Python

ASSIGNMENT 6

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ROLL NO:
CLASS: TYBBACA
GUIDE: PROF.LANDE R.D
ASSIGNMENT BASED ON:

ASSIGNMENT 6
SET-A

Q.1 Write a python program to demonstrate multilevel inheritance by using Base class name as "Team" which inherits Derived class name as "Dev".
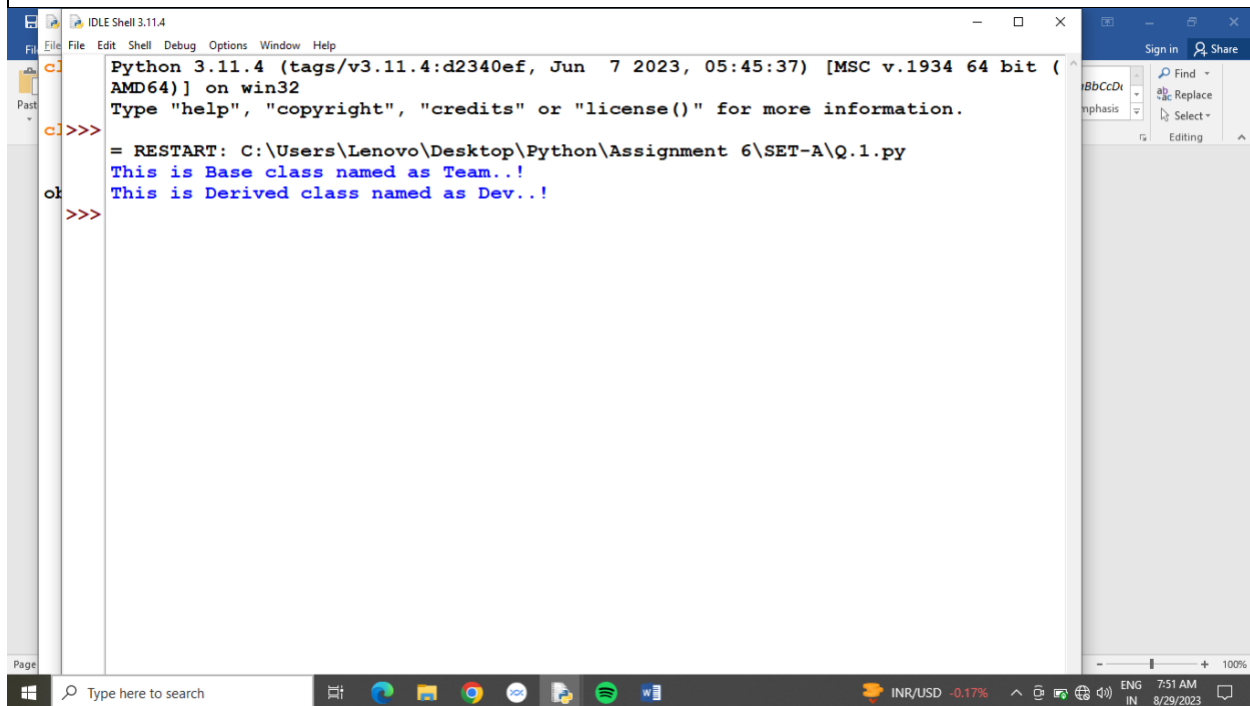
Ans:
```
class Team:
    print("This is Base class named as Team..!")

class Dev(Team):
    print("This is Derived class named as Dev..!")

obj=Dev()
```
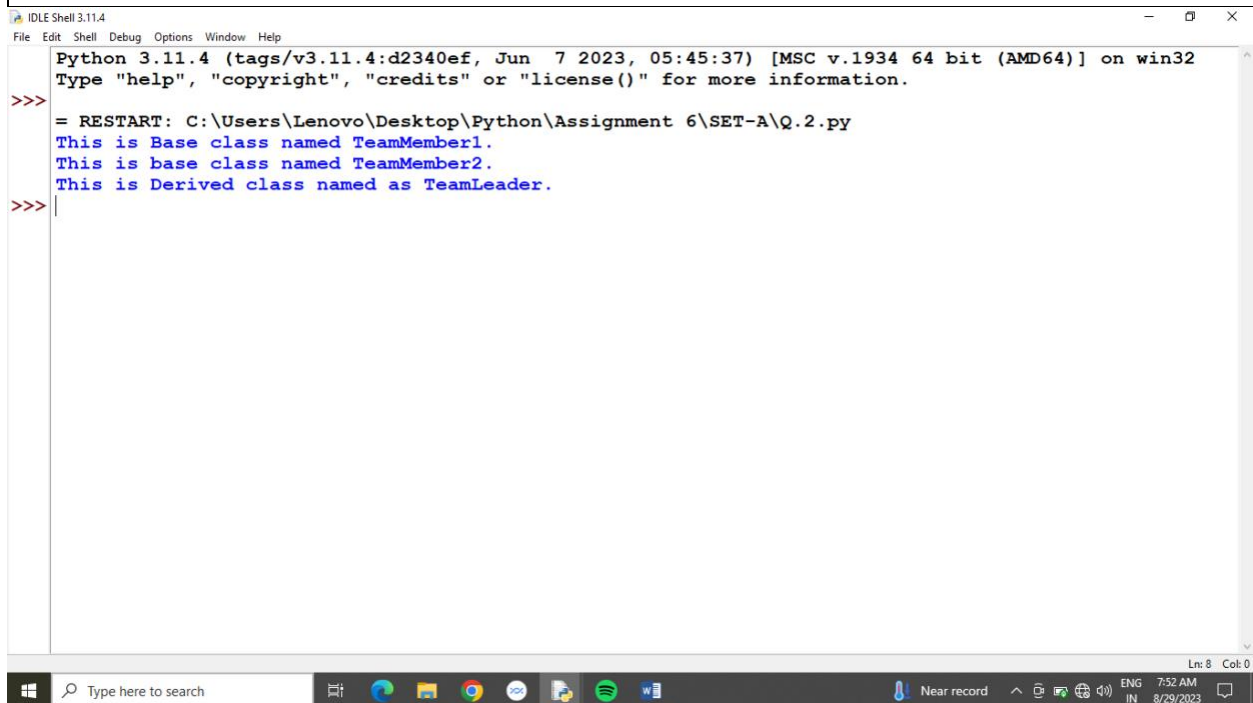
Output:

ASSIGNMENT 6
SET-A

Q.2 Write a python program by considering Baseclass as TeamMember and Derived class as TeamLeader use multiple inheritance concept to demonstrate the code.

Ans:
```python
class TeamMember1:
    print("This is Base class named TeamMember1.")

class TeamMember2:
    print("This is base class named TeamMember2.")

class TeamLeader(TeamMember1,TeamMember2):
    print("This is Derived class named as TeamLeader.")

obj=TeamLeader()
```
Output:

IDLE Shell 3.11.4   — □ ×
File Edit Shell Debug Options Window Help
```
Python 3.11.4 (tags/v3.11.4:d2340ef, Jun  7 2023, 05:45:37) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Lenovo\Desktop\Python\Assignment 6\SET-A\Q.2.py
This is Base class named TeamMember1.
This is base class named TeamMember2.
This is Derived class named as TeamLeader.
>>>
```
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ASSIGNMENT 6
SET-A

Q.3 Write a python program to make use of issubclass () or isinstance() functions to check the relationships of two classes and instances.

Ans:
```python
class demo1:
    a=12

class demo2(demo1):
    b=10

var1=issubclass(demo2,demo1)
print(var1)
obj=demo1()
var2=isinstance(obj,demo1)
print(var2)
```
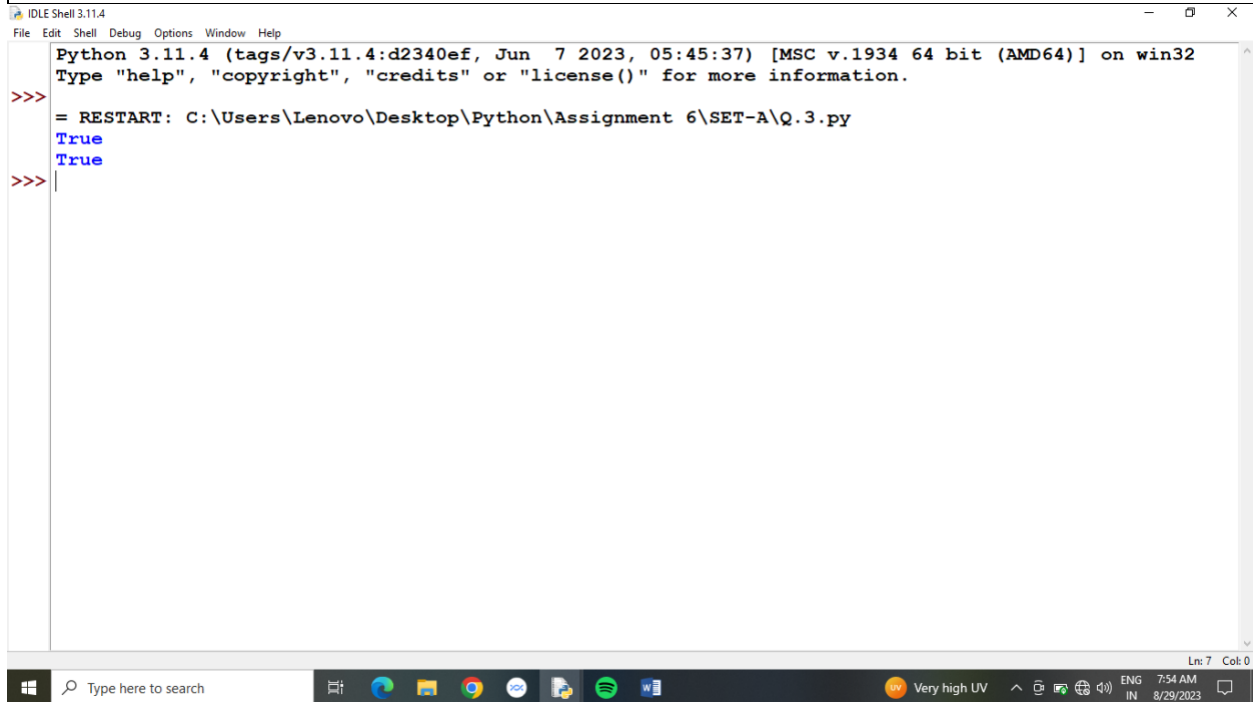
Output:


```
Python 3.11.4 (tags/v3.11.4:d2340ef, Jun  7 2023, 05:45:37) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Lenovo\Desktop\Python\Assignment 6\SET-A\Q.3.py
True
True
>>>
```

ASSIGNMENT 6
SET-B

Q.1 Write a python program to inherit (Derived class) "course" from (base class) "University" Using hybrid inheritance concept.

Ans:
```python
class University:
    print("This is Base Class named as University.")

class University1:
    print("This is Base Class named as University1.")

class University2(University1):
    print("This is Derived class Inheriting University1")

class course(University,University2):
    print("This is derived class Inheriting Univeristy and University2 classes.")

obj=course()
```
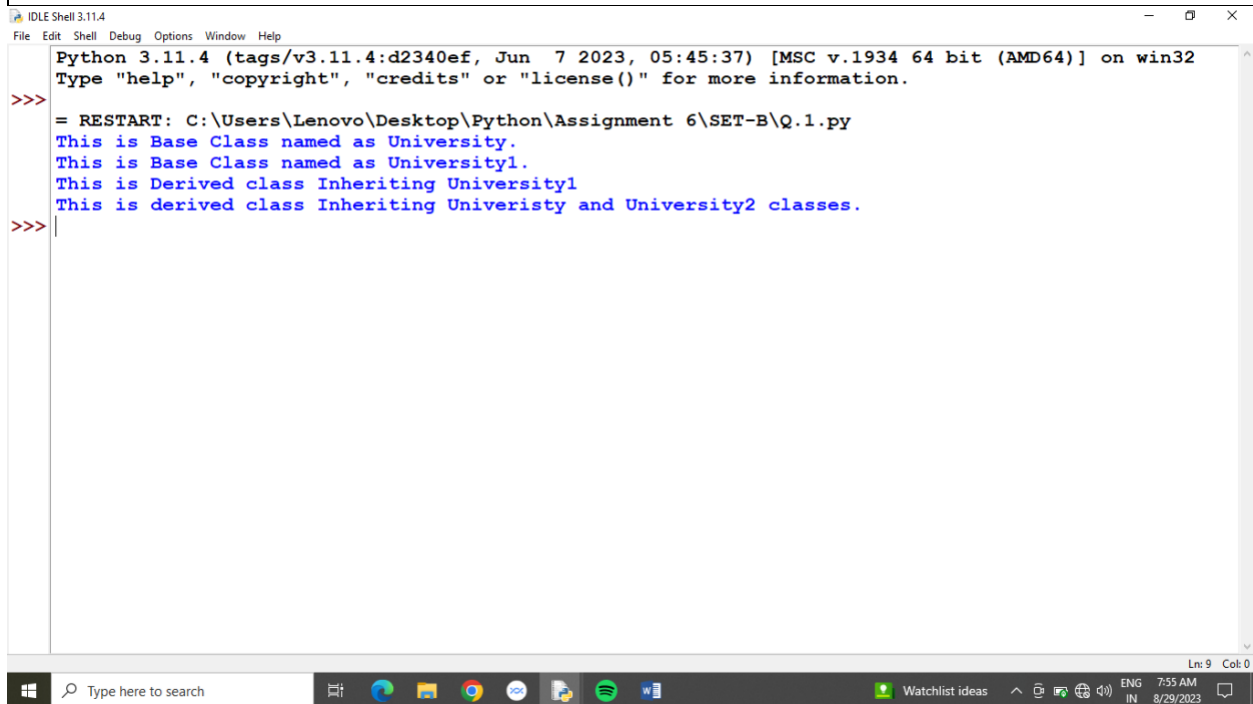
Output:

IDLE Shell 3.11.4

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```
Python 3.11.4 (tags/v3.11.4:d2340ef, Jun  7 2023, 05:45:37) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Lenovo\Desktop\Python\Assignment 6\SET-B\Q.1.py
This is Base Class named as University.
This is Base Class named as University1.
This is Derived class Inheriting University1
This is derived class Inheriting Univeristy and University2 classes.
>>>
```

ASSIGNMENT 6
SET-B

Q.2 Write a python program to show the Hierarchical inheritance of two or more classes named as "Square " & " Triangle" inherit from a single Base class as "Area " .

Ans:
```python
class Area:
    print("Area of :")

class Square(Area):
    def getsquare(self,side):
        self.side=side
        area=side*side
        print(f"Square: {area}")

class Triangle(Area):
    def gettriangle(self,base,height):
        self.base=base
        self.height=height
        area=0.5*base*height
        print(f"Triangle: {area}")

class Rectangle(Area):
    def getrectangle(self,length,breadth):
        self.length=length
        self.breadth=breadth
        area=length*breadth
        print(f"Rectangle: {area}")

obj=Square()
obj.getsquare(4)
obj1=Triangle()
obj1.gettriangle(2,2)
obj3=Rectangle()
obj3.getrectangle(4,4)
```
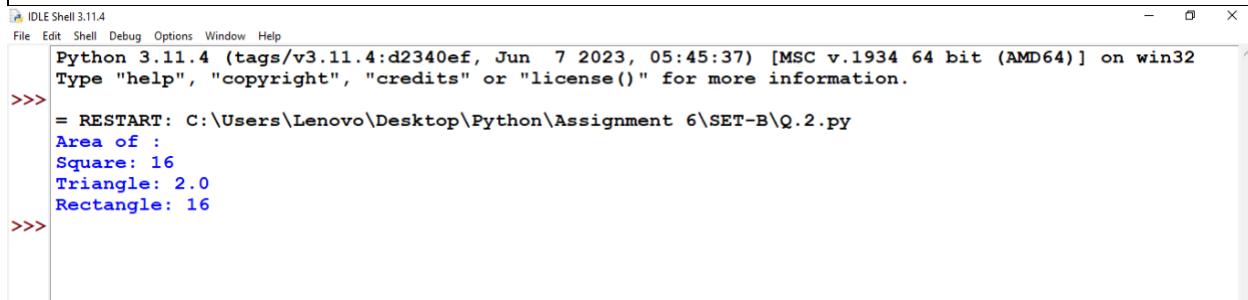
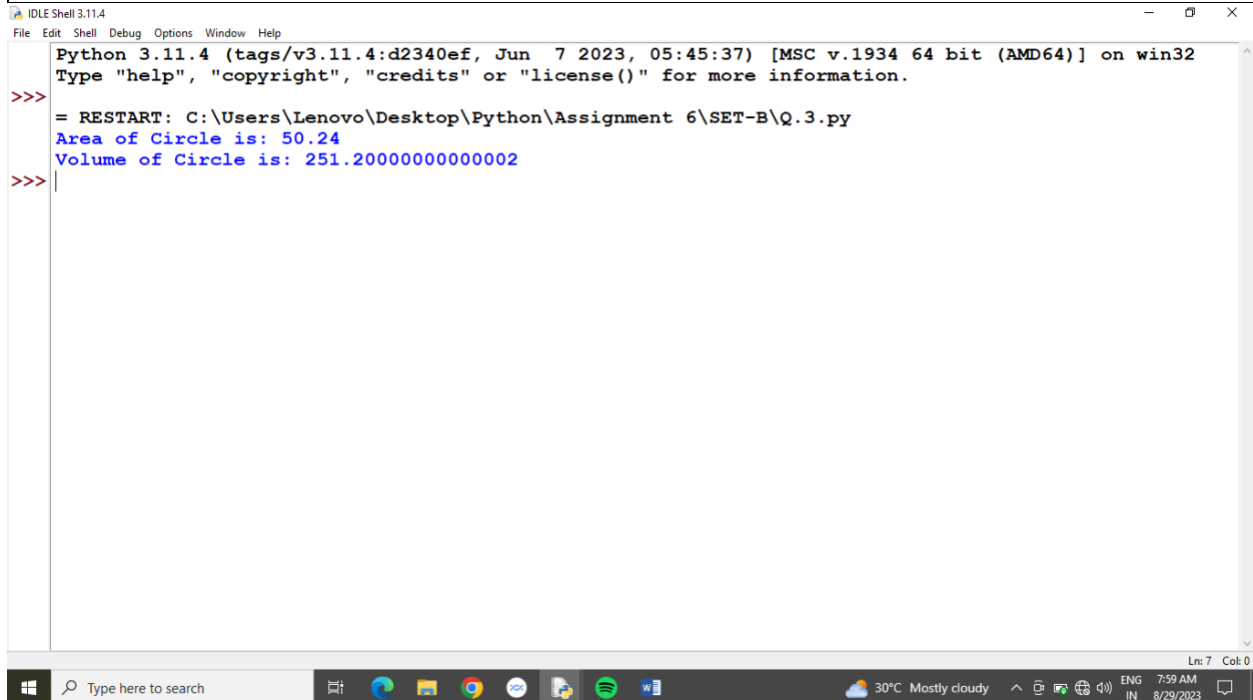Output:

ASSIGNMENT 6
SET-B

Q.3 Define a class named Shape and its subclass (Square/Circle). The subclass has an init function which takes an argument (length/radius). Both classes have an area and volume function which can print the area and volume of the shape where Shape's area is 0 by default.

Ans:
```
class Shape:
    area=0
    pi=3.14
class Circle(Shape):
    def __init__(self,radius,height):
        self.radius=radius
        self.height=height
    def area(self):
        self.area=self.pi*self.radius*self.radius
        print(f"Area of Circle is: {self.area}")
    def volume(self):
        volume=self.pi*self.radius*self.radius*self.height
        print(f"Volume of Circle is: {volume}")

obj=Circle(4,5)
obj.area()
obj.volume()
```

Output:

```
IDLE Shell 3.11.4                                                      —   □   ×
File  Edit  Shell  Debug  Options  Window  Help
    Python 3.11.4 (tags/v3.11.4:d2340ef, Jun  7 2023, 05:45:37) [MSC v.1934 64 bit (AMD64)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
>>>
    = RESTART: C:\Users\Lenovo\Desktop\Python\Assignment 6\SET-B\Q.3.py
    Area of Circle is: 50.24
    Volume of Circle is: 251.20000000000002
>>>
```

ASSIGNMENT 6
SET-B

Q.4 Python Program to Create a Class in which One Method Accepts a String from the User and Another method Prints it. Define a class named Country which has a method called print Nationality. Define subclass named state from Country which has a method called print State . Write a method to print state, country and nationality.

Ans:
```python
class demo:
    def accept(self):
        self.x=input("Enter a String :")

    def display(self):
        print(f"Given String is :{self.x}")


class country:
    def accept(self):
        self.country=str(input("Enter country :"))
        self.nationality=str(input("Enter nationality :"))

    def displaycountry(self):
        print(f"Country is :{self.country}\n Nationality is :{self.nationality}")


class state(country):
    def accept(self):
        self.state=str(input("Enter the state :"))

    def displaystate(self):
        print(f"State is :{self.state}")

demo=demo()
demo.accept()
demo.display()
country=country()
country.accept()
country.displaycountry()
state=state()
state.accept()
state.displaystate()
```

Output:

```
Python 3.11.4 (tags/v3.11.4:d2340ef, Jun  7 2023, 05:45:37) [MSC v.1934 64 bit (
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Lenovo/Desktop/Python/Assignment 6/SET-B/Q.4.py
Enter a String :Ganesh
Given String is :Ganesh
Enter country :India
Enter nationality :Indian
 Country is :India
 Nationality is :Indian
Enter the state :Maharashtra
  State is :Maharashtra
>>>
```

ASSIGNMENT 6
SET-C

Q.1 Write a Python Program to depict multiple inheritance when method is overridden in both classes and check the output accordingly.

Ans:
```
class A:
    print("This is Base Class 1.")
    def show1(self):
        print("Hello GT.")

class B:
    print("This is Base Class 2.")
    def show1(self,x):
        self.x=x
        print(f"Hello {x}")

class C(A,B):
    print("Results are: ")
    obj1=B()
    obj1.show1("Ganesh")


obj=C()
obj.show1()
```
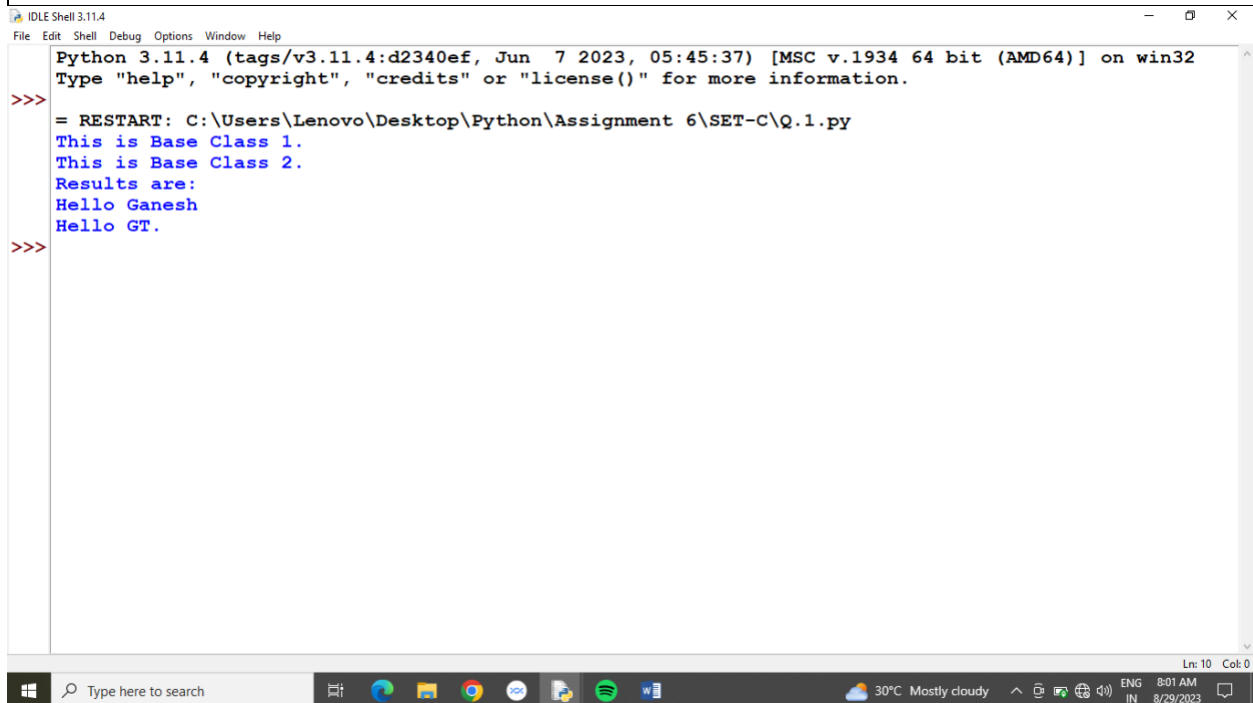
Output:

ASSIGNMENT 6
SET-C

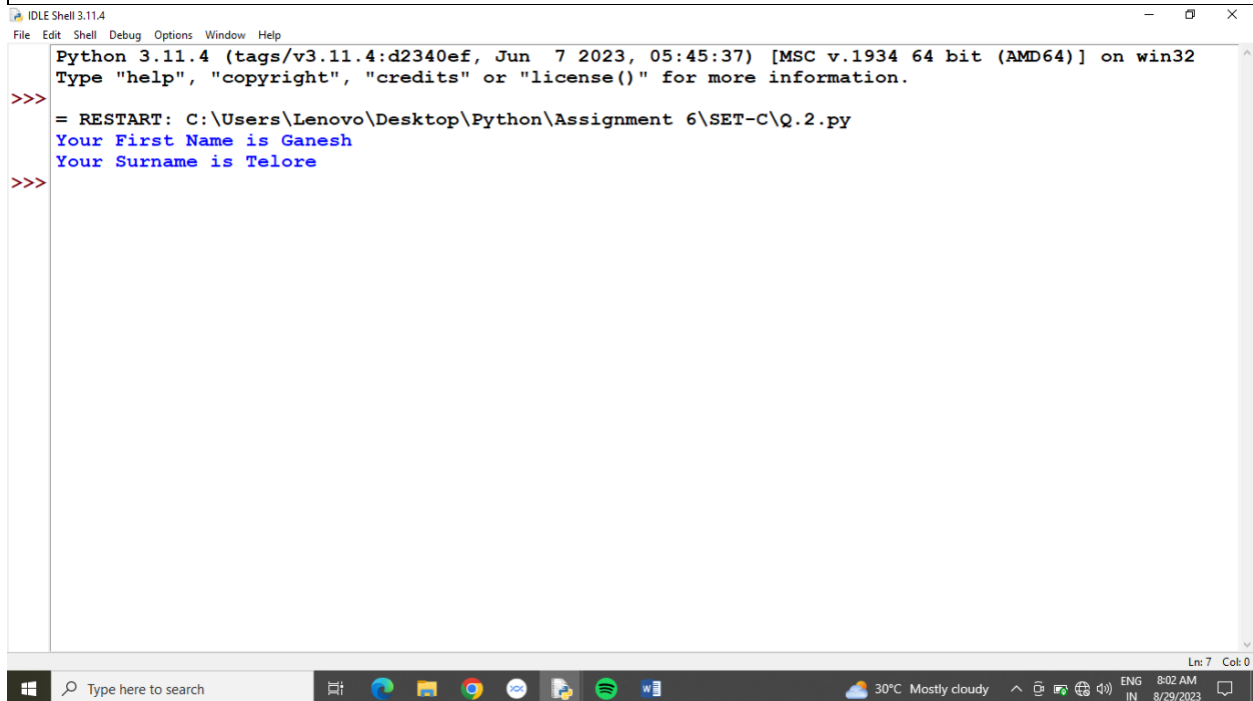| Q.2 Write a Python Program to describe a HAS-A Relationship(Composition). |
|---|

Ans:

```
class demo1:
    def __init__(self,x):
        self.x=x
    def call(self):
        print(f"Your First Name is {self.x}")

class demo2:
    def __init__(self,y):
        self.y=y
    def call2(self):
        print(f"Your Surname is {self.y}")
    obj=demo1("Ganesh")
    obj.call()

obj1=demo2("Telore")
obj1.call2()
```

Output:

IDLE Shell 3.11.4

File Edit Shell Debug Options Window Help

```
Python 3.11.4 (tags/v3.11.4:d2340ef, Jun  7 2023, 05:45:37) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Lenovo\Desktop\Python\Assignment 6\SET-C\Q.2.py
Your First Name is Ganesh
Your Surname is Telore
>>>
```

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