In Python, you define a function using the def keyword, followed by the function name and parentheses (). You can specify parameters inside the parentheses, and the function body is indented.

**Basic Syntax:**

def function\_name(parameters):

"""Docstring: Optional description of the function."""

# Function body (indented)

return result # Optional return statement

**Example 1: Function Without Parameters**

def greet():

print("Hello, World!")

greet() # Calling the function

**Example 2: Function With Parameters**

def greet(name):

print(f"Hello, {name}!")

greet("Alice")

**Example 3: Function With Return Value**

def add(a, b):

return a + b

result = add(5, 3)

print(result) # Output: 8

**Example 4: Function With Default Parameter Value**

def greet(name="Guest"):

print(f"Hello, {name}!")

greet() # Output: Hello, Guest!

greet("Bob") # Output: Hello, Bob!

**Example 5: Function With Multiple Return Values**

def get\_coordinates():

x = 10

y = 20

return x, y # Returns a tuple

x\_coord, y\_coord = get\_coordinates()

print(x\_coord, y\_coord) # Output: 10 20

**Example 6: Function With Arbitrary Arguments (\*args)**

def sum\_all(\*numbers):

return sum(numbers)

print(sum\_all(1, 2, 3, 4, 5)) # Output: 15

**Example 7: Function With Arbitrary Keyword Arguments (\*\*kwargs)**

def user\_info(\*\*info):

for key, value in info.items():

print(f"{key}: {value}")

user\_info(name="Alice", age=25, city="New York")