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Exercise 9: Classes and Objects

1.Write a program to print the area of a rectangle by creating a class named 'Area' having two functions. First function named as 'setDim' takes the length and breadth of the rectangle as parameters and the second function named as 'getArea' returns the area of the rectangle. Length and breadth of the rectangle are entered through keyboard.

Code:

```
class Area:
    def setDim(self, length, breadth):
        self.length = length
        self.breadth = breadth

    def getArea(self):
        return self.length * self.breadth

length = float(input("Enter Length of Rectangle:"))
breadth = float(input("Enter Breadth of Rectangle: "))

rectangle = Area()
rectangle.setDim(length, breadth)

area = rectangle.getArea()
print("The area of the rectangle is:", area)
```

Output:

```
Microsoft Windows [Version 10.0.22621.2506]
(c) Microsoft Corporation. All rights reserved.

D:\MCA\6. Python Programming + LAB>python -u "d:\MCA\6. Python Programming + LAB\LAB\CAT1\ex_9.1_rectangle_area_calculator
.py"
Enter Length of Rectangle:5.8
Enter Breadth of Rectangle: 2
The area of the rectangle is: 11.6
```

2. Create a class Complex with real and imaginary part as data member. Write member functions to read the complex number, Add two complex numbers and display the complex number in python.

Code:

```
class Complex:
    def __init__(self, real=0, imaginary=0):
        self.real = real
        self.imaginary = imaginary

    def readComplex(self):
        self.real = float(input("Real part: "))
        self.imaginary = float(input("Imaginary part: "))

    def addComplex(self, other):
        result = Complex()
        result.real = self.real + other.real
        result.imaginary = self.imaginary + other.imaginary
        return result

    def displayComplex(self):
        print(f"{self.real} + {self.imaginary}i")
```

```
complex1 = Complex()
complex2 = Complex()

print("Complex Number 1:")
complex1.readComplex()

print("Complex Number 2:")
complex2.readComplex()

result = complex1.addComplex(complex2)

print("Sum of Complex Numbers:")
result.displayComplex()
```

Output:

```
D:\MCA\6. Python Programming + LAB>python -u "d:\MCA\6. Python Programming + LAB\LAB\CAT1\ex_9.2_complex_number_operations
.py"
Complex Number 1
Real part: 15
Imaginary part: 5
Complex Number 2
Real part: 5
Imaginary part: 15
Sum of Complex Numbers is
20.0 + 20.0i
```

END