Function

Function is an organized block of code which are reuseable for programs.

Syntax:-

```
def functionname( parameters ):
        "function_docstring"
    function_suite
    return [expression]
```

Example:-

```
# Function definition is here
def sum( arg1, arg2 ):
   “Add both the parameters and return them."
   total = arg1 + arg2
        return total
# Now you can call sum function
x= sum( 10, 20 )
print( “total value:", x)
```

Function type:-

Required arguments

```
        def printsome( x):
          "printing a string"
          print(x)
        # calling printsome function
        printsome("first calling")
        printsome()
```

Keyword arguments

```
def printsome( x ):
  "printing a string"
  print(x)
# Now you can call printsome function
printsome(x=10)
```

Default arguments

```
def printinfo( name, age = 35 ):
  "This prints a passed info into this function"
  print ("Name: ", name)
  print ("Age ", age)

# Now you can call printinfo function
printinfo( age=50, name="piyush" )
printinfo( name="piyush" )
```

Variable-length arguments

```
def printinfo( arg1, *vartuple ):
        "This prints a variable passed arguments"
        print("Output is")
        print(“argument value:”,arg1)
        for var in vartuple:
                print(“tuple value:”,var)
# Now you can call printinfo function
printinfo(10)
printinfo(70, 60, 50)
```

```
def fun1(*tup1, **dict1):
   print(tup1)
   print(dict1)
         for k,v in dict1.items():
               print(k,v)
fun1(2,3,5,6)
fun1(2,3,5,6,c=8,d=9,e="abc",f="xyz")
```

Modules

- A module is a file contains functions, classes and variables.
- Python modules are .py files that consist of Python code. Any Python file can be referenced as a module.
- Some modules are available through the Python Standard Library and installed with your Python installation. Others can be installed with Python's package manager pip. Additionally, you can create your own Python modules since modules are comprised of Python .py files.
- List all modules of python-- >>>help('modules')

```
# Define a function
 def world():
         print("Hello, World!")
#Save as ->hello.py
# Import hello module
import hello
# Call function
hello.world()
#Save as ->main_program.py
```

```
>>> from math import *
>>> sqrt(5)
2.23606797749979
>>> from math import sqrt
>>> sqrt(5)
2.23606797749979
>>> from math import sqrt as SQ
>>> SQ(5)
2.23606797749979
```