Chapter 3: Working With Functions

1. Definition:

A ***Function*** is a ***subprogram*** that acts on data and ***often returns a value***.

Or

A ***function*** is a named unit of a ***group of program statements***. This unit can be invoked from ***other parts of the program*** as and when required.

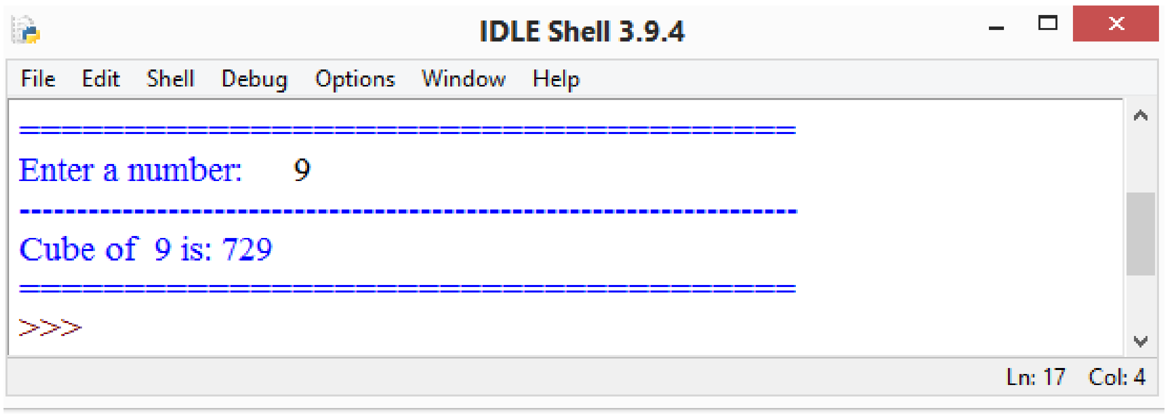
Example:

#Prg-1 Program to calculate cube of given number through function.

```
def calcube(x):                # Function Definition
    res=x**3
    return res

print('\n====================================')
num=int(input("Enter a number:\t"))
print('-----------------------------------------------------------------')
cube=calcube(num)          # Function Call
print("Cube of ",num,"is:",cube,sep=' ')
print('====================================')
```

Output:



```
====================================
Enter a number:	9
-----------------------------------------------------------------
Cube of  9 is: 729
====================================
>>>
```

Prg-2 Program to add two numbers through function

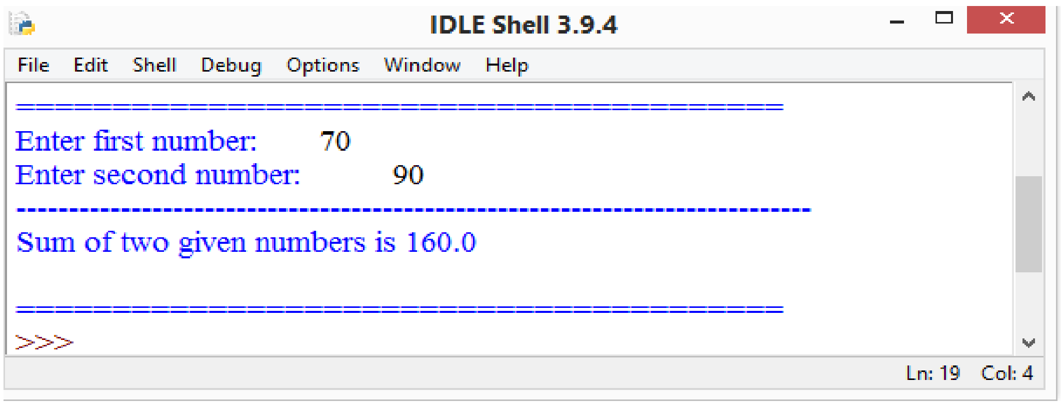
```
def calsum(x,y):                                    #Function Definition
    s=x+y
    return s

print('\n========================================')
num1=float(input("Enter first number:\t"))
num2=float(input("Enter second number:\t"))
print('----------------------------------------------------------------------------')

Sum=calsum(num1,num2)                               #Function Call

print("Sum of two given numbers is",Sum,sep=' ')
print('\n========================================')
```

Output:



```
========================================
Enter first number:     70
Enter second number:        90
----------------------------------------------------------------------------
Sum of two given numbers is 160.0

========================================
>>>
```

2. Arguments and Parameters:

The values being passed through a function-call statement are called ***arguments*** or ***(actual parameters or actual argument).***

The values received in the function definition/header are called ***parameters*** or ***(formal parameters or formal aguments)***

We can say that Python refers to the values being passed (through function call) as ***argument*** and value being received (in function definition***) as parameters***.

Arguments in Python can be one of these following value types:

i) Literals

e.g.

multiply(17,9) #both literal arguments

ii) Variable

e.g.

multiply(d, 90) #One variable *i.e* ***d*** and one literal *i.e.* ***90*** argument

iii) Expressions

e.g.

multiply(d, d*10) #One variable *i.e* ***d*** and one expression *i.e.* ***d*10*** argument

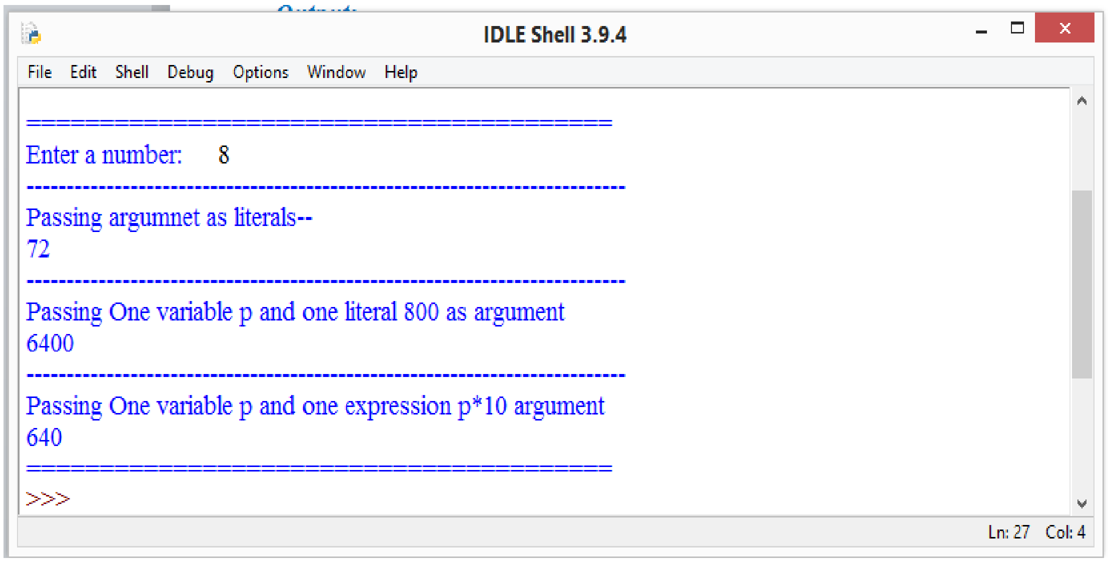
Example:

```
def multiply(x,y):
    print(x*y)

print("\n=======================================")
p=int(input("Enter a number:\t"))
print('--------------------------------------------------------------------------')

print("Passing argumnet as literals--")
multiply(9,8)
print('--------------------------------------------------------------------------')
print("Passing One variable p and one literal 800 as argument")
multiply(p,800)
print('--------------------------------------------------------------------------')
print("Passing One variable p and one expression p*10 argument")
multiply(p,p*10)
print("=======================================")
```

Output:



```
=======================================
Enter a number:	8
--------------------------------------------------------------------------
Passing argumnet as literals--
72
--------------------------------------------------------------------------
Passing One variable p and one literal 800 as argument
6400
--------------------------------------------------------------------------
Passing One variable p and one expression p*10 argument
640
=======================================
>>>
```