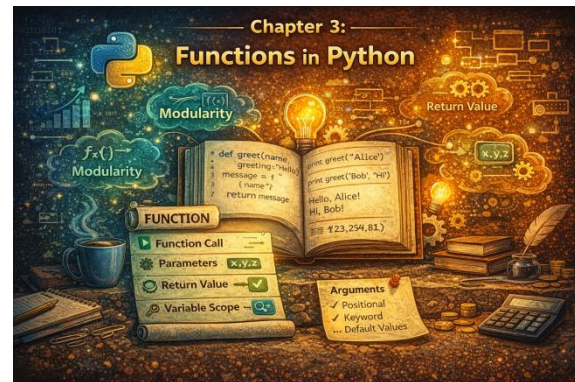


Chapter 3: Functions in Python



1. General Introduction to Functions

Definition

In Python, a **function** is a **named block of organized instructions** designed to perform a specific task. A function can be reused many times in a program.

Functions are a fundamental concept for **modular programming**.

2. Defining a Function

General Syntax

```
def function_name(parameters):
    statements
    return value
```

Example

```
def greet():
    print("Welcome to Python programming")
greet()
```

output:

Welcome to Python Functions

3. Function Parameters

Positional Arguments

```
def add(a, b):
    return a + b
print(add(4, 6))
```

Keyword Arguments

```
print(add(b=6, a=4))
```

```
def cube(n):
```

```
    return n ** 3
```

```
result = cube(3)
```

```
print(result)
```

Output :

27

Default Parameter Values

```
def power(x, n=2):
```

```
    return x ** n
```

```
print(power(5))
```

```
print(power(5, 3))
```

```
def square(n):
```

```
    print("Square:", n * n)
```

```
square(5)
```

output :

Square: 25

4. Return Values

```
def square(x):
```

```
    return x * x
```

```
print(square(7))
```

Multiple Return Values

```
def operations(a, b):
```

```
    return a + b, a - b, a * b
```

```
print(operations(6, 2))
```

```
def sum_numbers(a, b):
```

```
    return a + b
```

```
print(sum_numbers(4, 6))
```

Output :

```
10
```

5. Variable Scope

Local Variable

```
def test():
```

```
    x = 10
```

```
    print(x)
```

```
test()
```

Global Variable

```
x = 5
```

```
def show():
```

```
    print(x)
```

```
show()
```

Using global keyword

```
x = 5
```

```
def modify():
```

```
    global x
```

```
    x = x + 1
```

```
modify()
```

```
print(x)
```