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.

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.

Git

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

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.

GitHub

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

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.

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.

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.

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.

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.

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.

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).

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.

R

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

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.

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.

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.

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.