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FUNCTION As a parameter (first-class function)

* In python functions are first class citizens meaning:
  * We can assign them to variables
  * We can pass them as a arguments to other functions
  * We can return them from other functions

⇒ This makes python very flexible and helps in code reusablity and functional programming.

①. ASSIGNING A FUNCTION TO A VARIABLE:-

* We can store a function in a variable and use that variable to call it.

Eg:

```
def greet():
    print("Hello, Welcome!")
msg = greet  # Assign function to variable
msg()  # Calling through variable
```

o/p : Hello Welcome

②. Passing a function as a parameter:

We can pass a functions to another functions as an Argument.

Eg

```
def Square(x):
    return x * x
```

```
def apply_func(func, value):
    return func(value)
print(apply_func(square, 5))   # 25
```

③. Returning a function from Another function.

A function can return a Another function as its output

Eg:

```
def outer():
    def inner():
        print("Hello from Inner function")
    return inner
result = outer()
result()   # Hello from Inner function
```

RECURSIVE FONCTION:-

* A recursive function is a function that calls itself repeatedly (until a base (stopping) condition is met.

* It helps to slove problems that can be broken into smaller, similar at sub-problems

Syn

```
def func_name(parameters):
    if (base_condition):
        return value
    else:
        # Recursive Call
        return function_name(modified_parameters)
```

Eg: factorial Using Recursion

```
def factorial(n):
    # Base Condition
    if n==1:
        return 1
    else:
        return n* factorial(n-1)
print("factorial of 5:", factorial(5))
# 120
```

Eg for lambda function:

1. `s = lambda num: num*num`
   `s(7)` # 49.

2. `sum = lambda sum1, sum2: sum1 + sum2`
   `sum(2,3)` # 5