Intro to Functions

Computer Programming for Lawyers, Fall 2024

OCTOBER 7, 2024

Recap: Conditionals and For Loops

IF STATEMENTS

Conditional statements that execute a block of code if a specified condition is true.

WHILE LOOPS

Loops that repeatedly execute a block of code as long as a specified condition is true.

FOR LOOPS

Loops that execute a block of code a specific number of times, often used to iterate over a collection.

A function is a reusable block of code that performs a specific task.

Motivating Functions

CODE REUSE

Functions allow developers to write code once and reuse it multiple times, saving time and effort.

DEBUGGING

Isolating functionality in a function makes it easier to identify and fix issues, as the code is more modular and easier to reason about.

ABSTRACTION

Functions add new "commands" to the Python language, enabling you to tackle increasingly complex problems.

EASE OF MODIFICATION

When a function is used throughout the code, modifying it in one place updates the behavior everywhere it is used.

MODULARITY

Functions help break down a larger problem into smaller, more manageable pieces, which can be solved independently and then combined to solve the original problem.

ENCAPSULATION

Functions provide a contract that, when given properly-formed input, will produce the correct output, without the need to understand the underlying implementation details.

Function Structure

INPUTS (PARAMETERS)

Functions can take in one or more inputs, called parameters, to use in their operations.

OUTPUTS (RETURN VALUES)

Functions can return a value after processing the inputs, called the return value.

CALLING A FUNCTION

To use a function, you 'call' it and pass in any required parameters.

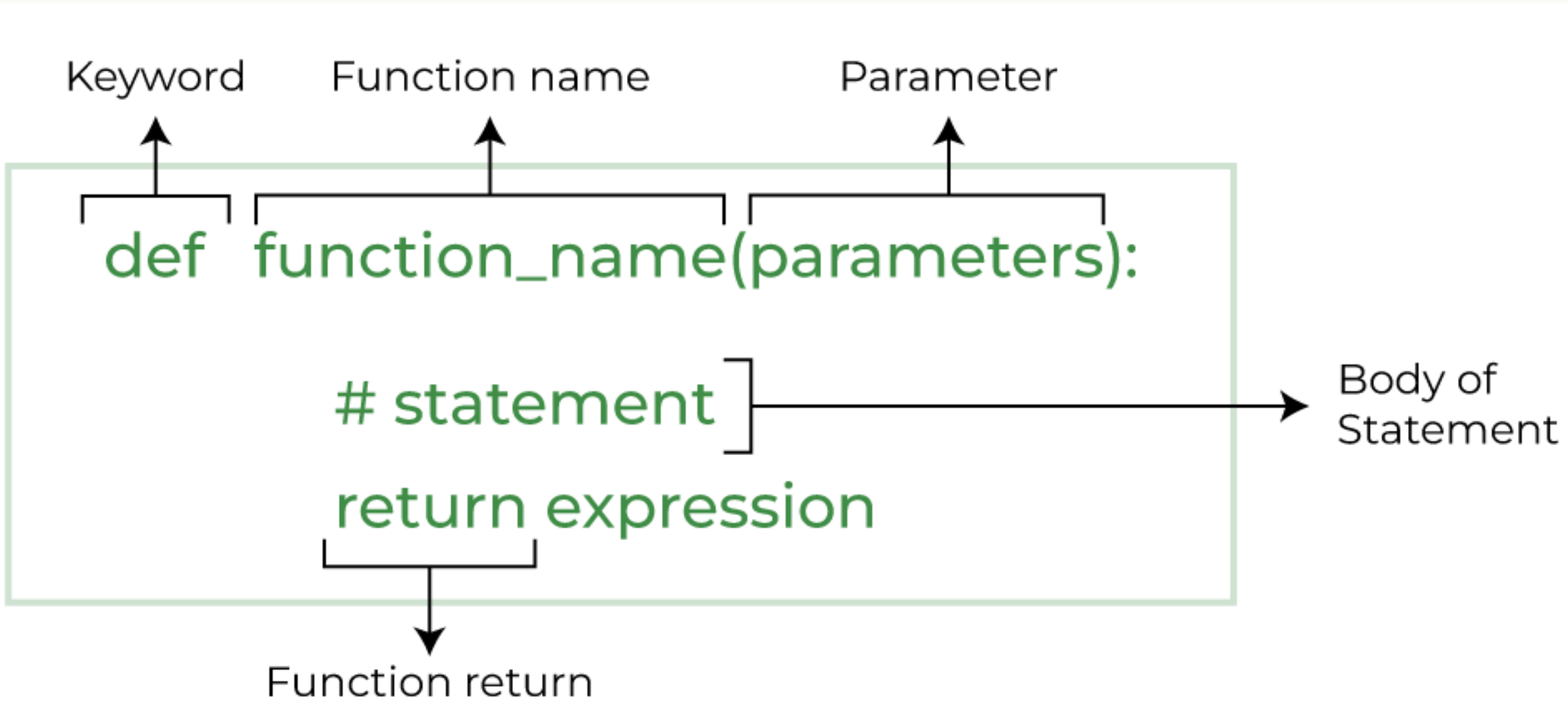
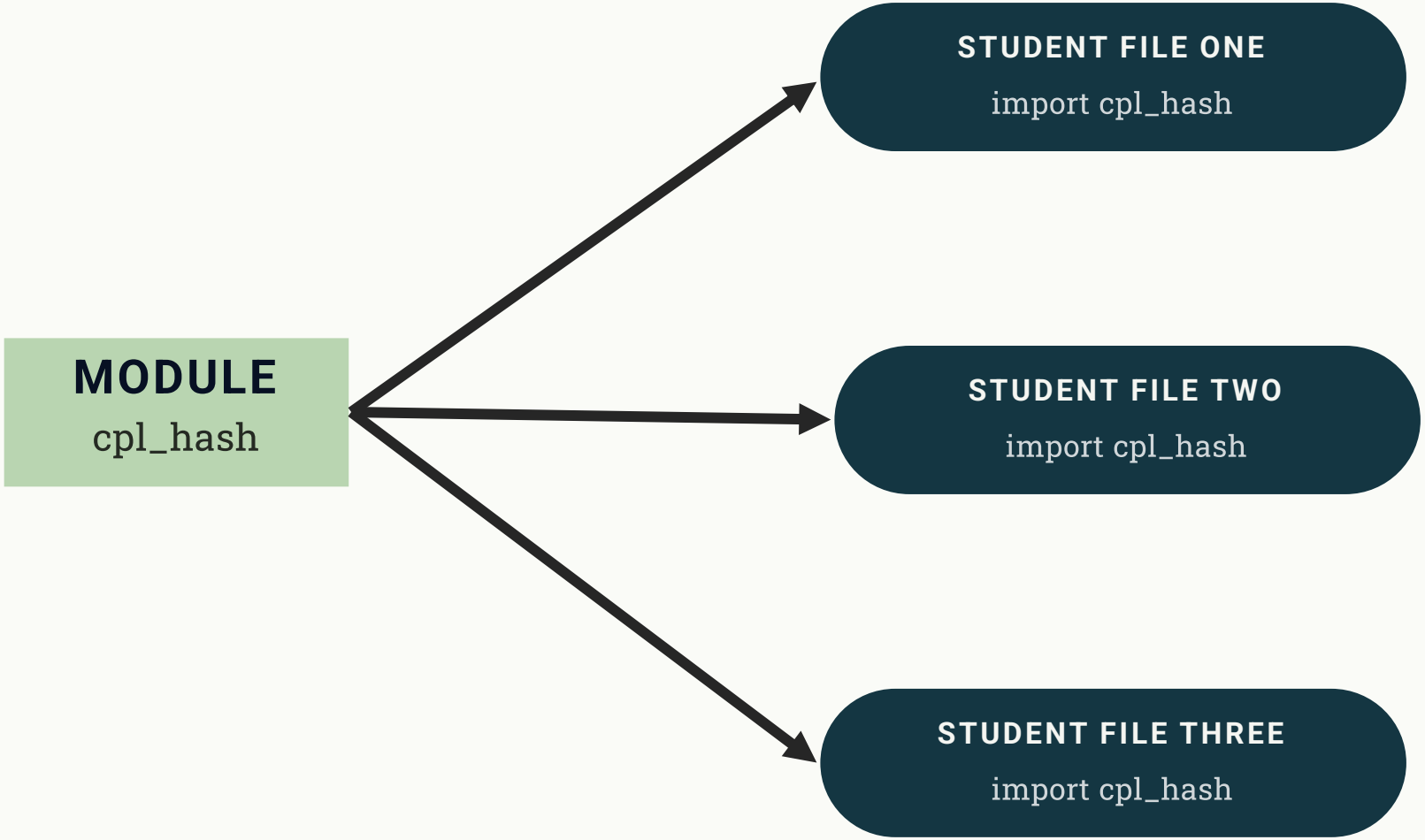


Image source: [Python Functions, GeeksforGeeks]

Modules and Imports

A module is a collection of related functions or definitions you can use in your Python programs.

Other terms you might hear: **Libraries** or **Packages** — for our purposes, these terms are interchangeable.


MODULE
cpl_hash
STUDENT FILE ONE
import cpl_hash
STUDENT FILE TWO
import cpl_hash
STUDENT FILE THREE
import cpl_hash

Difference between .py and .ipynb files for Modules

FILE EXTENSION	PURPOSE	EXECUTION	MODULES
Python files end in **.py** while Jupyter Notebooks end in **.ipynb**	**.py** files are Python script files, while **.ipynb** files are Jupyter Notebook files that can contain both code and text.	**.py** files are executed directly from the command line, while **.ipynb** files are run within a Jupyter Notebook environment.	**.py** files can be imported as modules in other Python scripts, while **.ipynb** files can be used to import and run reproducible modules.