

## Experiment 3.2

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**Branch:** CSE

**Section/Group:**607A

**Semester:** 4th

**Date of Performance:** 22/04/2022

**Subject Name:**Programming in Python Lab

**Subject Code:** 22E-20CSP-259

### 1) Aim/Overview of the practical:

**Q1. Write a Python class named Student with two attributes student\_id, student\_name. Add a new attribute student\_class and display the entire attribute and their values of the said class. Now remove the student\_name attribute and display the entire attribute with values**

### 2) Task to be done/ Which logistics used:

**To write a python class named Student with two attributes student\_id, student\_name. Add a new attribute student\_class and display the entire attribute and their values of the said class and also to remove the student\_name attribute and display the entire attribute with values**

### 3) Algorithm/Flowchart (For programming based labs):

#### 4) Steps for experiment/practical/Code:

```
exp3.2Q1.py - /Users/rajivpaul/Documents/python programs/exp3.2Q1.py (3.10.2)

class Student:
    student_id = '20BCS1812'
    student_name = 'Rajiv Paul'
    print("Original attributes and their values of the Student class:")
    for attr, value in Student.__dict__.items():
        if not attr.startswith('_'):
            print(f'{attr} = {value}')
    print("\nAfter adding the student_class, attributes and their values with the said class:")
    Student.student_class = '20bcs607'
    for attr, value in Student.__dict__.items():
        if not attr.startswith('_'):
            print(f'{attr} = {value}')
    print("\nAfter removing the student_name, attributes and their values from the said class:")
    del Student.student_name

    for attr, value in Student.__dict__.items():
        if not attr.startswith('_'):
            print(f'{attr} = {value}')
    |
```

## 5. Observations/Discussions/ Complexity Analysis:

## 6. Result/Output/Writing Summary:

```
IDLE Shell 3.10.2
Python 3.10.2 (v3.10.2:a58ebcc701, Jan 13 2022, 14:50:16) [Clang 13.0.0 (clang-1300.0.29.30)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: /Users/rajivpaul/Documents/python programs/exp3.2Q1.py =====
Original attributes and their values of the Student class:
student_id = 20BCS1812
student_name = Rajiv Paul

After adding the student_class, attributes and their values with the said class:
student_id = 20BCS1812
student_name = Rajiv Paul
student_class = 20bcs607

After removing the student_name, attributes and their values from the said class:
student_id = 20BCS1812
student_class = 20bcs607
>>> |
```

### 1) Aim/Overview of the practical:

**Q2. Write a Python class to find a pair of elements (indices of the two numbers) from a given array whose sum equals a specific target number.**

### 2) Task to be done/ Which logistics used:

**To write a python class to find a pair of elements (indices of the two numbers) from a given array whose sum equals a specific target number.**

### 3) Algorithm/Flowchart (For programming based labs):

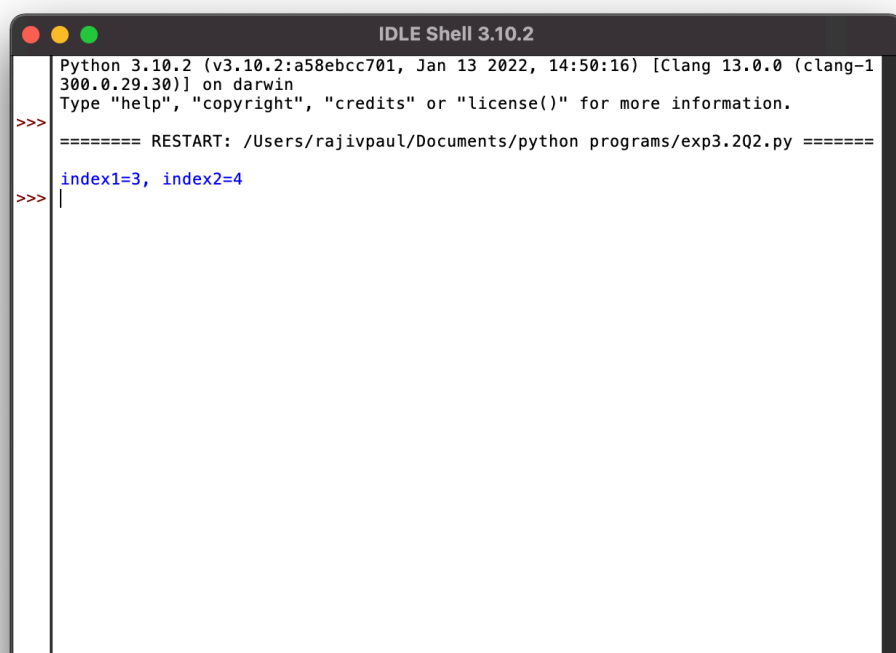
### 4) Steps for experiment/practical/Code:

```
exp3.2Q2.py - /Users/rajivpaul/Documents/python programs/exp3.2Q2.py (3.10.2)

class findpair:
    def twoSum(self, nums, target):
        lookup = {}
        for i, num in enumerate(nums):
            if target - num in lookup:
                return (lookup[target - num], i)
            lookup[num] = i
print("\nindex1=%d, index2=%d" % findpair().twoSum((90,10,100,60,30,40,70),90))
```

## 5. Observations/Discussions/ Complexity Analysis:

## 6. Result/Output/Writing Summary:



```
IDLE Shell 3.10.2
Python 3.10.2 (v3.10.2:a58ebcc701, Jan 13 2022, 14:50:16) [Clang 13.0.0 (clang-1300.0.29.30)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: /Users/rajivpaul/Documents/python programs/exp3.2Q2.py =====
>>> index1=3, index2=4
>>> |
```

**1) Aim/Overview of the practical:**

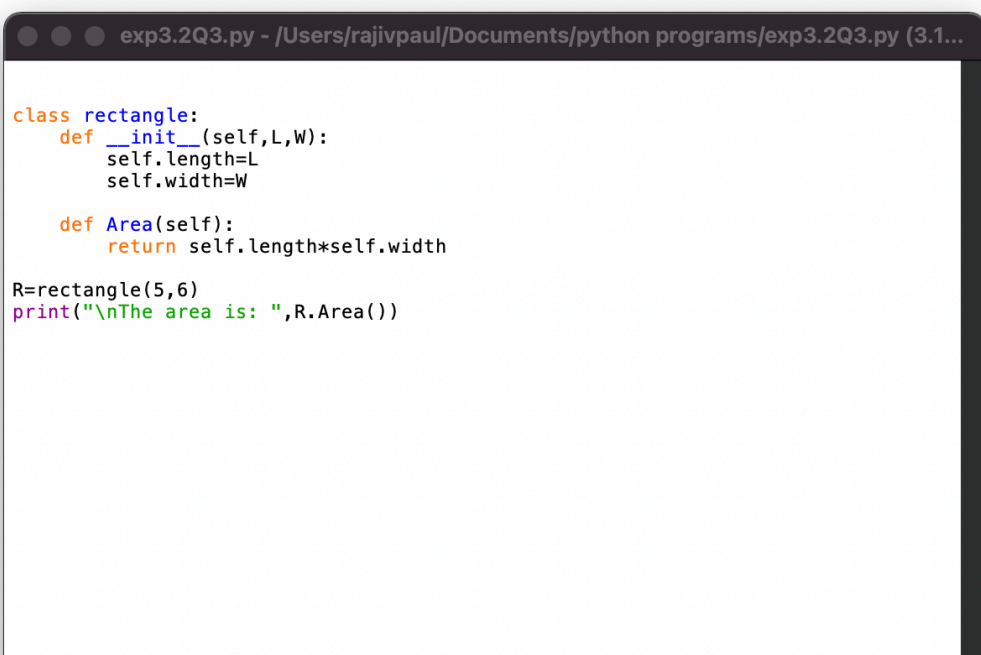
**Q3. Write a Python class named Rectangle constructed by a length and width and a method which will compute the area of a rectangle.**

**2) Task to be done/ Which logistics used:**

**To write python class named Rectangle constructed by a length and width and a method which will compute the area of a rectangle.**

**3) Algorithm/Flowchart (For programming based labs):**

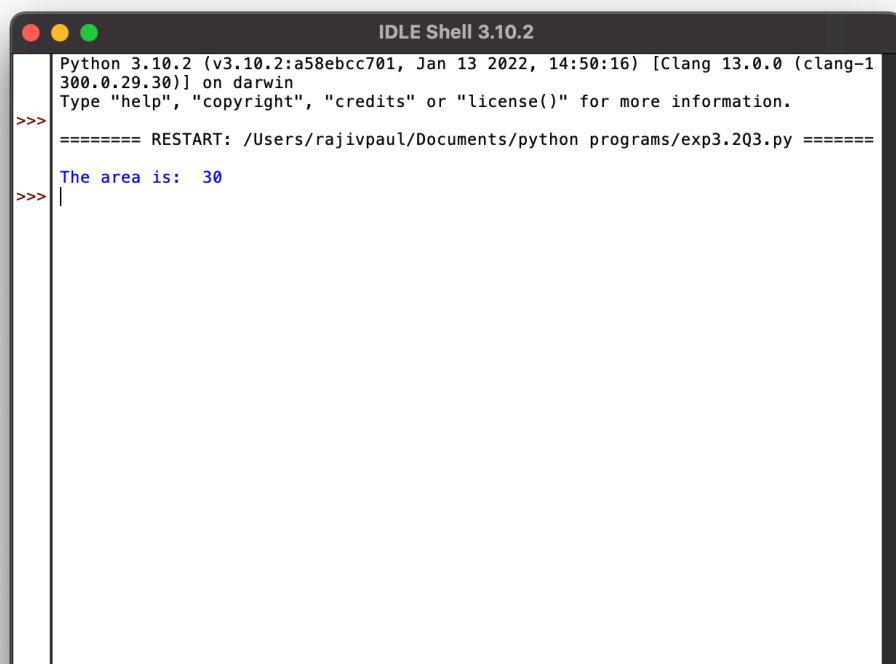
**4) Steps for experiment/practical/Code:**



```
exp3.2Q3.py - /Users/rajivpaul/Documents/python programs/exp3.2Q3.py (3.1...  
  
class rectangle:  
    def __init__(self,L,W):  
        self.length=L  
        self.width=W  
  
    def Area(self):  
        return self.length*self.width  
  
R=rectangle(5,6)  
print("\nThe area is: ",R.Area())
```

## 5. Observations/Discussions/ Complexity Analysis:

## 6. Result/Output/Writing Summary:



```
Python 3.10.2 (v3.10.2:a58ebcc701, Jan 13 2022, 14:50:16) [Clang 13.0.0 (clang-1300.0.29.30)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: /Users/rajivpaul/Documents/python programs/exp3.2Q3.py =====
The area is: 30
>>> |
```

**1) Aim/Overview of the practical:**

**Q4. Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle**

**2) Task to be done/ Which logistics used:**

**To write a python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle**

**3) Algorithm/Flowchart (For programming based labs):**

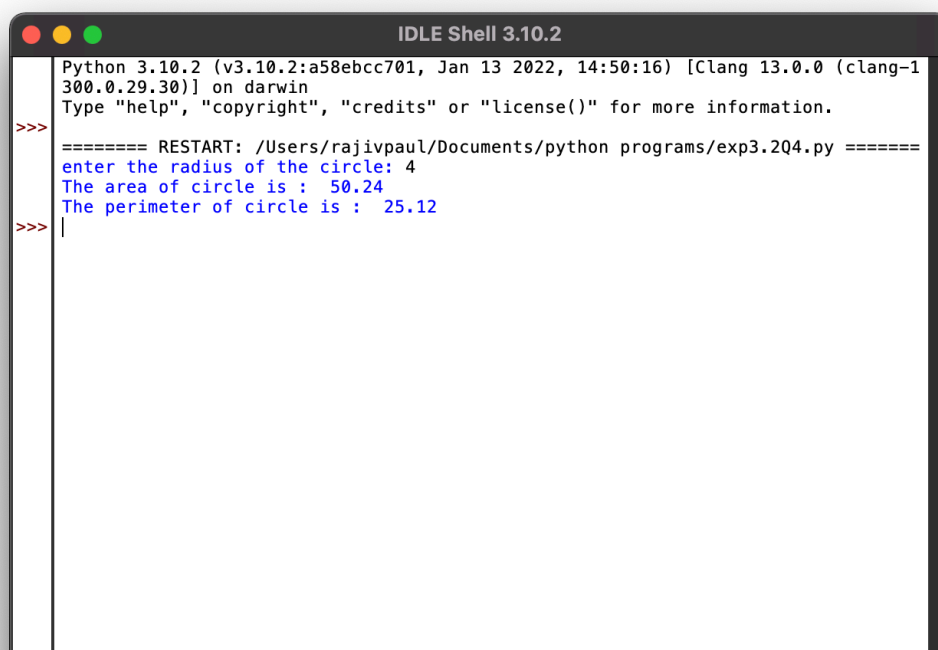
**4) Steps for experiment/practical/Code:**

```
exp3.2Q4.py - /Users/rajivpaul/Documents/python programs/exp3.2Q4.py (3.1...  
  
class Circle():  
    def __init__(self, rad):  
        self.r = rad  
    def area(self):  
        print("The area of circle is : ",3.14*self.r*self.r)  
    def perimeter(self):  
        print("The perimeter of circle is : ",2*3.14*self.r)  
  
r=int(input("enter the radius of the circle: "))  
C=Circle(r)  
C.area()  
C.perimeter()
```



## 5. Observations/Discussions/ Complexity Analysis:

## 6. Result/Output/Writing Summary:



```
IDLE Shell 3.10.2
Python 3.10.2 (v3.10.2:a58ebcc701, Jan 13 2022, 14:50:16) [Clang 13.0.0 (clang-1300.0.29.30)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: /Users/rajivpaul/Documents/python programs/exp3.2Q4.py =====
enter the radius of the circle: 4
The area of circle is : 50.24
The perimeter of circle is : 25.12
>>>|
```

### 1) Aim/Overview of the practical:

**Q5. Write a Python program to create two empty classes, Student and Marks. Now create some instances and check whether they are instances of the said classes or not. Also, check whether the said classes are subclasses of the built-in object class or not**

### 2) Task to be done/ Which logistics used:

**To write a python program to create two empty classes, Student and Marks. Now create some instances and check whether they are instances of the said classes or not, also to check whether the said classes are subclasses of the built-in object class or not**

### 3) Algorithm/Flowchart (For programming based labs):

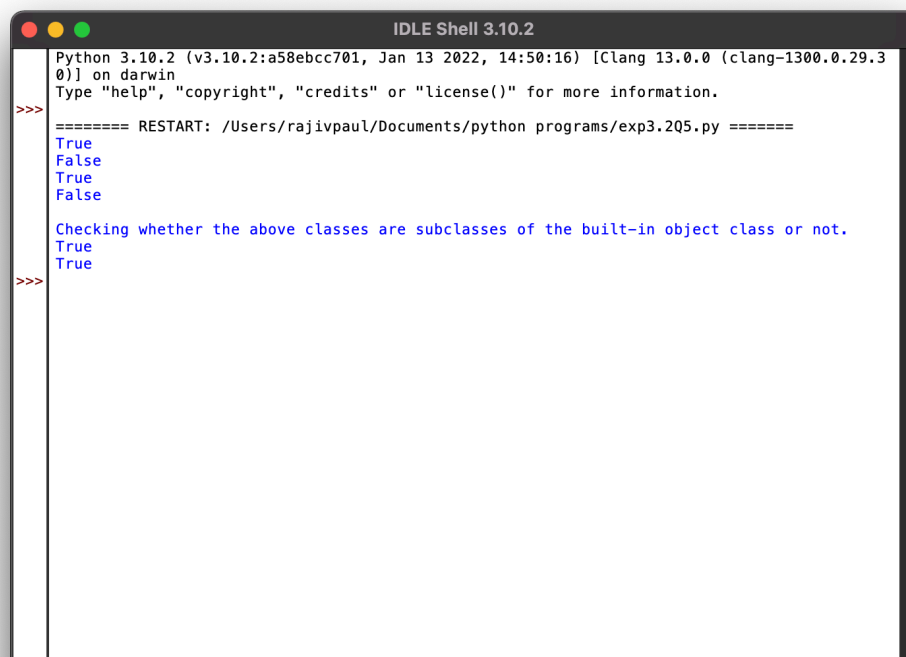
### 4) Steps for experiment/practical/Code:

```
exp3.2Q5.py - /Users/rajivpaul/Documents/python programs/exp3.2Q5.py (3.10.2)

class Student:
    pass
class Marks:
    pass
students = Student()
marks = Marks()
print(isinstance(students, Student))
print(isinstance(marks, Student))
print(isinstance(marks, Marks))
print(isinstance(students, Marks))
print("\nChecking whether the above classes are subclasses of the built-in object class or not.")
print(issubclass(Student, object))
print(issubclass(Marks, object))
```

## 5. Observations/Discussions/ Complexity Analysis:

## 6. Result/Output/Writing Summary:



```
IDLE Shell 3.10.2
Python 3.10.2 (v3.10.2:a58ebcc701, Jan 13 2022, 14:50:16) [Clang 13.0.0 (clang-1300.0.29.3
0)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: /Users/rajivpaul/Documents/python programs/exp3.2Q5.py =====
True
False
True
False

Checking whether the above classes are subclasses of the built-in object class or not.
True
True
>>>
```

**Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):**

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			