**Functions**

* Function is a named group of instructions that accomplish some task.
* It can be called as many times as needed in a given program.

**Defining Functions :-**

def name\_of\_function(list\_of\_parameter)

#function\_body

#function\_body

#function\_body

* Function names followed by comma separated can be an empty list of identities (n1,n2,n3) called as formal parameters.
* The number of values that must be passed to function, called actual arguments.

**Example :-**

def avg\_3(n1,n2,n3):

return (n1+n2+n3)/3.0

num1 = 10

num2 = 20

num3 = 30

avg = avg\_3(num1,num2,num3)

print("avg is 4",avg)

**Output :-**

avg is 4 20.0 …………………………………………………………………………………………………………………

**Calling** **a** **Function :-**

* After defining a function it is called from anywhere in the program.
* To call a function , write the function name with parameters.

**Example :-**

def addition(a, b):

add = (a + b)

print(add)

a = 10

b = 10

addition(a, b)

**Output :-**

20 ……………………………………………………………………………………………… …………………

* In python, all arguments are supplied by reference. It implies that if we modify the value of an argument within a function, the change is also reflected in the calling function.

**Function Arguments :-**

Following are the types of arguments in python :

1. Default arguments
2. Keyword arguments
3. Required arguments
4. Variable-length arguments

**1. Default Arguments :-**

* A default argument is a kind of parameter that takes as input a default (parameter) value if no value is supplied for the argument when the function is called.
* Once we have a default argument, all the arguments to its right must have a default value.
* Order is important

**Example :-**

def greet(name, greeting="Hello"):

print(greeting, name)

greet("John") # This will print: Hello John

greet("John", "Hi") # This will print: Hi John

**Output :-**

Hello John

Hi John

**2. Keyword Argument :-**

* The idea is to allow the caller to specify the argument name with values so that the caller does not need to remember the order of parameters.
* Order is not important
* No. of parameter = No. of arguments
* Keyword arguments should follow positional arguments

**Example :-**

def greet(name, greeting="Hello"):

print(greeting, name)

greet(name="John") # This will print: Hello John

greet(greeting="Hi", name="John") # This will print: Hi John

**Output :-**

Hello John

Hi John

**3. Variable-length Argument :-**