
    def __init__(self, hour=0, minute=0, second=0):
        self.__hour = hour
        self.__minute = minute
        self.__second = second
    def normalize(self):
        self.__minute += self.__second // 60
        self.__second = self.__second % 60
        self.__hour += self.__minute // 60
        self.__minute = self.__minute % 60
        self.__hour = self.__hour % 24  # Ensuring hours are within 24-hour format
    def __add__(self, other):
        new_hour = self.__hour + other.__hour
        new_minute = self.__minute + other.__minute
        new_second = self.__second + other.__second
        new_time = Time(new_hour, new_minute, new_second)
        new_time.normalize()
        return new_time
    def display(self):
        return f"{self.__hour}h:{self.__minute}m:{self.__second}s"
h1 = int(input("Enter hour for the first time: "))
m1 = int(input("Enter minute for the first time: "))
s1 = int(input("Enter second for the first time: "))
t1 = Time(h1, m1, s1)
h2 = int(input("Enter hour for the second time: "))
m2 = int(input("Enter minute for the second time: "))
s2 = int(input("Enter second for the second time: "))
t2 = Time(h2, m2, s2)
```

```
t3 = t1 + t2
print("First Time:", t1.display())
print("Second Time:", t2.display())
print("Sum of Times:", t3.display())
```

**OUTPUT**

```
Enter hour for the first time: 2
Enter minute for the first time: 30
Enter second for the first time: 10
Enter hour for the second time: 3
Enter minute for the second time: 20
Enter second for the second time: 10
First Time: 2h:30m:10s
Second Time: 3h:20m:10s
Sum of Times: 5h:50m:20s


Enter hour for the first time: 10
Enter minute for the first time: 50
Enter second for the first time: 40
Enter hour for the second time: 6
Enter minute for the second time: 30
Enter second for the second time: 20
First Time: 10h:50m:40s
Second Time: 6h:30m:20s
Sum of Times: 17h:21m:0s
```

**DATE:14-11-2024**

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.

**PROGRAM**

```
class publisher:
  def __init__(self,name):
        self.name=name
class book(publisher):
  def __init__(self,name,title,author):
        super().__init__(name)    #invoking the base class costructor
        self.title=title
        self.author=author
  def display():
        pass class python(book):
  def __init__(self,name,title,author,price,pgno):
        super().__init__(name,title,author)
        self.price=price
        self.pgno=pgno
  def display(self):
        print("Publisher : ",self.name)
        print("Title : ",self.title)
        print("Author : ",self.author)
        print("Price : ",self.price)
        print("Page number : ",self.pgno)
name=input("Enter the name of the Publisher :")
title=input("Enter the title of the book :")
author=input("Enter the author of the book :")
price=int(input("Enter the price of the book :"))
pgno=int(input("Enter the number of pages in the book :"))
book1=python(name,title,author,price,pgno)
book1.display()
```

**OUTPUT**

Enter the name of the Publisher :athul
Enter the title of the book :book
Enter the author of the book :athul
Enter the price of the book :500
Enter the number of pages in the book :250

Publisher :  athul
Title :  book
Author :  athul
Price :  500
Page number :  250

# COURSE OUTCOME 5

**DATE:14-11-2024**

1.Write a Python program to read a file line by line and store it into a list.

**PROGRAM**

```
f=("mits.txt","r")
l=[i.split() for i in open ("mits.txt")]
print(l)
f.close()
```

mits.txt

Hello World

**OUTPUT**

Hello World

**DATE:14-11-2024**

2. Python program to copy odd lines of one file to other

**PROGRAM**
```
f1 = open("mits.txt", "r")
length=[i for i in f1]
f1.close()
f2 = open("mits1.txt", "w")
for i in range(0,len(length)):

if i%2!=1:

f2 .write(length[i])
f2.close()
```

**OUTPUT**

mits.txt

MUTHOOT INSTITUTE OF TECHNOLOGY AND SCIENCE
Varikoli P O
Puthencuruz
Ernakulam.


MITS1.TXT
MUTHOOT INSTITUTE OF TECHNOLOGY AND SCIENCE
Puthencuruz

**DATE:14-11-2024**

3. Write a Python program to read each row from a given csv file and print a list of strings.

**PROGRAM**

```
import csv
with open("student.csv", mode="r") as file:
csvr=csv.reader(file)
for row in csvr:

print(row)
```

**OUTPUT**

Roll_no,Name, Age, Course
1,Amal, 21, MCA
2,Benwin, 24, BBA
3,Christy, 22, BCA

['Roll_no','Name', ' Age', ' Course']
['1',' Amal',' 21', 'MCA']
['2',' Benwin', '24', 'BBA']
['3',' Christy',' 22', 'BCA']

**DATE:14-11-2024**

4. Write a Python program to read specific columns of a given CSV file and print the content of the columns.

**PROGRAM**
import csv
with open("student.csv", mode="r") as file:

print("The details in column 2 is:")

csvr=csv.reader(file)

for row in csvr:

print(row[2])

**OUTPUT**
Roll_no,Name, Age, Course
10,Nevin, 21, MCA
11,Amal, 24, BBA
12,Anusha, 22, BCA

Age
21
24
22

**DATE:14-11-2024**

5. Write a Python program to write a Python dictionary to a csv file.
After writing the CSV file read the CSV file and display the content.

**PROGRAM**
```
import csv
d=[ {"Name":"Athul","Age":"21","course":"mca" },{"Name":"Avlin",
"Age":"22","course":"mca" },{"Name":"Anu","Age":"21","course":"
mca" }]
field=['Name','Age','course']
filename=['student1.csv']
with open('student1.csv','w') as file:
w=csv.DictWriter(file,fieldnames=field)
w.writeheader()
w.writerows(d)
with open('student1.csv',mode='r') as file:
c=csv.reader(file)
for row in c:
print(row)
```

**OUTPUT**

```
['Name', 'Age', 'course']
['Athul', '21', 'mca']
['Avlin', '22', 'mca']
['Anu', '21', 'mca']
```