

# Python Fundamentals Part I

## Module 4



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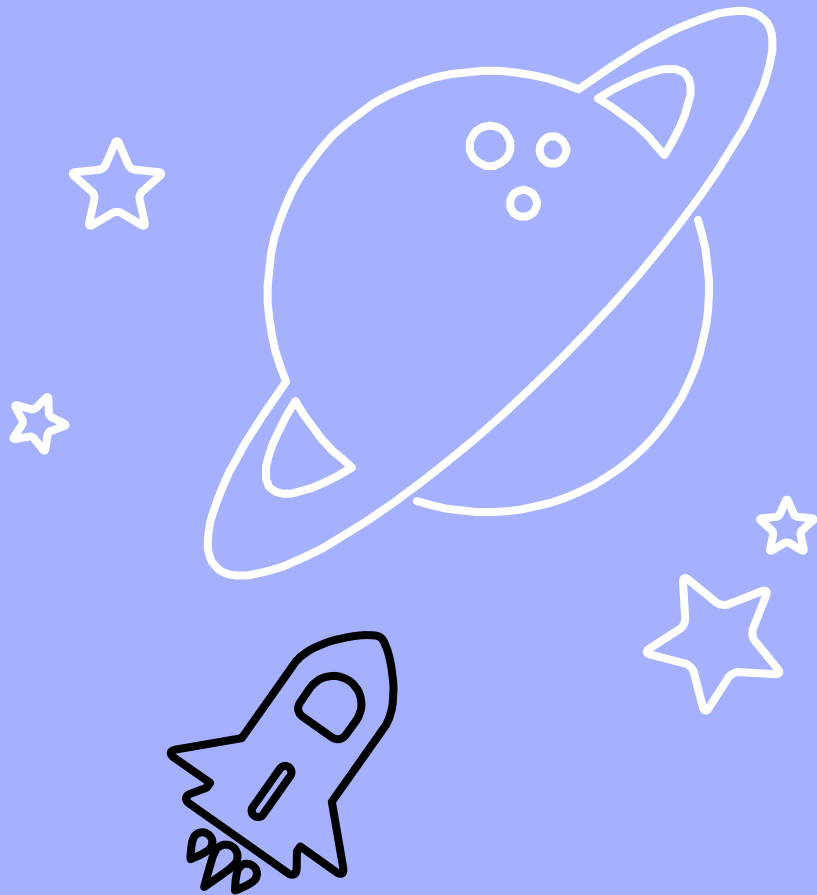
# OBJECTIVES

- ▶ Explain the value and purpose of a function
- ▶ Understand how to return output from functions

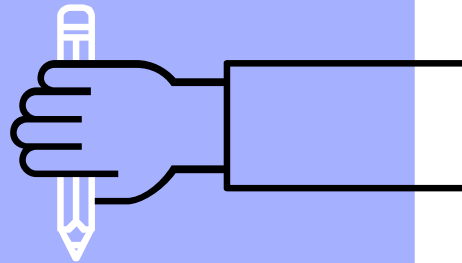
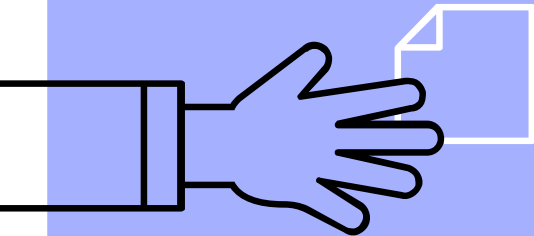


# Programmer

A person who fixed a problem that you don't know you have; in a way you don't understand.



# Python Functions

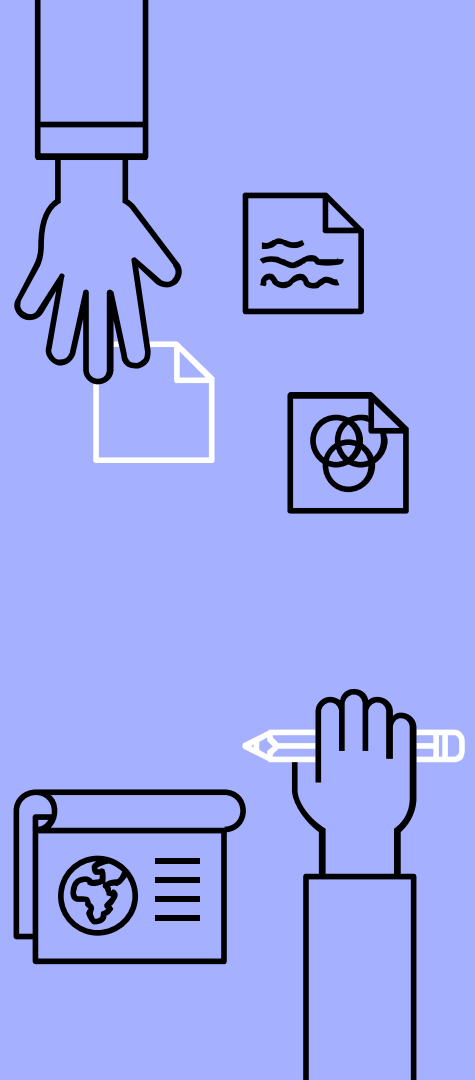


# What is a function in Python?

In Python, a function is a group of related statements that performs a specific task.

Functions help break our program into smaller and modular chunks. As our program grows larger and larger, functions make it more organized and manageable.

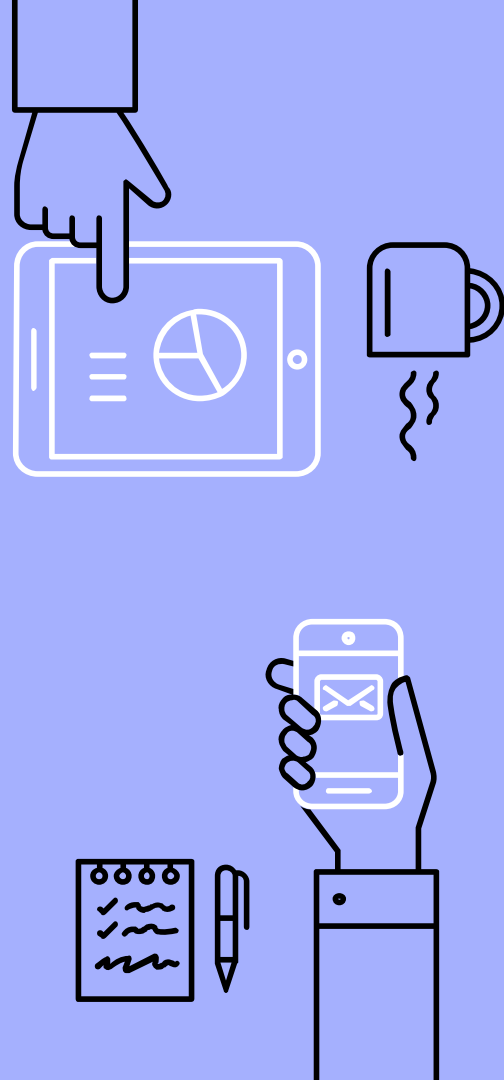
Furthermore, it avoids repetition and makes the code reusable.



# Docstrings

The first string after the function header is called the docstring and is short for documentation string. It is briefly used to explain what a function does.

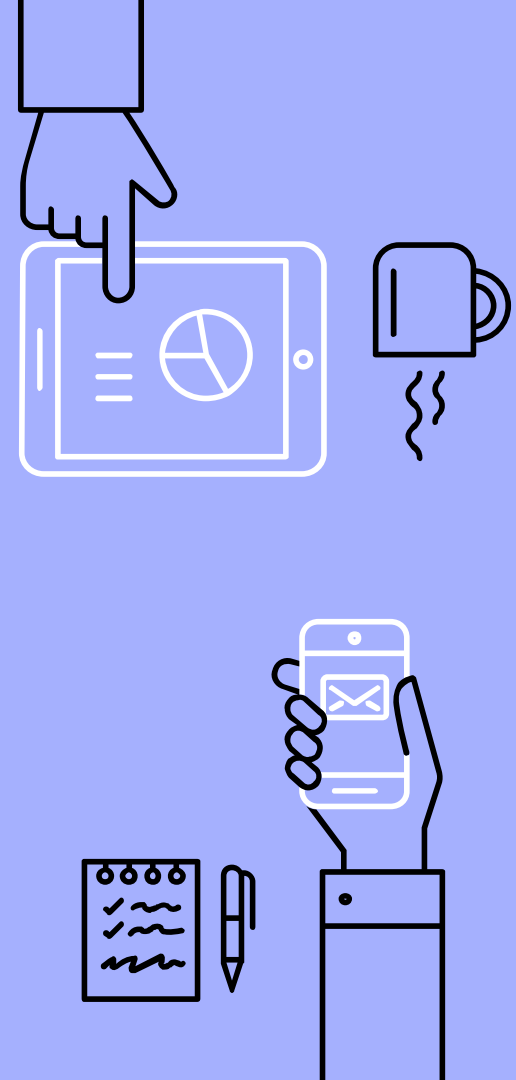
Although optional, documentation is a good programming practice. Unless you can remember what, you had for dinner last week, always document your code.



# Scope and Lifetime of variables

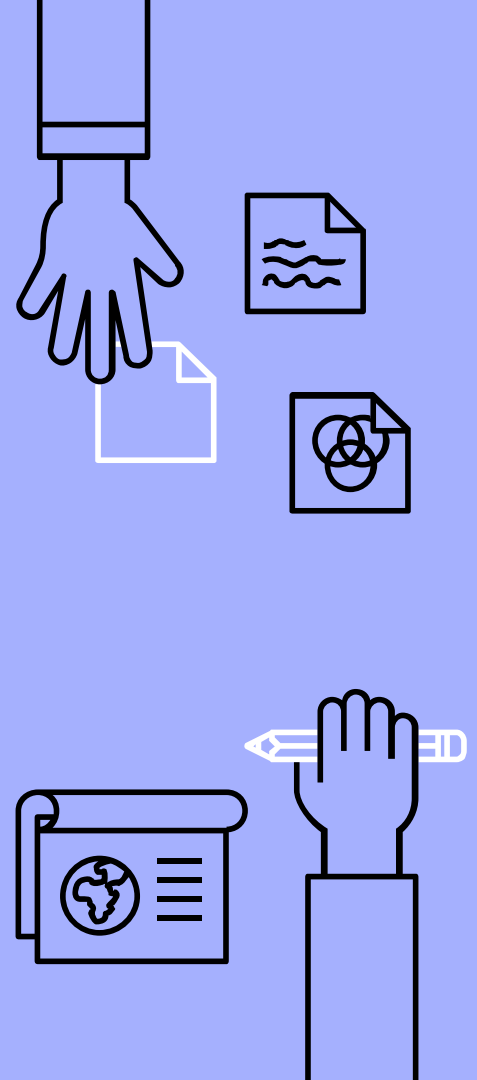
Scope of a variable is the portion of a program where the variable is recognized. Parameters and variables defined inside a function are not visible from outside the function. Hence, they have a local scope.

The lifetime of a variable is the period throughout which the variable exists in the memory. The lifetime of variables inside a function is as long as the function executes.



# Python Function Arguments

In Python, you can define a function that takes variable number of arguments. In this article, you will learn to define such functions using default, keyword and arbitrary arguments.

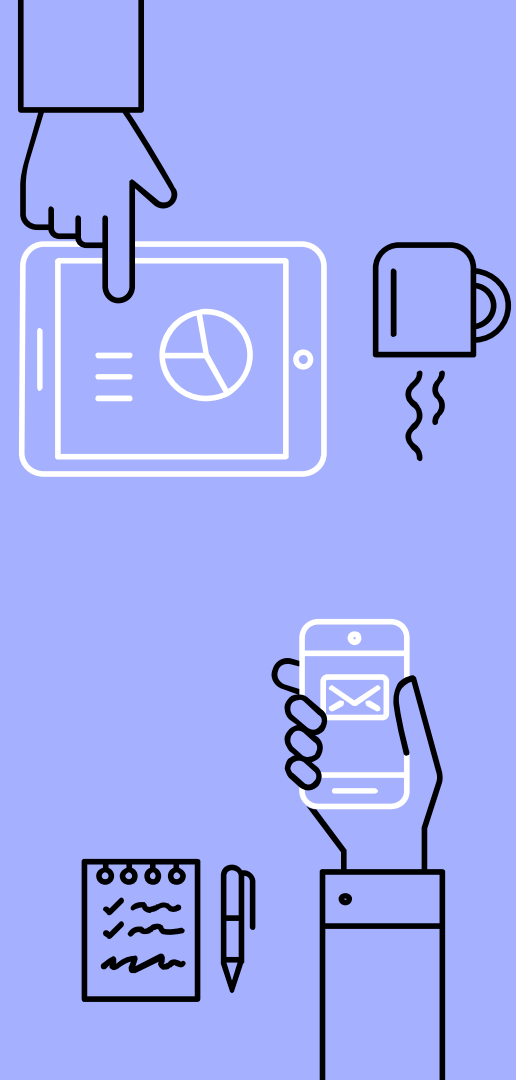




# Variable Function Arguments

Up until now, functions had a fixed number of arguments. In Python, there are other ways to define a function that can take variable number of arguments.

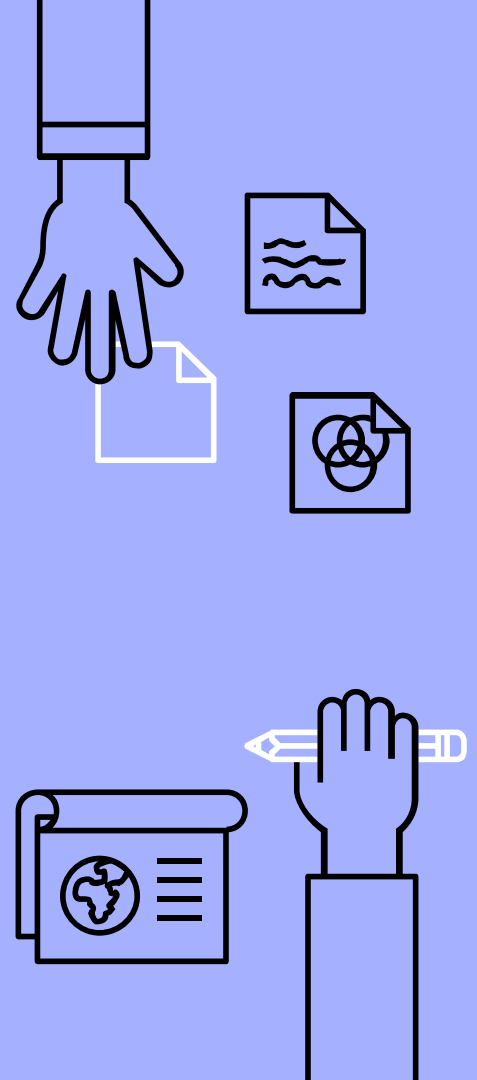
- Default Arguments
- Keyword Arguments
- Arbitrary Arguments



# Python Recursion

Recursion is the process of defining something in terms of itself.

A physical world example would be to place two parallel mirrors facing each other. Any object in between them would be reflected recursively.

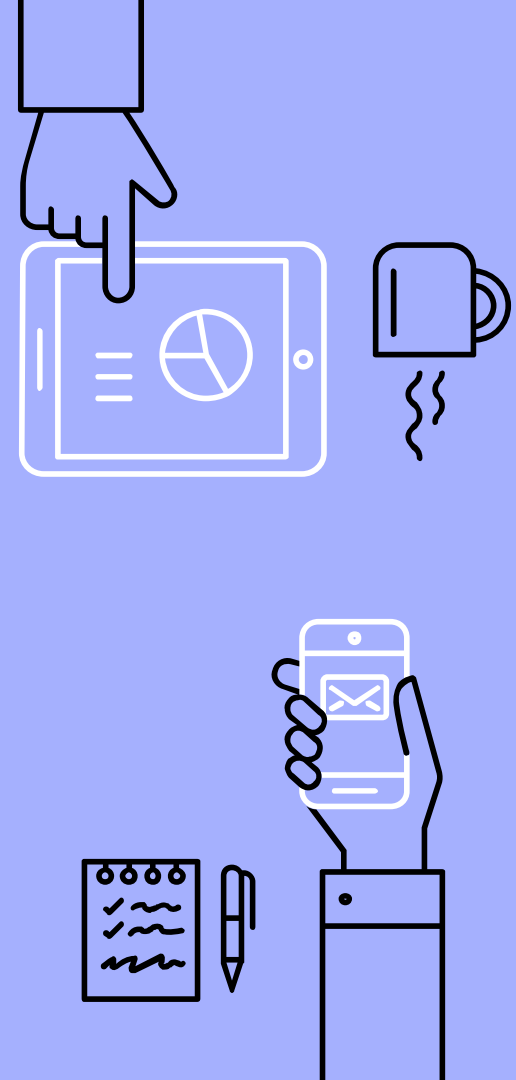


# Anonymous/Lambda Function

In Python, an anonymous function is a function that is defined without a name.

While normal functions are defined using the `def` keyword in Python, anonymous functions are defined using the `lambda` keyword.

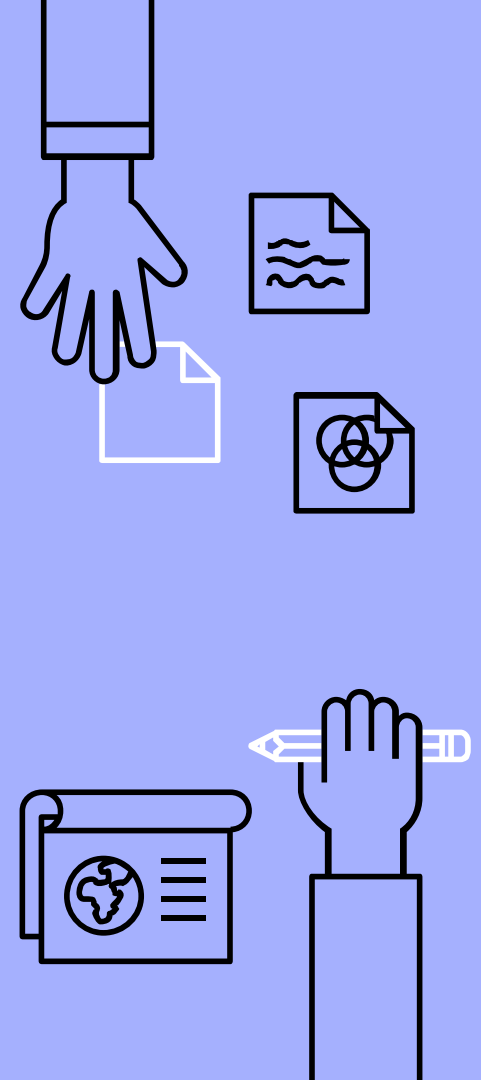
Hence, anonymous functions are also called lambda functions.



# Global and Local variables

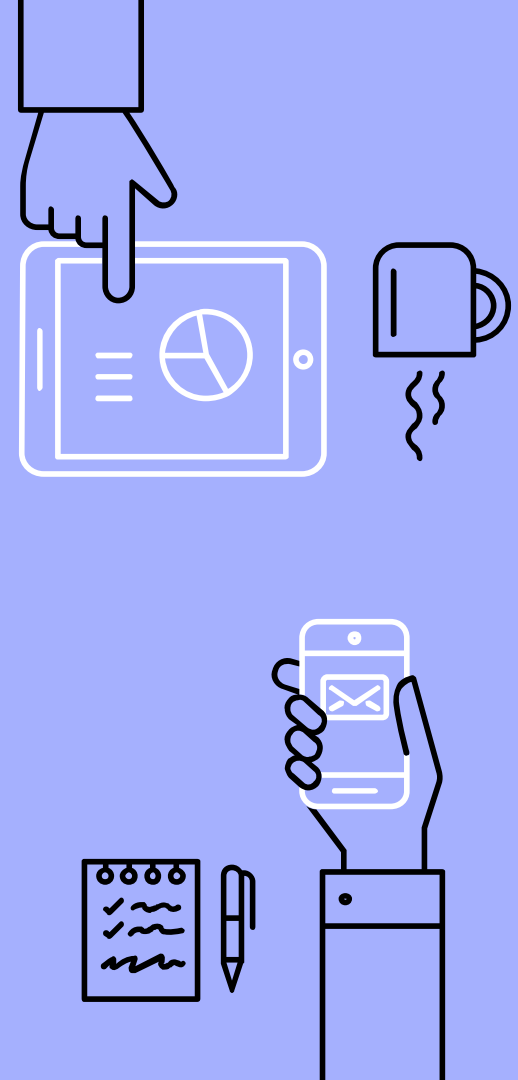
a variable declared outside of the function or in global scope is known as a global variable. This means that a global variable can be accessed inside or outside of the function.

A variable declared inside the function's body or in the local scope is known as a local variable.



# Python Global Keyword

In Python, global keyword allows you to modify the variable outside of the current scope. It is used to create a global variable and make changes to the variable in a local context.



# THANKS!

## Any questions?

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