TOP TEN Python

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PYTHON TOP TEN USES

Essential Python Web & Data Libraries

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PRELUDE: PYTHON BASICS FOR BEGINNERS

If you're new to Python or need a refresher on the fundamentals, this section covers what you need to know before diving into the frameworks in this book.

What is Python?

Python is a high-level, interpreted programming language known for being readable and beginner-friendly. It's used in web development, data science, automation, AI, and more. This book assumes you have Python 3.8+ installed on your system.

Virtual Environments

A **virtual environment** is an isolated Python workspace on your computer. It lets you install packages for one project without affecting others.

Why use a virtual environment?

Different projects need different package versions. Virtual environments keep them separate so they don't conflict.

How to create and activate one

macOS / Linux:

```
python3 -m venv myenv
source myenv/bin/activate
```

Windows:

```
python -m venv myenv
myenv\Scripts\activate
```

When activated, your terminal prompt changes to show `(myenv)` at the start.

Deactivate when done

```
deactivate
```

pip: The Package Manager

pip is Python's package installer. It downloads and installs packages (libraries and frameworks) from PyPI (Python Package Index).

Install a package

```
pip install requests
```

Install a specific version

```
pip install requests==2.28.0
```

List installed packages

```
pip list
```

Uninstall a package

```
pip uninstall requests
```

Save your project's dependencies

```
pip freeze > requirements.txt
```

Then others can install them with:

```
pip install -r requirements.txt
```

Importing: How to Use a Package

Once installed, you **import** a package into your Python code.

Basic import

```
import requests
response = requests.get("https://example.com")
```

Import with alias

```
import pandas as pd
df = pd.read_csv("data.csv")
```

Import specific items from a package

```
from fastapi import FastAPI
app = FastAPI()
```

Import everything (use sparingly)

```
from json import *
```

Modules and Packages

Module: A single .py file containing Python code.