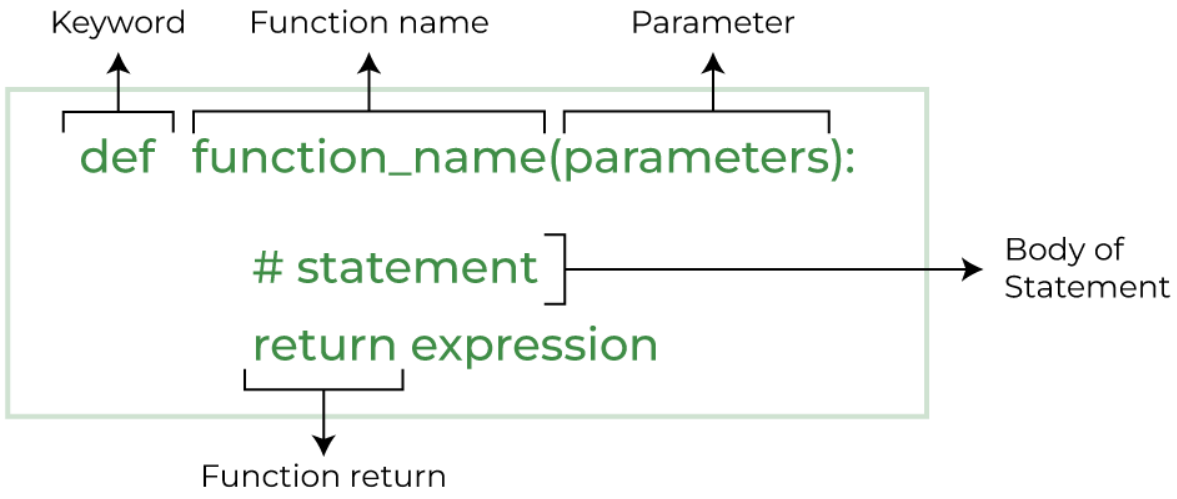
Functions in Python

Python Functions is a block of statements that return the specific task. The idea is to put some commonly or repeatedly done tasks together and make a function so that instead of writing the same code again and again for different inputs, we can do the function calls to reuse code contained in it over and over again.




```
#Basic Hellow world function
def hello():
    print("Hello User!")
hello()
```

```
Hello User!
```

```
#create a function that add 100 to user input number and display the result
def add_100():
    a = int(input("Enter a number: "))
    print(a + 100)

add_100()
```

```
Enter a number: 57
157
```

Functions with Arguments/Parameter

```
# create a function to sum up three number given by user as parameter
def add_3_numbers(x,y,z):####arguments/parameters
    a=x+y+z
    print(a)

add_3_numbers(50,100,150)
```

```
300
```

```
# create a functions that convert any word from lower_case to Upper_case
def upper_case(a):
    a = a.upper()
    print(a)

x = input("Enter any word: ")
upper_case(x)
```

```
Enter any word: zahid salim shaikh
ZAHID SALIM SHAIKH
```

```
# create a functions that convert any word from Upper_case to lower_case
def lower_case(a):
    a = a.lower()
    print(a)

x = input("Enter any word: ")
lower_case(x)
```

```
Enter any word: ZAHID SALIM SHAIKH
zahid salim shaikh
```

```
## create a function which will check wheather the number is multiple of 11
def m_o_11(x):
```

```
    if x%11==0:
        print(x,'is multiple of 11')
    else:
        print(x,'is not a multiple of 11')

m_o_11(77)
```

```
77 is multiple of 11
```

Learning Progress:

Functions:

- I have thoroughly grasped the concept of functions in Python, understanding their role in modularizing code and promoting code reuse.
- I have mastered defining functions with parameters, returning values, and utilizing them within programs.
- I can effectively call functions with arguments and manipulate data within the function scope.
- I have explored various function features, including recursion, lambda expressions, and variable scope.

Next Steps:

Program Development:

I will build three small programs to showcase my understanding of functions:

1. Calculator: This program will utilize functions to perform basic arithmetic operations like addition, subtraction, multiplication, and division. Users can input numbers and choose operations, with the functions responsible for calculating and displaying the result.
2. Palindrome Checker: This program will implement a function to determine if a given string is a palindrome (reads the same backward as forward). The function will analyze the string and return a boolean value indicating if it is a palindrome or not.
3. Factorial Calculator: This program will use a function to calculate the factorial of a given number. The function will recursively multiply the number by all positive integers less than it, returning the final product as the factorial.

```
def calculator(a,b):
    while True:

print('1:add','2:subtract','3:multiplication','4:division','5:remainde
r')
        a=int(input('enter your choice '))
        if a==1:
            print('addition is',x+y)
        elif a==2:
            print('subtraction is',x-y)
```

```
        elif a==3:
            print('multiplication is ',x*y)
        elif a==4:
            print('division is',x/y)
        elif a==5:
            print('remainder is ',x%y)
        else:
            print('invalid input')
        b=input('do you want to continue the operation ?')
        if b=='no'or b=='N':
            break

x = int(input("Enter number 1: "))
y = int(input("Enter number 2: "))
calculator(x,y)
```

```
Enter number 1: 75
Enter number 2: 20
1:add 2:subtract 3:multiplication 4:division 5:remainder
enter your choice 1
addition is 95
do you want to continue the operation ?y
1:add 2:subtract 3:multiplication 4:division 5:remainder
enter your choice 2
subtraction is 55
do you want to continue the operation ?yes
1:add 2:subtract 3:multiplication 4:division 5:remainder
enter your choice 5
remainder is  15
do you want to continue the operation ?Y
1:add 2:subtract 3:multiplication 4:division 5:remainder
enter your choice 3
multiplication is  1500
do you want to continue the operation ?YES
1:add 2:subtract 3:multiplication 4:division 5:remainder
enter your choice 4
division is 3.75
do you want to continue the operation ?N
```

```
def palindrome(s):
    s=s.lower()
    c=s[::-1]
    if c==s:
        print(s,'is palindrome')
    else:
        print(s,'is not a palinmdrome')

s = "abcdcba"
palindrome(s)
```

```
abcdcba is palindrome
```

```
def factorial(x):
    sums = 1
    for i in range(x,0,-1):
        sums = sums * i
    return sums

n = int(input("Enter a number: "))
factorial(n)
```

```
Enter a number: 7
```

```
5040
```