Functions in Python

function is a block of reusable code that perform a specific task.

It helps in breaking a large program into small manageable parts.

why ?

- → increases code reusability
- → improves readability and modularity
- → easier debugging and testing

Types of function -

1) Built in functions - provided by python
   print(), input(), lower(), len() etc.
2) user defined functions - created by programmer using def
3) lambda functions - anonymous, single line functions created with lambda

user defined functions:

```
def fun_name(parameters name):
    statements
    return value.
```

different methods of user defined functions:

1) functions without input and without return
2) function with input and without return
3) function without input and with return
4) function with input and with return

1) functions without input and without return

Syntax

```
def fun_name():
    statements
#calling the function
    function_name()
```

eg

```
def add1():
    a = int(input("enter a value"))
    b = int(input("enter b value"))
    s = a+b
    print(f"the sum of {a} and {b} is {s}")
add1()
```

local variable: any variable declared inside function

global variable: any variable declared outside function

2) function with input and without return

```
def fun_name(p1, p2 ..., pn):
    statements
Calling the function
read the parameters p1, p2, .. pn
fun_name(p1, p2 ..., pn)
```

```
def add2(n1, n2):
    s = n1+n2
    print(f"the sum of {n1} and {n2} is {s}")
add2(5,8)
```

the sum of 5 and 8 is 13

```
x = int(input("enter a value :"))
y = int(input("enter b value :"))
add2(x,y)
```

enter a value : 12
enter b value : 5
the sum of 12 and 5 is 17

```
print(x, y)
```

12 5

3) function without input and with return

```
def fun_name():
    statements
    return value
var = fun_name()      # calling the function
statements
```

```
def add3():
    a = int(input("enter a value"))
    b = int(input("enter b value"))
    s = a+b
    return a,b,s
add3()
```

enter a value 45
enter b value 12
(45, 12, 57)

```
x, y, z = add3()
print(f"the sum of {x} and {y} is {z}")
```

The sum of 2 and 9 is 11

4) function with input and with return

```
def fun_name (p1, p2 . . pn):
    statements
    return value
```

Calling the function

read the parameters p1, p2 . . pn

var = fun_name (p1, p2 . . pn)

```
def add4(num1, num2):
    s = num1 + num2
    return s
x = 12
y = 15
sum_out = add4(x, y)
print(f" the sum of {x} and {y} is {sum_out}")
```

the sum of 12 and 15 is 27

```
add4(34, 12)
```

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