

Day 3 – Python, VS Code, Jupyter & Environment Setup

==> Why Environment Setup is Important

Before writing AI, ML, or GenAI code, we must first prepare our system.

👉 Just like:

- Before cooking → we prepare the kitchen
- Before driving → we check the vehicle

Similarly:

Before AI coding → we setup Python + tools correctly

--> Wrong setup = errors, confusion, wasted time

--> Proper setup = smooth learning & professional workflow

==> What We Are Setting Up Today

In this video, we will setup:

- 1 Python (Programming Language)
- 2 VS Code (Code Editor)
- 3 Jupyter Notebook (Interactive coding)
- 4 Package Manager (pip / conda)
- 5 Folder Structure for AI Projects

==> Python Installation

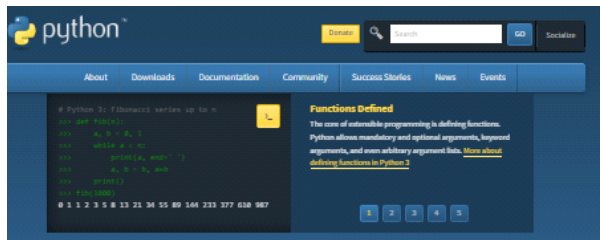
-- > What is Python?

Python is the core language for:

- Data Science
- Machine Learning
- Deep Learning
- Generative AI

==> Download Python

1. Open browser
2. Go to 👉 <https://www.python.org>
3. Click **Download Python 3.x (latest)**



==> Important Installation Settings

During installation:

✓ Check “Add Python to PATH”

✓ Click **Install Now**

📌 *This is VERY IMPORTANT* — without PATH, Python won’t work in terminal.



==> Verify Python Installation

Open **Command Prompt / Terminal** and type:

```
python --version
```

Output should be like:

```
Python 3.11.x
```

Command Prompt - python

```
Microsoft Windows [Version 10.0.19045.6466]
(c) Microsoft Corporation. All rights reserved.

C:\Users\sahur>python
Python 3.10.0 (tags/v3.10.0:b494f59, Oct 4 2021, 19:00:18) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

==> VS Code Installation & Setup

--> What is VS Code?

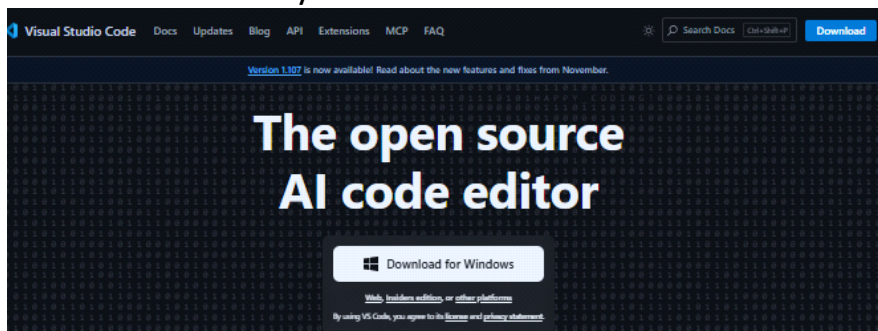
VS Code is a **lightweight, powerful code editor** used by professionals.

Used for:

- Writing Python scripts
- AI projects
- Debugging
- GitHub integration

==> Step : Install VS Code

1. Go to <https://code.visualstudio.com>
2. Download for your OS
3. Install normally



==> Step : Install Required Extensions

Open VS Code → Extensions tab → Install:

- ☒ Python (Microsoft)
- ☒ Jupyter

These enable:

- Code suggestions
- Running Python files
- Jupyter notebooks inside VS Code

==> Run Python in VS Code

Create file: test.py

```
print("VS Code setup successful")
```

Click **Run** 

==> What is Jupyter Notebook?

--> Definition

Jupyter Notebook is an **interactive environment** where:

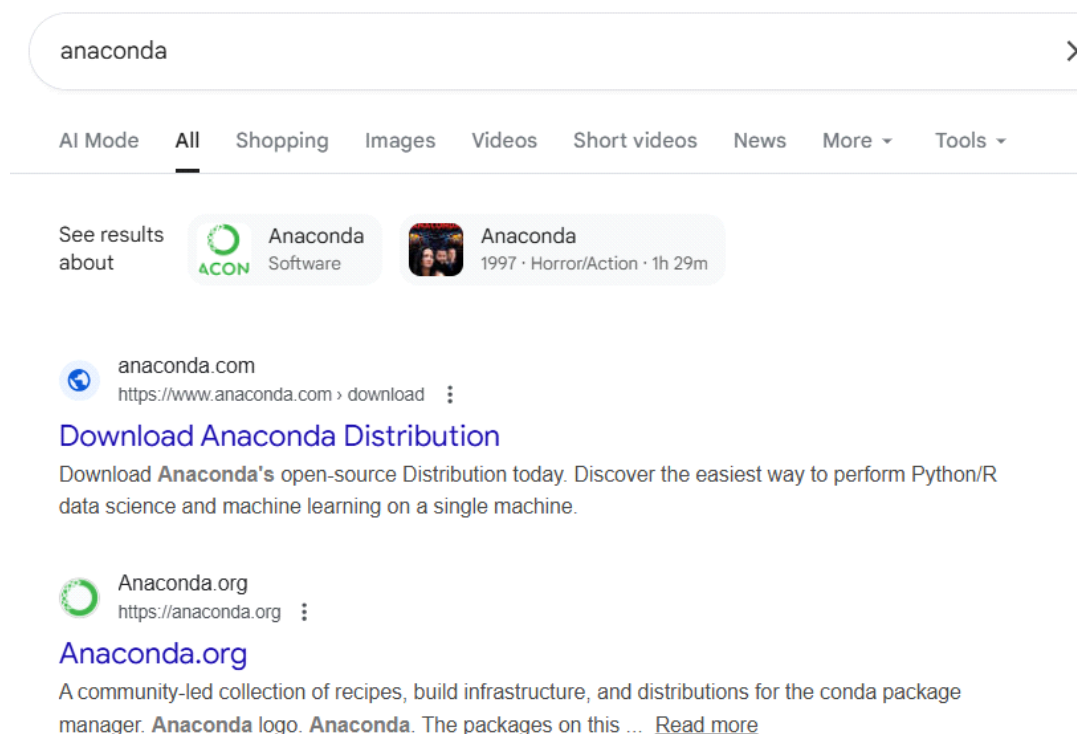
- Code
 - Output
 - Notes
- are in one place.

--> Perfect for **Data Science & AI learning**.

==> Why AI Engineers Use Jupyter

- Step-by-step execution
- Visual outputs
- Easy experimentation
- Great for teaching & demos

==> Install Jupyter Notebook



The screenshot shows a search engine results page for the query 'anaconda'. At the top, there is a search bar with 'anaconda' entered and a close button (X). Below the search bar, there are tabs for 'AI Mode', 'All', 'Shopping', 'Images', 'Videos', 'Short videos', 'News', 'More', and 'Tools'. The 'All' tab is selected. The search results are displayed in a grid. The first result is 'See results about' with a green 'ACON' logo and the text 'Anaconda Software'. The second result is a video titled 'Anaconda' with a thumbnail showing two people, a duration of '1997 · Horror/Action · 1h 29m', and a close button. Below the grid, there are two organic search results. The first is for 'anaconda.com' with the URL 'https://www.anaconda.com › download' and a blue link 'Download Anaconda Distribution'. The description says 'Download Anaconda's open-source Distribution today. Discover the easiest way to perform Python/R data science and machine learning on a single machine.' The second result is for 'Anaconda.org' with the URL 'https://anaconda.org' and a blue link 'Anaconda.org'. The description says 'A community-led collection of recipes, build infrastructure, and distributions for the conda package manager. Anaconda logo. Anaconda. The packages on this ... Read more'.

Jupyter Example

```
x = 10
y = 20
x + y
Output:
```

30

==> Anaconda

What is Anaconda?

Anaconda is a **bundle** that includes:

- Python
- Jupyter
- Data Science libraries

In this course:

- We will use **Python + pip**
- Anaconda is optional

==> Virtual Environment (venv)

What is Virtual Environment?

A virtual environment isolates project libraries.

Create venv:

```
python -m venv ai_env
```

Activate:

```
ai_env\Scripts\activate # Windows
```

 Prevents dependency conflicts.

==> Why These Tools Matter for AI Engineer

Tool	Why Needed
Python	Core language
pip	Install AI libraries
VS Code	Professional coding
Jupyter	Data exploration
Folder structure	Real-world workflow
Virtual env	Project isolation

