**Functions**

A Python function is a block of organized, reusable code that is used to perform a single, related action. Functions provide better modularity for your application and a high degree of code reusing

A Python function may be invoked from any other function by passing required data (called **parameters** or **arguments**). The called function returns its result back to the calling environment.

## **Types of Python Functions**

Python provides the following types of functions −

* Built-in functions
* Functions defined in built-in modules
* User-defined functions

Python's standard library includes number of built-in functions. Some of Python's built-in functions are print(), int(), len(), sum(), etc. These functions are always available, as they are loaded into computer's memory as soon as you start Python interpreter.

## **Defining a Function in Python**

* Function blocks begin with the keyword **def** followed by the function name and parentheses ( ( ) ).
* Any input parameters or arguments should be placed within these parentheses. You can also define parameters inside these parentheses.
* The first statement of a function can be an optional statement; the documentation string of the function or docstring.
* The code block within every function starts with a colon (:) and is indented.
* The statement **return [expression]** exits a function, optionally passing back an expression to the caller. A **return** statement with no arguments is the same as return None.

Example:

*def greetings():*

*"This is docstring of greetings function"*

*print ("Hello World")*

*Return*

*greetings()*

**Python uses pass by reference mechanism**. As variable in Python is a label or reference to the object in the memory, the both the variables used as actual argument as well as formal arguments really refer to the same object in the memory. We can verify this fact by checking the id() of the passed variable before and after passing.

## **Function Arguments**

The process of a function often depends on certain data provided to it while calling it. While defining a function, you must give a list of variables in which the data passed to it is collected. The variables in the parentheses are called formal arguments.

## **Function with Return Value**

The **return** keyword as the last statement in function definition indicates end of function block, and the program flow goes back to the calling function. Although reduced indent after the last statement in the block also implies return but using explicit return is a good practice.