COURSE OUTCOME 4

DATE:3-12-2024

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,
length, breadth):
self.length=length
self.breadth=breadth

    def area(self):
        area= self.length*self.breadth
print("\nArea of Rectangle  is", area)
return area

    def perimeter(self):
perimeter=2*(self.length+self.breadth)
print("Perimeter of Rectangle is",perimeter)



l = int(input("\nEnter the length of the first rectangle: ")) b
= int(input("Enter the breadth of the first rectangle: "))
```

```
rect1 = Rectangle(l,b)

a=rect1.area() rect1.perimeter()


l = int(input("Enter the length of the second rectangle: ")) b

= int(input("Enter the breadth of the second rectangle: "))


rect2 = Rectangle(l,b)

b=rect2.area()

rect2.perimeter()


if a < b:

    print("\n Rectangle 1 has a smaller area than Rectangle 2.")

elif a == b:    print("\n Both rectangles have the same area.")

else:    print("\n Rectangle 1 has a larger area than Rectangle

2.")
```

OUTPUT

Enter the length of the first rectangle: 5

Enter the breadth of the first rectangle: 4

Area of Rectangle is 20

Perimeter of Rectangle is 18

Enter the length of the second rectangle: 4

Enter the breadth of the second rectangle: 6

Area of Rectangle is 24

Perimeter of Rectangle is 20

Rectangle 1 has a smaller area than Rectangle 2.

OUTPUT

Enter the length of the first rectangle: 8

Enter the breadth of the first rectangle: 6

Area of Rectangle is 48

Perimeter of Rectangle is 28

Enter the length of the second rectangle: 3

Enter the breadth of the second rectangle: 5

Area of Rectangle is 15

Perimeter of Rectangle is 16

Rectangle 1 has a larger area than Rectangle 2.

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 BankAccount:    def __init__(self, number,
name, atype, balance=0):
        self.number = number
self.name = name        self.atype
= atype        self.balance =
balance


    def deposit(self, amt):
if amt > 0:
            self.balance += amt
            print("Successfully deposited amount")
else:
            print("Invalid amount")
```

```python
    def withdraw(self, amt):
if amt > self.balance:

        print("Insufficient balance")
else:

        print("Successfully withdrawn amount")
        self.balance -= amt


  def view_details(self):
    print("Name:", self.name)
print("Number:", self.number)

print("Type:", self.atype)

print("Balance:", self.balance)


name =  input("Enter the Name:") number
=  int(input("Enter the Number:")) atype =
input("Enter the Type:") balance =
int(input("Enter the Balance:"))


customer = BankAccount(number, name, atype, balance)


while True:
  print("\n....menu.......\n")
print("1) Deposit")    print("2)
```

```python
Withdraw")    print("3)
Current balance")    print("4)
View details")    print("5)
Exit")

    ch = int(input("Enter your choice: "))
if ch == 1:
        amt = int(input("Enter the amount to deposit: "))
customer.deposit(amt)    elif ch == 2:
        amt = int(input("Enter the amount to withdraw: "))
customer.withdraw(amt)    elif ch == 3:
        print("Current Balance:", customer.balance)
elif ch == 4:
        customer.view_details()
elif ch == 5:
        break
else:
        print("Invalid choice. Please try again.")
```

OUTPUT

Enter the Name: Abc

Enter the Number:123

Enter the Type: Savings

Enter the Balance:2000

....menu.......

1) Deposit

2) Withdraw

3) Current balance

4) View details

5) Exit

Enter your choice: 1 Enter the

amount to deposit: 2000

Successfully deposited amount

....menu.......

1) Deposit

2) Withdraw

3) Current balance

4) View details

5) Exit

Enter your choice: 3

Current Balance: 4000 ....menu.......

1) Deposit

2) Withdraw

3) Current balance

4) View details

5) Exit

Enter your choice: 2

Enter the amount to withdraw: 1500

Successfully withdrawn amount

....menu.......

1) Deposit

2) Withdraw

3) Current balance

4) View details

5) Exit

Enter your choice: 4

Name: Abc

Number: 123

Type: Savings

Balance: 2500

....menu.......

1) Deposit

2) Withdraw

3) Current balance

4) View details

5) Exit

Enter your choice: 5

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()


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

widt=int(input("Enter the width :"))

rectangle1=Rectangle(leng,widt);
```

```python
leng=int(input("Enter the length
:")) widt=int(input("Enter the width
:"))
rectangle2=Rectangle(leng,widt); if
rectangle1 < rectangle2:
    print("Area of recatangle 1 is smaller than area of rectangle 2")
elif rectangle1 > rectangle2:    print("Area of recatangle 1 is
larger than area of rectangle 2") else:

    print("Both rectangle has same area")
```

OUTPUT

Enter the length :4

Enter the width :5

Enter the length :6

Enter the width :5

Area of rectangle 1 is smaller than area of rectangle 2

OUTPUT

Enter the length :5

Enter the width :8

Enter the length :2

Enter the width :3

Area of rectangle 1 is larger than area of rectangle 2

DATE:5-12-2024

4. 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, hour, minute, second):

self.hour = hour

self.minute = minute

self.second = second

def __add__(self, other):

second = self.second + other.second   minute =

self.minute + other.minute + second // 60   hour =

self.hour + other.hour + minute // 60   return

Time(hour % 24, minute % 60, second % 60)

```python
    def display(self):
        print("Time:",self.hour,self.minute,self.second)


s=int(input("Enter second:"));

m=int(input("Enter minute:"));

h=int(input("Enter hour:"));

time1 = Time(h, m, s)

s=int(input("Enter second:"));

m=int(input("Enter minute:"));

h=int(input("Enter hour:"));

time2 = Time(h, m, s)


result = time1 + time2 result.display()
```

OUTPUT

Enter second:45

Enter minute:60

Enter hour:5

Enter second:56

Enter minute:34

Enter hour:9

Time: 15 35 41

OUTPUT

Enter second:34

Enter minute:23

Enter hour:12

Enter second:34

Enter minute:21

Enter hour:23

Time: 11 45 8

DATE:6-12-2024

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 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 display():
    pass
```

```python
class Book(Publisher):    def
__init__(self, name, title, author):
    super().__init__(name)
self.title = title        self.author
= author

    def display():
        pass

class Python(Book):    def __init__(self, name, title,
author, price, nopage):        super().__init__(name,
title, author)        self.price = price        self.nopage =
nopage

    def display(self):
        print("Name:", self.name)
print("Title:", self.title)
print("Author:", self.author)
print("Price:", self.price)        print("NO
of Pages:", self.nopage)
```

```python
name=input("Enter the Name :")
title=input("Enter the Title :")
author=input("Enter the Author :")
price=int(input("Enter the Price :"))
nopage=int(input("Enter the No of pages :"))
book=Python(name, title, author, price, nopage)
book.display()
```

OUTPUT

Enter the Name : The Alchemist

Enter the Title : The Alchemist

Enter the Author : Paulo Coelho

Enter the Price : 300

Enter the No of pages : 208

Name: The Alchemist

Title: The Alchemist

Author: Paulo Coelho

Price: 300

NO of Pages: 208

OUTPUT

Enter the Name : Atmoic Habits

Enter the Title : Atomic Habits

Enter the Author : James Clear

Enter the Price : 500

Enter the No of pages :320

Name: Atmoic Habits

Title: Atomic Habits

Author: James Clear

Price: 500

NO of Pages: 320

COURSE OUTCOME 5

DATE:7-11-2024

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

PROGRAM

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

f.close()

file.txt

Hello! Welcome to demofile.txt

Welcome to python programing.

Happy Coding!

OUTPUT

[['Hello!', 'Welcome', 'to', 'demofile.txt'], ['Welcome', 'to', 'python', 'programing'], ['Happy', 'Coding!']]

DATE:8-11-2024

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

PROGRAM

```
with open("file.txt", "r") as x:

with open("file4.txt", "w") as y:

    line_number = 1        for

line in x:           if line_number
```

```
% 2 != 0:

    y.write(line)

line_number += 1 x.close()

y.close()

s=open("file4.txt","r")

print(s.read())
```

file.txt

Hello! Welcome to demofile.txt

This file is for testing purposes.

Happy Coding!

OUTPUT

Hello! Welcome to demofile.txt

Happy Coding!

DATE:22-10-2024

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","r") as f:

 csvr=csv.reader(f)

for row in csvr:
```

```
    print(row)
```

student.csv roll,name,age,course

101,Aswin,23,mca

102,Farook,21,,mca

103,Amal,22,mca

104,Kavya,22,mca

105,Gopika,21,mca

106,Nussath,21,mca

107,Midhun,21,mca

OUTPUT

['roll', 'name', 'age', 'course']

['101', 'Aswin', '23', 'mca']

['102', 'Farook', '21', '', 'mca']

['103', 'Amal', '22', 'mca']

['104', 'Kavya', '22', 'mca']

['105', 'Gopika', '21', 'mca']

['106', 'Nussath', '21', 'mca']

['107', 'Midhun', '21', 'mca']

DATE:15-11-2024

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

PROGRAM

```
import csv

data = {

    'Name': ['Aswin', 'Farooq', 'Adharsh'],
```

```python
    'Age': [23, 22, 23],

    'depart': ['Mca', 'Bca', 'Mba']

}


with open('output.csv', 'w') as file:    writer =

csv.DictWriter(file, fieldnames=data.keys())

writer.writeheader()    writer.writerow(data)


print("Dictionary written to CSV file 'output.csv'.")


with open('output.csv','r') as file:

reader = csv.DictReader(file)

for row in reader:

    print(row)
```

OUTPUT

Dictionary written to CSV file 'output.csv'.

{'Name': "['Aswin', 'Farooq', 'Adharsh']", 'Age': '[23, 22, 23]', 'depart': "['Mca', 'Bca', 'Mba']"}

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 columns_to_read =

['Name', 'City']


with open("dictionary.csv","r") as file:

csv_reader = csv.DictReader(file)

for row in csv_reader:
```

```
    selected_data = {column: row[column] for column in
columns_to_read}

    print(selected_data)
```

dictionary.csv

Name, Age, City, Occupation

Ameya, 30, Bangalore, Engineer

Emil, 25, Hyderabad, Designer

John, 28, Chicago, Teacher

OUTPUT

{'Name': 'Ameya', 'City': 'Bangalore'}

{'Name': 'Emil', 'City': 'Hyderabad'}

{'Name': 'John', 'City': 'Chicago'}