KUMARAGURU

COLLEGE OF TECHNOLOGY

LABORATORY WORKBOOK

Exercise/Experiment Number: 1

Name   VIBIN R
Roll No   20BMC046
Lab Code / Lab   U18CSI2201- PYTHON PROGRAMMING LAB
Course / Branch   B.E/B.Tech
Title of the exercise / experiment Implement simple python programs using interactive and script mode

_____

a)   OBJECTIVE OF THE EXERCISE/EXPERIMENT

Develop simple Python program in interactive and script mode.

b.) Exercise:

1. Write a program to display the statement given below in two different lines.
   I am using Python" and "It's my First Assignment"

<u>Sample Output:</u>

  I am using Python
  It's my First Assignment

<u>Code:</u>

```
print("I am using Python")
print("It's my First Assignment")
```

2. Write a program to display the statements given below. Three print statements
   to be used but the output should be printed in a single line.
   ohhh!!!
   What a Python language is!!!
   It's Easy!Get Started

<u>Sample Output:</u>

ohhh!!! What a Python Language is!!! It's Easy! Get Started

<u>Code:</u>

```
print("ohhh!!!",end=' ')
print("What a Python Language is!!!",end=' ')
print("It\'s Easy! Get Started",end=' ')
```

3. Write a program to display the statements given below. Only one print statement to be used but the output should be printed in three lines.

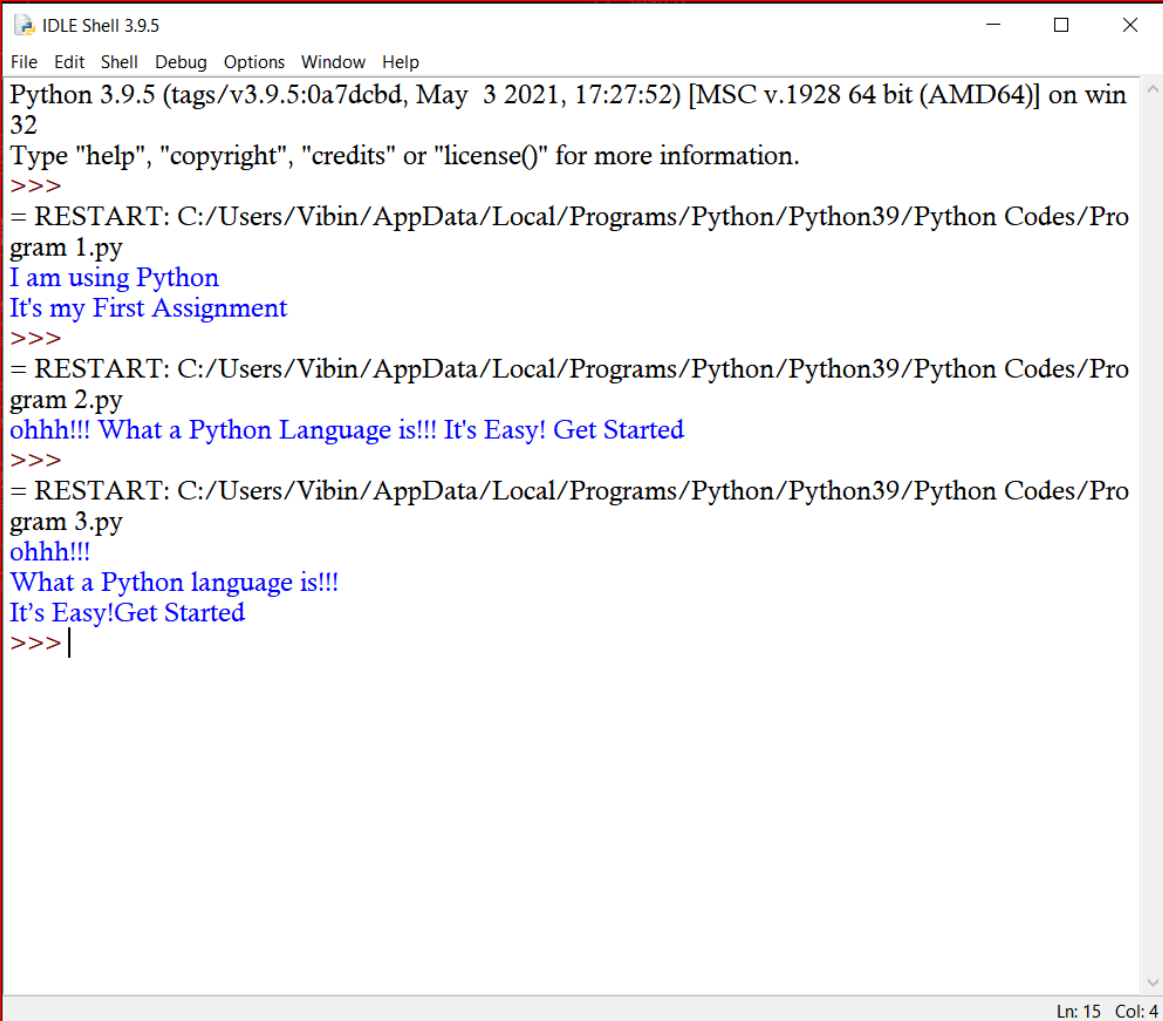ohhh!!!
What a Python language is!!!

It's Easy!Get Started

Sample Output:

ohhh!!!
 What a Python Language is!!!
 It's Easy! Get Started

Code:

```
print("ohhh!!!\nWhat a Python language is!!!  \nIt's Easy!Get Started")
```

Output of Programs 1,2 and 3:

```
IDLE Shell 3.9.5                                              —    □    ×
File  Edit  Shell  Debug  Options  Window  Help
Python 3.9.5 (tags/v3.9.5:0a7dcbd, May  3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win
32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 1.py
I am using Python
It's my First Assignment
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 2.py
ohhh!!! What a Python Language is!!! It's Easy! Get Started
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 3.py
ohhh!!!
What a Python language is!!!
It's Easy!Get Started
>>> |
                                                                  Ln: 15  Col: 4
```

4. Create a program that asks the user to enter their name and their age. Print out a message addressed to them that tells them the year that they will turn 100 years old.

<u>Sample Output:</u>

enter your name:anu
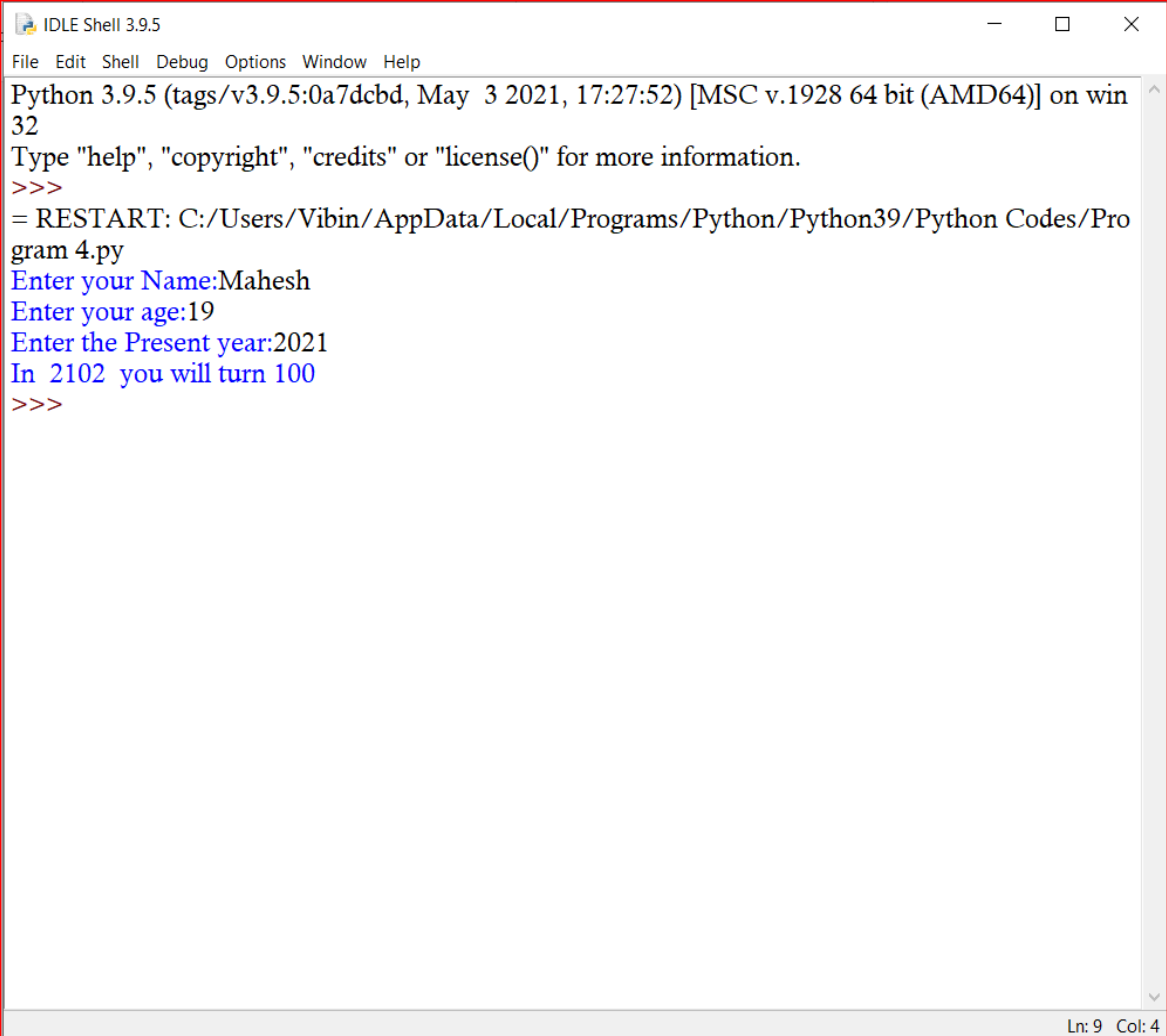
enter your age:18

enter the present year:2021
In 2103 year you will turn 100

<u>Code:</u>

```
name=input("Enter your Name:")
age=int(input("Enter your age:"))
pre_yr=int(input("Enter the Present year:"))
b=100-age
print("In ",pre_yr+b," you will turn 100")
```

<u>Output:</u>

IDLE Shell 3.9.5   — ☐ ✕

File Edit Shell Debug Options Window Help

```
Python 3.9.5 (tags/v3.9.5:0a7dcbd, May  3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win
32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 4.py
Enter your Name:Mahesh
Enter your age:19
Enter the Present year:2021
In  2102  you will turn 100
>>>
```

Ln: 9 Col: 4

5. Write a Python program which accepts the user's first and last name and print them in reverse order with a space between them.

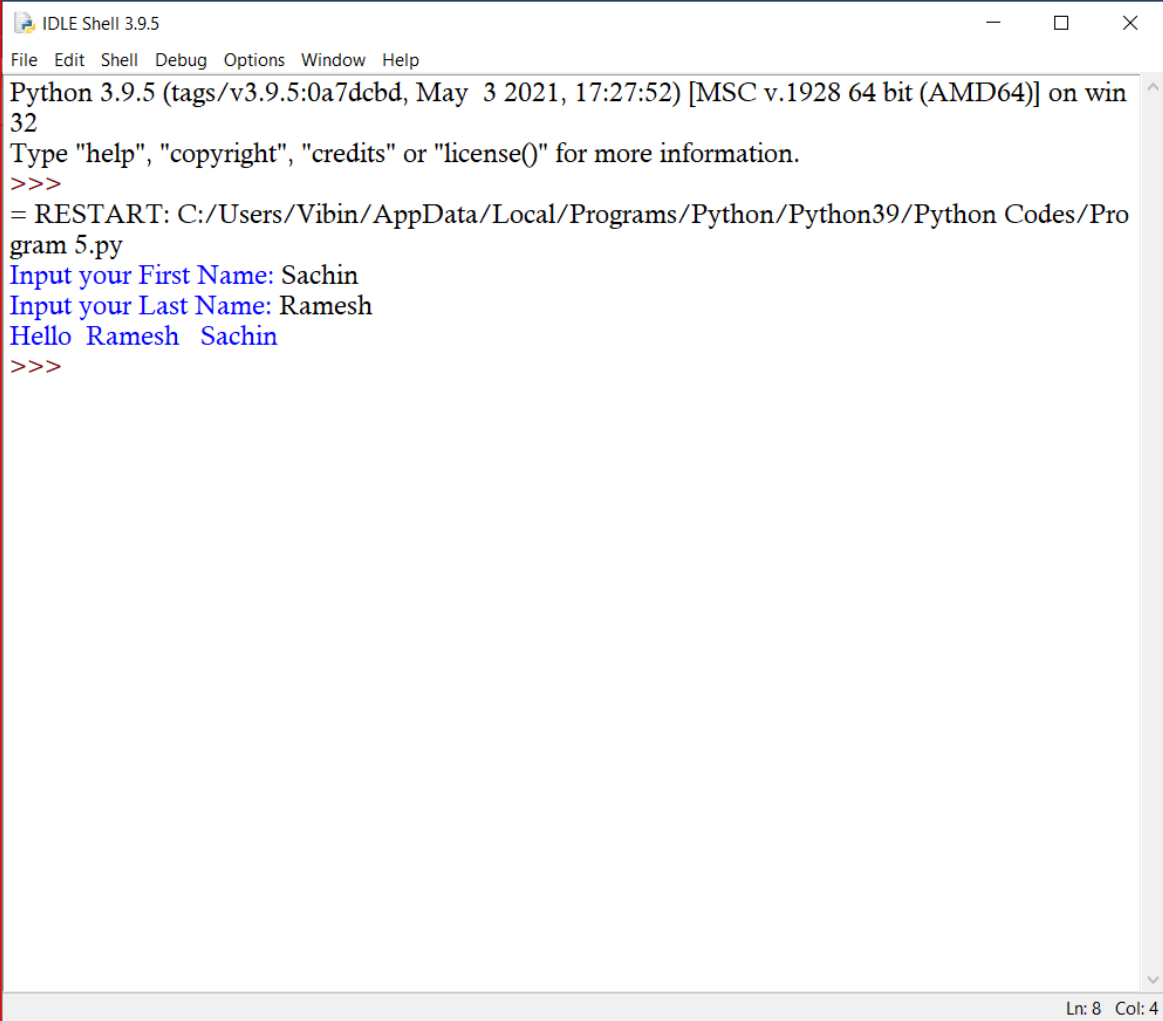**Sample output:**
Input your First Name : Dany
Input your Last Name : Boon
Hello Boon Dany

Code:

```
fn=input("Input your First Name: ")
ln=input("Input your Last Name: ")
print("Hello ",ln," ",fn)
```

Output:

6. Write a program to prompt the user to enter and display their personal details, such as name, address and mobile number.
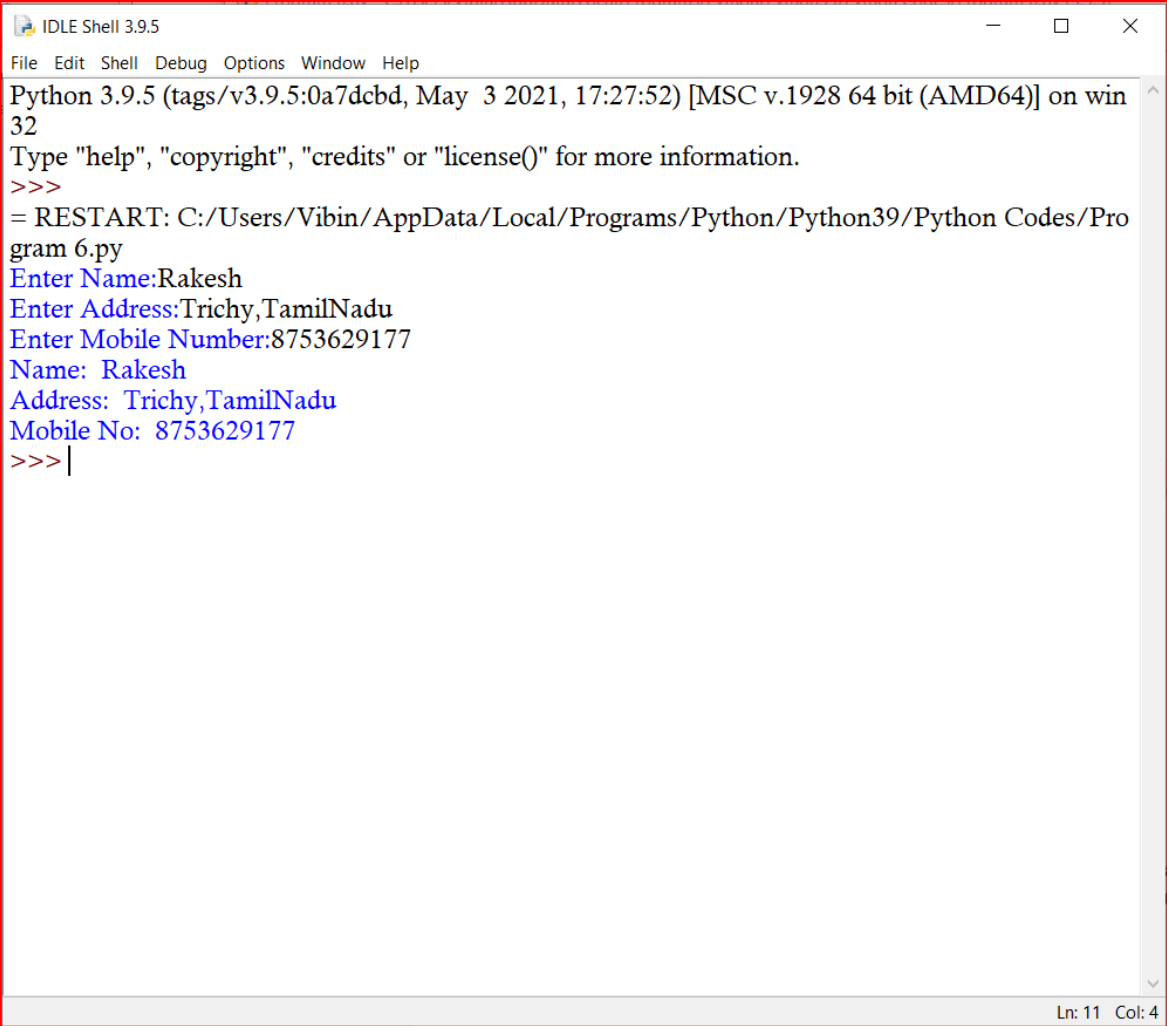
Sample Output:

Enter name:Bill Gates
Enter Address:California, USA
Enter Mobile Number:07146542709
Name: Bill Gates
Address: California, USA
Mobile No: 07146542709

Code:

```
name=input("Enter Name:")
adr=input("Enter Address:")
num=int(input("Enter Mobile Number:"))
print("Name: ",name)
print("Address: ",adr)
print("Mobile No: ",num)
```

Output:

7. Write a program that takes an amount in Indian Rupees as input. You need to find its equivalent in Euro and display it. Assume 1 Euro equals Rs. 80.

<u>Sample Output:</u>

	Input	Output
Test Case 1	20	1600
Test Case 2	50	4000

<u>Code:</u>

```
rup=int(input("Enter the amount in Rupees.  "))
print("The Amount in Rupee = ",rup/80," Euro")
```

<u>Output:</u>

IDLE Shell 3.9.5 — □ ×

File Edit Shell Debug Options Window Help

Python 3.9.5 (tags/v3.9.5:0a7dcbd, May 3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win
32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 7.py
Enter the amount in Rupees. 1600
The Amount in Rupee = 20.0 Euro
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 7.py
Enter the amount in Rupees. 4000
The Amount in Rupee = 50.0 Euro
>>>

Ln: 11 Col: 4

8. Write a program to read the radius of a circle and print the area of the circle.
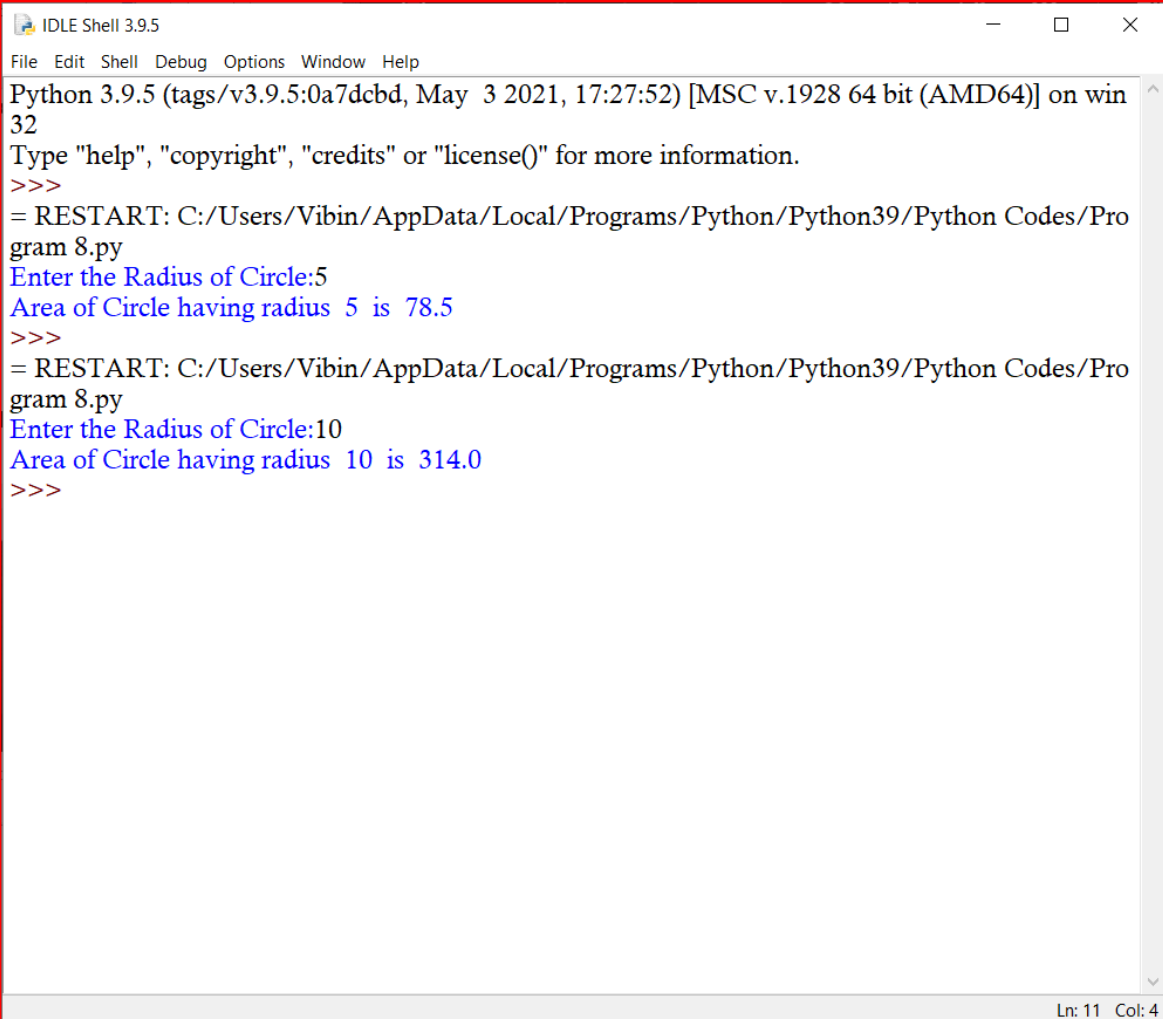
Sample Output:

Enter the radius of Circle:10
area of circle having radius 10 is 314.0

Code:

```
pi=3.14
r=int(input("Enter the Radius of Circle:"))
print("Area of Circle having radius ",r," is ",pi*r*r)
```

Output:

IDLE Shell 3.9.5 — □ ×

File Edit Shell Debug Options Window Help

Python 3.9.5 (tags/v3.9.5:0a7dcbd, May 3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win
32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 8.py
Enter the Radius of Circle:5
Area of Circle having radius 5 is 78.5
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 8.py
Enter the Radius of Circle:10
Area of Circle having radius 10 is 314.0
>>>

Ln: 11 Col: 4

9. Write a program to read the marks of 5 subjects through the keyboard. Find out the aggregate and percentage of marks obtained by the student. Assume maximum marks that can be obtained by a student in each subject are 100.
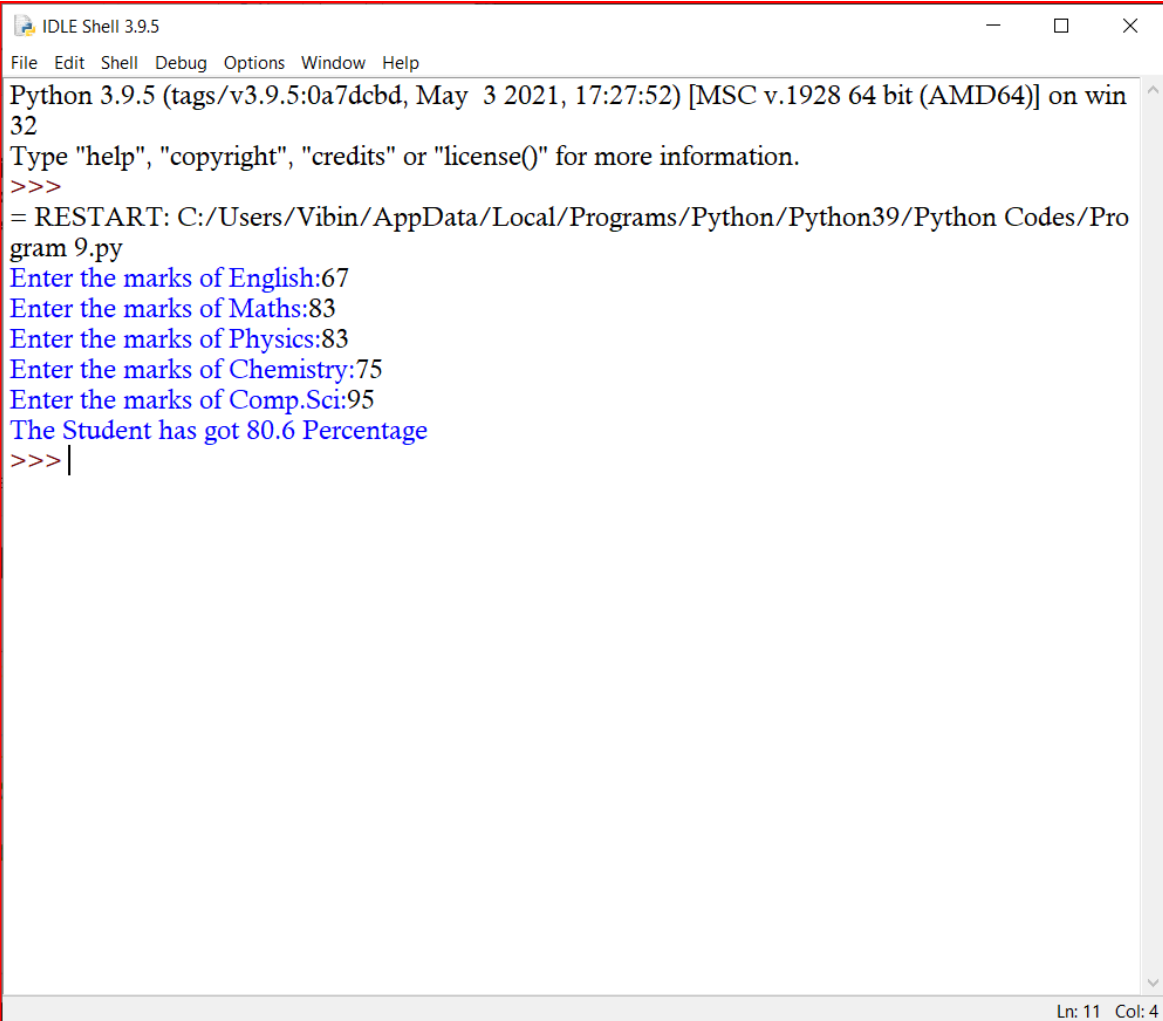
Sample Output:

Enter the marks of English Subject:50
Enter the marks of Science Subject:70
Enter the marks of Geography Subject:90
Enter the marks of History Subject:65
Enter the marks of Physics Subject:76
Student has got 70.19999999999999 Percentage

Code:

```
eng=eval(input("Enter the marks of English:"))
mat=eval(input("Enter the marks of Maths:"))
phy=eval(input("Enter the marks of Physics:"))
che=eval(input("Enter the marks of Chemistry:"))
com=eval(input("Enter the marks of Comp.Sci:"))
total=eng+mat+phy+che+com
print("The Student has got",total/5,"Percentage")
```

Output:

IDLE Shell 3.9.5   —   □   ✕

File Edit Shell Debug Options Window Help

Python 3.9.5 (tags/v3.9.5:0a7dcbd, May 3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win
32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/Vibin/AppData/Local/Programs/Python/Python39/Python Codes/Pro
gram 9.py
Enter the marks of English:67
Enter the marks of Maths:83
Enter the marks of Physics:83
Enter the marks of Chemistry:75
Enter the marks of Comp.Sci:95
The Student has got 80.6 Percentage
>>>|

Ln: 11 Col: 4

10. Write a program to read radius of sphere from user and calculate the volume of sphere. Note: Volume of Sphere = 4/3*3.14*r³

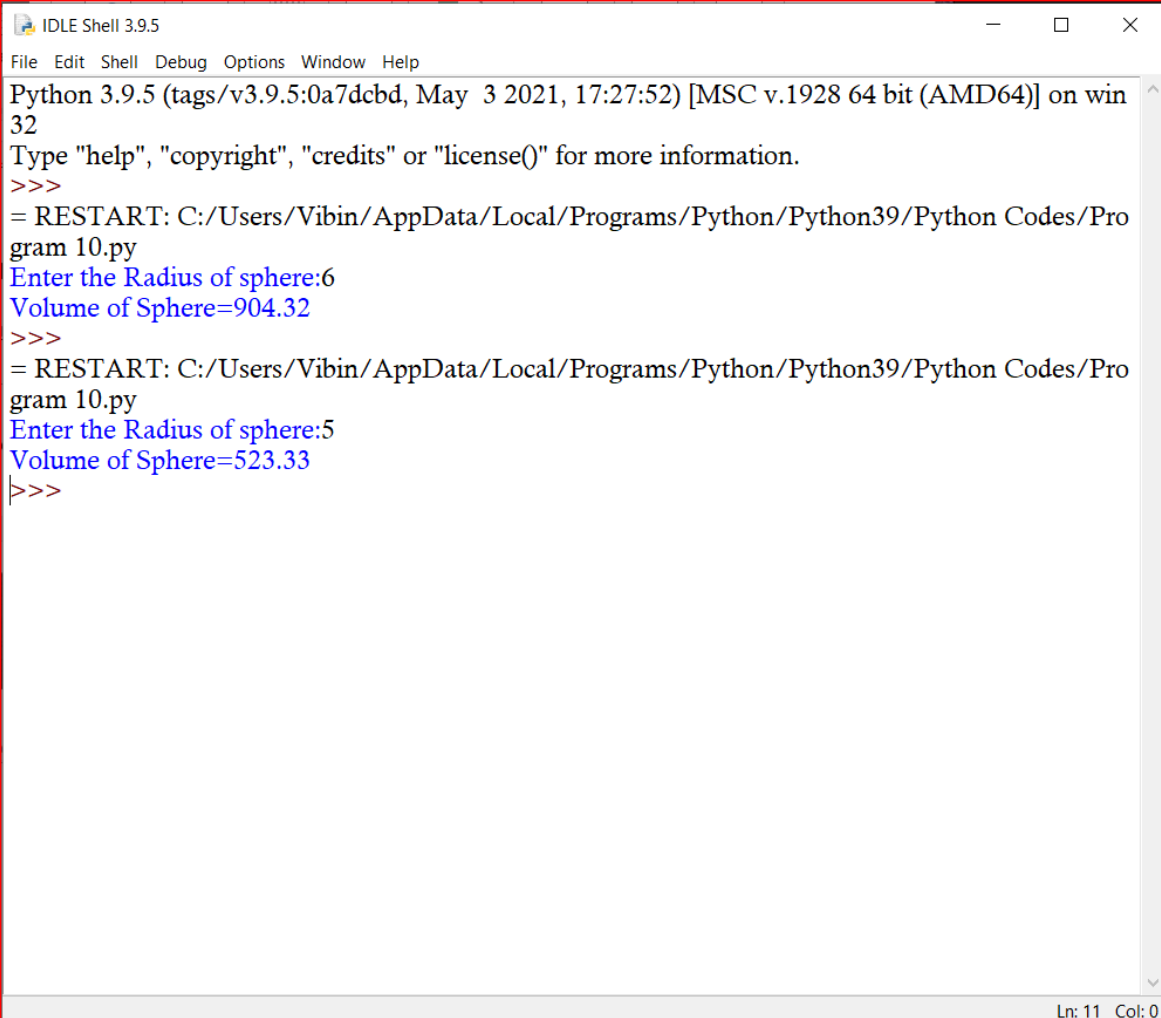**Sample Output:**

Enter the radius of Sphere:5
Radius of Sphere: 5.0
Volume of Sphere is: 523.33

Code:

```
pi=3.14
r=float(input("Enter the Radius of sphere:"))
vol=4/3*pi*r**3
print("Volume of Sphere={0:.2f}".format(vol))
```

Output:

11. If ATM contains Indian currency notes of 100, 500, and 2000. To withdraw cash from ATM, the user has to enter number of notes he/she wants of each currency i.e. of 100, 500 and 2000. So write a program calculate total amount withdrawn by person from ATM in terms of rupees.

Sample Output:

Enter the number of 100Rs notes you want to withdraw:5
Enter the number of 500Rs notes you want to withdraw:5
Enter the number of 2000Rs notes you want to withdraw:4
Total Amount Withdrawn = 1100 Rs

Code:

```
a=int(input("Enter the Number of 100 Rs. notes to withdraw:"))
b=int(input("Enter the Number of 500 Rs. notes to withdraw:"))
c=int(input("Enter the Number of 2000 Rs. notes to withdraw:"))
print("Total Amount Withdrawn=Rs.",a*100+b*500+c*2000)
```

Output:

```
In [1]: runfile('C:/Users/Vibin/AppData/Local/Programs/Python/
Python39/Python Codes/Program 11.py', wdir='C:/Users/Vibin/AppData/
Local/Programs/Python/Python39/Python Codes')

Enter the Number of 100 Rs. notes to withdraw:5

Enter the Number of 500 Rs. notes to withdraw:8

Enter the Number of 2000 Rs. notes to withdraw:2
Total Amount Withdrawn=Rs. 8500
```

12. Write a program to swap value of two variables.

Sample Output:

Enter value of x: 12
Enter value of y: 15
The value of x after swapping: 15
The value of y after swapping: 12

Code:

```
x=int(input("Enter value of x:"))
y=int(input("Enter value of y:"))
x,y=y,x
print ("After Swapping:")
print ("Value of x",x)
print ("Value of y",y)
```

Output:

13. Write a Python program to get employee wages and number of days worked from user and find Basic Pay, DA, HRA, PF and Net Pay. (Note HRA, DA and PF are 10%,5%and 12% of basicpay respectively.)

Formula for basic pay and net pay calculation:
basic=wages*days
netsalary=basic+HRA+DA-PF

Sample Output:
Enter No Days Present:5

Enter wages per Day:200

Basic:1000.000000
HRA:100.000000
DA:50.000000
PF:120.000000
Net Salary:1030.000000

Code:
```
wages=eval(input("Enter the Employee Wages:"))
days=eval(input("Enter the no.of days worked:"))
basic=wages*days
hra=10/100*basic
da=5/100*basic
pf=12/100*basic
net=basic+hra+da-pf
print("Basic Pay:",basic)
print("HRA:",hra)
print("DA:",da)
print("PF:",pf)
print("Net Salary:",net)
```

Output:

```
In [6]: runfile('C:/Users/Vibin/AppData/Local/Programs/Python/
Python39/Python Codes/Program 13.py', wdir='C:/Users/Vibin/AppData/
Local/Programs/Python/Python39/Python Codes')

Enter the Employee Wages:630

Enter the no.of days worked:25
Basic Pay: 15750
HRA: 1575.0
DA: 787.5
PF: 1890.0
Net Salary: 16222.5
```

14. Write a program to compute distance between two points taking input from the user (Pythagorean Theorem)

Sample Output:
Enter x1:10
Enter y1:20
Enter x2:15
Enter y2:19
Distance between two points: 5.0990195135927845

Code:

```python
import math
x1=eval(input("Enter x1 value:"))
x2=eval(input("Enter x2 value:"))
y1=eval(input("Enter y1 value:"))
y2=eval(input("Enter y2 value:"))
dis=math.sqrt((x2-x1)**2+(y2-y1)**2)
print("Distance between two points is",dis)
```

Output:

```
In [7]: runfile('C:/Users/Vibin/AppData/Local/Programs/Python/
Python39/Python Codes/Program 14.py', wdir='C:/Users/Vibin/AppData/
Local/Programs/Python/Python39/Python Codes')

Enter x1 value:9

Enter x2 value:12

Enter y1 value:5

Enter y2 value:8
Distance between two points is 4.242640687119285
```

15. Write a program initialize the string "hello world" to a variable Str1 and convert the string into upper case.

Code:

```
str="hello world"
print(str.upper())
```

Output:

```
In [9]: runfile('C:/Users/Vibin/AppData/Local/Programs/Python/
Python39/Python Codes/Program 15.py', wdir='C:/Users/Vibin/AppData/
Local/Programs/Python/Python39/Python Codes')
HELLO WORLD
```

16. Write a program to read a 4 digit number through keyboard and calculate the sum of its digits. (Use % and //)

Sample Output:

Enter 4 digit number: 4225
Entered number is: 4225
Sum of all the digits within number 4225 is : 13

Code:

```
n=int(input("Enter a 4 digit Number  "))
r1=n%10
a1=n//10
r2=a1%10
a2=a1//10
r3=a2%10
a3=a2//10
r4=a3%10
print("Sum of digits of Number {0} is {1}".format(n,r1+r2+r3+r4))
```

Output:

```
In [2]: runfile('C:/Users/Vibin/AppData/Local/Programs/Python/
Python39/Python Codes/Program 16.py', wdir='C:/Users/Vibin/AppData/
Local/Programs/Python/Python39/Python Codes')

Enter a 4 digit Number  3758
Sum of digits of Number 3758 is 23

In [3]: runfile('C:/Users/Vibin/AppData/Local/Programs/Python/
Python39/Python Codes/Program 16.py', wdir='C:/Users/Vibin/AppData/
Local/Programs/Python/Python39/Python Codes')

Enter a 4 digit Number  1234
Sum of digits of Number 1234 is 10
```

KUMARAGURU
COLLEGE OF TECHNOLOGY
LABORATORY WORKBOOK

Exercise/Experiment Number: 2

Name	**VIBIN R**
Roll No	**20BMC046**
Lab Code / Lab	**U18CSI2201- PYTHON PROGRAMMING LAB**
Course / Branch	**B.E/B.Tech**
Title of the exercise / experiment	Implement simple python programs using interactive and script mode

_____

STEP 1: INTRODUCTION

a) OBJECTIVE OF THE EXERCISE/EXPERIMENT

Develop simple Python program using id() and type().

STEP 2: ACQUISITION

b) Facilities/material required to do the exercise/experiment:

Sl.No.	Facilities/material required	Quantity
1.	Anaconda SPYDER IDE	**1**

c) Procedure for doing the exercise/experiment:

1.Illustrate the use of id()
a=5

print('id of 5 =',id(5))
id of 5 = 1927572672

b=5

print('id of 5 =',id(5))
id of 5 = 1927572672

print('id of 5 =',id(a))
id of 5 = 1927572672

print('id of 5 =',id(b))

id of 5 = 1927572672

b=6

print('id of 5 =',id(b))
id of 5 = 1927572704

Result:

```
In [1]: a=5

In [2]: print("id of 5=",id(5))
id of 5= 140713072535456

In [3]: b=5

In [4]: print("id of 5=",id(5))
id of 5= 140713072535456

In [5]: print('id of 5 =',id(a))
id of 5 = 140713072535456

In [6]: print('id of 5 =',id(b))
id of 5 = 140713072535456

In [7]: b=6

In [8]: print('id of 5 =',id(b))
id of 5 = 140713072535488

In [9]: print('id of 6 =',id(b))
id of 6 = 140713072535488
```

2. Illustrate the use of type()
type(2)
int

type(2+5j)
complex

type(True)
bool

type(14.5)
float

type("welcome")
 str

Result:

```
In [10]: type(6)
Out[10]: int

In [11]: type(14.78)
Out[11]: float

In [12]: type(5.33333333334)
Out[12]: float

In [13]: type(3+9j)
Out[13]: complex

In [14]: type(False)
Out[14]: bool

In [15]: type('Beautiful')
Out[15]: str
```

3.Illustrate id() and type():
name="abc"

id(name)
Output:
1998482202440

type(name)
Output:
Str

Result:

```
IPython 7.19.0 -- An enhanced Interactive Python.

In [1]: a="The World is Beautiful!"

In [2]: print (id(a))
2853476378064

In [3]: print(type(a))
<class 'str'>

In [4]: b=4

In [5]: print("ID:",id(b),"TYPE:",type(b))
ID: 140713072535424 TYPE: <class 'int'>
```

4. Write a program to read an integer as string. Convert the string into integer and display the type of value before and after converting to int.

Sample Output:

Please Enter the number:10
10 and its type is <class 'str'>
10 and its type after converting <class 'int'>

Code:

```python
n=input("Enter a Number:")
print("Entered number is",n,"\nType is",type(n))
n=int(n)
print("Type of {0} after Conversion is {1}".format(n,type(n)))
```

Output:

```
In [6]: runfile('C:/Users/Vibin/Python Scripts/Python Codes/Pro 2_1.py',
wdir='C:/Users/Vibin/Python Scripts/Python Codes')

Enter a Number:67
Entered number is 67
Type is <class 'str'>
Type of 67 after Conversion is <class 'int'>
```