

# Python Orientation - Glossary

Glossary PF0

## **.py extension**

The file extension for Python files; any file with this extension is considered a module that can be imported.

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## **Anaconda**

A self-contained Python data science distribution that includes Python, commonly used packages, and tools for managing packages and environments.

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## **cell**

An individual block in a Jupyter Notebook that can contain either executable code or formatted text (Markdown).

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## **clone**

The process of downloading a complete copy of a Git repository from a remote location to your local computer, including all files, folders, and version history.

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## **command line**

A text-based interface for interacting with a computer's operating system by typing commands; on Windows, this is typically Command Prompt or PowerShell.

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## **commit**

A Git command that saves staged changes to the repository's history with a descriptive message explaining what was changed.

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## **conda**

A package and environment management tool included with Anaconda for installing and managing Python packages and their dependencies.

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## **debugging**

The process of identifying, analysing, and removing errors or bugs from code, often using specialised tools to step through code execution.

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## **dependency**

A package or library that another piece of software requires in order to function correctly.

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## **environment**

An isolated workspace that contains a specific Python version and set of packages, allowing different projects to use different configurations without conflicts.

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## **Git**

A distributed version control system that tracks changes in files over time, creating a detailed history of every modification made to a project.

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## **GUI (graphical user interface)**

An interface that allows users to interact with a computer through visual elements like windows, icons, and buttons, rather than text commands.

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## **headless**

A system or setup that operates without a graphical user interface, typically accessed through command-line interfaces; common in remote servers and computing clusters.

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## **GitHub**

The world's leading code-sharing platform where developers can store, share, and collaborate on code using version control.

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## **GitHub Codespaces**

A cloud-based development environment that runs Visual Studio Code in a browser, pre-configured with Python, Jupyter support, and all necessary tools for coding without local installation.

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## **HTTPS (Hypertext Transfer Protocol Secure)**

A secure communication protocol used for transferring data over the internet; one of two methods for authenticating with GitHub when cloning repositories.

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## **IDE (Integrated Development Environment)**

A software application that combines a text editor with additional development tools such as debugging, syntax highlighting, and project management features.

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## **interpreter**

A program that reads and executes code line by line, translating it into machine-readable instructions in real-time.

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## **Jupyter Notebook**

An interactive document that combines executable code cells, formatted text, and visualisations in a single file with a .ipynb extension.

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## **kernel**

The computational engine that runs code in a Jupyter Notebook; it maintains the state of variables and can be restarted to clear memory and begin fresh.

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## **library**

A collection of pre-written code that provides specific functionality, allowing developers to build upon existing tools rather than writing everything from scratch.

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## **Markdown**

A lightweight markup language used to format text with simple syntax, commonly used in Jupyter Notebooks for documentation and explanations.

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## **merge**

The process of combining changes from different branches or sources in Git; conflicts occur when the same lines have been modified differently.

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## **merge conflict**

An error that occurs in Git when the same lines in a file have been changed differently in the local copy and the remote repository, requiring manual resolution.

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## **miniconda**

A minimal version of Anaconda that includes only conda and Python, without the 300 pre-installed packages and graphical interface.

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## **module**

A file containing Python code that can be imported and reused in other programs.

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## **Object Oriented Programming (OOP)**

A programming paradigm where code is structured by organising data and behaviours into reusable units called objects.

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### **open-source**

Software whose source code is freely available for anyone to use, modify, and distribute, often developed collaboratively by a community.

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### **package**

A collection of related modules bundled together, providing specific functionality that can be installed and imported into Python projects.

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### **PATH**

A system environment variable that tells the operating system where to find executable programs; adding Python to PATH allows it to be run from any directory in the terminal.

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### **pip**

Python's standard package installer, used to install and manage software packages from the Python Package Index (PyPI).

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### **PowerShell**

A command-line interface and scripting environment for Windows, more advanced than Command Prompt.

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### **private key**

In SSH authentication, the secret cryptographic key that stays securely stored on your computer and is used to prove your identity to remote services.

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### **public key**

In SSH authentication, the cryptographic key that is uploaded to services like GitHub and paired with your private key to enable secure authentication.

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### **pull**

A Git command that downloads the latest changes from a remote repository and incorporates them into your local copy.

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## **push**

A Git command that uploads your committed local changes to a remote repository, making them available to others.

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## **R**

A programming language particularly popular for statistical methods and data analysis.

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## **REPL (Read-Eval-Print Loop)**

An interactive programming environment that reads user input, evaluates it, prints the result, and loops back to read more input; Python's interactive shell.

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## **repository**

A folder containing a complete project tracked by Git, including all files, folders, and the metadata in a .git/ folder that stores the version history.

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## **script**

A file containing a sequence of instructions written in a programming language, designed to automate tasks or execute a specific workflow.

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## **SSH (Secure Shell)**

A cryptographic network protocol for secure communication between computers, commonly used to authenticate with GitHub without entering passwords repeatedly.

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## **stage**

The process in Git of preparing specific changes to be committed, allowing selective inclusion of modifications in the next commit.

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## **Stack Overflow**

An online platform where programmers can ask questions, share knowledge, and find solutions to coding problems.

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## **syntax**

The set of rules that defines the structure and format of valid code in a programming language.

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## **terminal**

A text-based interface for interacting with a computer's operating system by typing commands; on Mac and Linux, this is the primary command-line tool.

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### **version-controlled**

A system for tracking and managing changes to code over time, allowing multiple versions to be saved, compared, and restored.

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### **virtual environment**

An isolated Python environment that allows you to install packages for specific projects without affecting the system-wide Python installation or other projects.

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### **Visual Studio Code (VSCode)**

A free, open-source code editor developed by Microsoft that supports multiple programming languages through extensions and is widely used for Python development.

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