Getting Started: Python, VS Code, Git, and Jupyter (Beginner-Friendly)

Follow these steps in order. You can use this document as a checklist.

0) What you will install today

- Python - the programming language
- Visual Studio Code (VS Code) - the editor
- Git - tool to download/share code
- VS Code extensions: Python and Jupyter
- *requirements.txt* packages

1) Install Python (Windows & macOS)

Windows

1. Go to python.org/downloads and click **Download Python** (choose the latest stable version).
2. **Very important:** in the installer, check **Add Python to PATH**, then click **Install Now**.
3. When finished, open **Command Prompt** (press **Windows key**, type **cmd**, hit Enter) and verify:

```
python --version
pip --version
```

If you see a version number (e.g., *Python 3.12.x*), you're set.

macOS

1. Go to python.org/downloads/macos and download the latest macOS installer (universal).

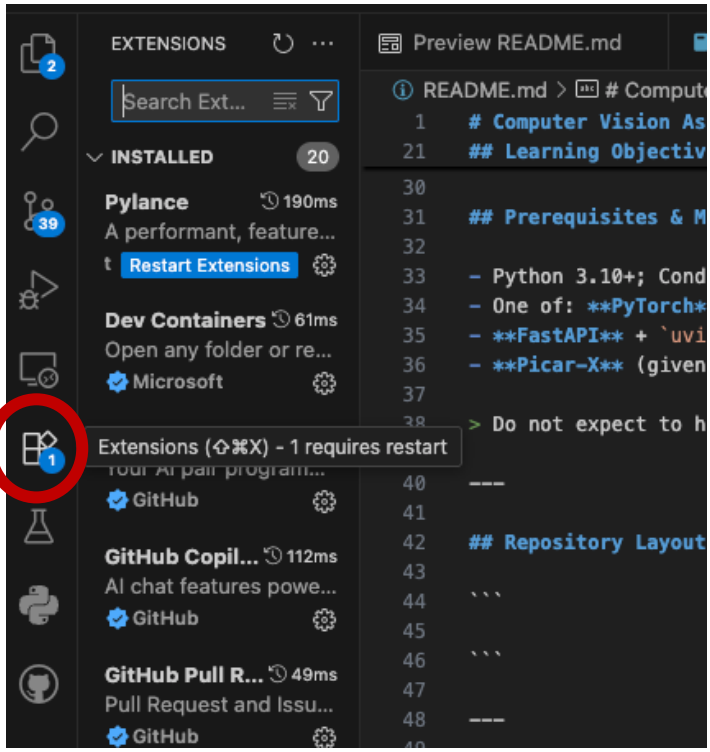
2. Double-click the *.pkg* and follow prompts. If macOS blocks the installer, open **System Settings - Privacy & Security** and allow it.
3. Open **Terminal** (Applications > Utilities > Terminal) and verify:
   ```
   python3 --version
   pip3 --version
   ```

If you see version numbers, you're ready.

2) Install Visual Studio Code (VS Code)

1. Visit code.visualstudio.com and download VS Code for your system.
2. Install it using the default options. Open VS Code when finished.

3) Install the Python, Jupyter, and Git extensions in VS Code



1. In VS Code, click the **Extensions** icon on the left sidebar (or press **Ctrl+Shift+X** on Windows / **Cmd+Shift+X** on macOS).

2. Search for and install:
- **Python** (by Microsoft)
- **Jupyter** (by Microsoft)
- **GitHub Pull Requests and Issues** (optional but helpful)

3. VS Code includes built-in Git support. If prompted to install **Git**, follow the link to install it (see next section).

4) Install Git and clone (download) a public repository

I recommend following this tutorial: https://github.com/git-guides/install-git

Install Git

- **Windows:** Download and run the installer from git-scm.com/download/win. Accept defaults.
- **macOS:** macOS usually already has git installed; try to verify git using `git -version` Otherwise, download from git-scm.com/download/mac

Verify Git

Open your terminal (Command Prompt on Windows, Terminal on macOS) and run:

```
git --version
```

Clone a repository (HTTPS method)

1. In your terminal, **cd** to a folder where you want the project to live. Example:

```
cd Documents
```

3. Run:

```
git clone https://github.com/sabrinaadler/cse597-project.git
cd cse597-project
```

Now you have a local copy of the code.

5) Create and activate a virtual environment

A *virtual environment* keeps this project's Python packages separate from your other projects.

Create

Run this in your project folder (where you cloned the repo):

`python -m venv .venv` (Windows)

`python3 -m venv .venv` (macOS)

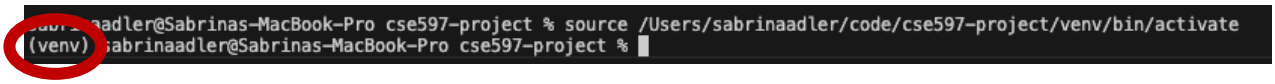
Activate

Windows (Command Prompt): `.venv`

Windows (PowerShell): `.venv.ps1`

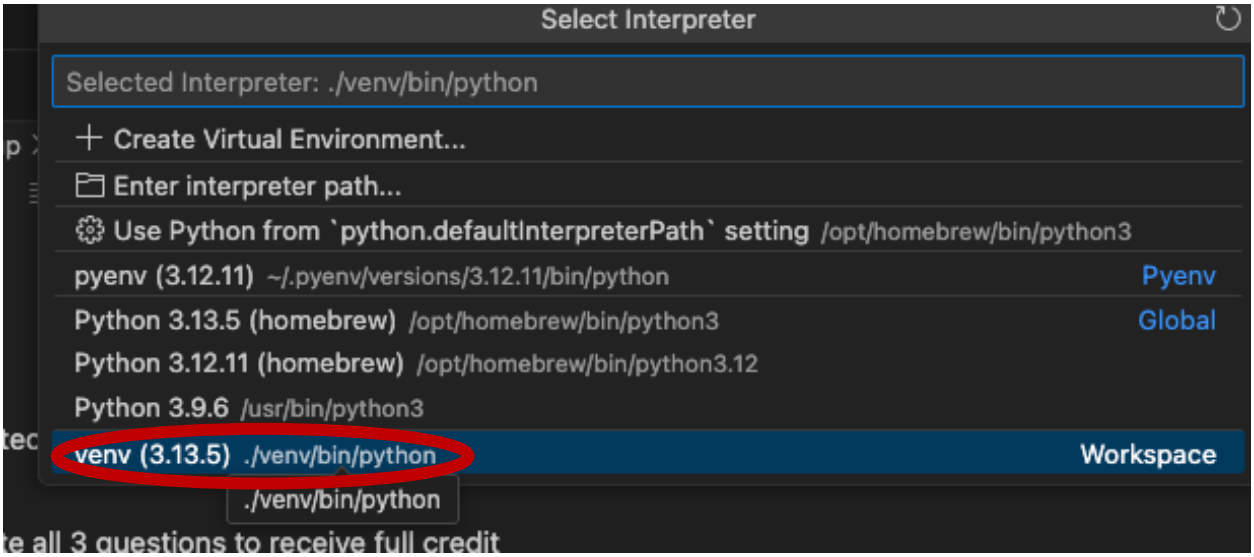
macOS: `source .venv/bin/activate`

When activated, your prompt will show *(.venv)*.



Select interpreter in VS Code

1. Press **Ctrl+Shift+P** (Cmd+Shift+P on macOS) and type **Python: Select Interpreter**.
2. Choose the one that shows *.venv* in its path.



6) Install packages from *requirements.txt*

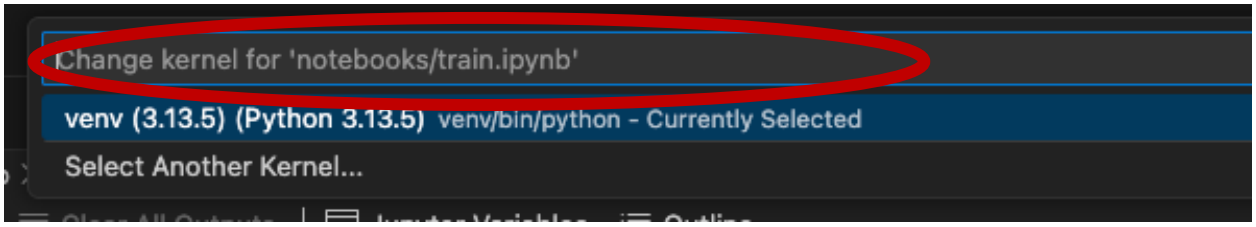
1. *Make sure your virtual environment is **activated**.*
2. *In the project folder (same place as requirements.txt)*, run:

```
pip install -r requirements.txt    (Windows)
pip3 install -r requirements.txt (macOS)
```

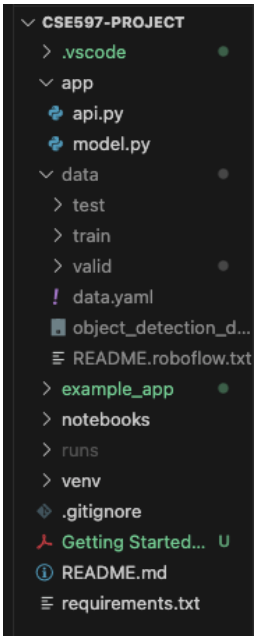
This downloads everything the project needs.

7) Open notebooks with Jupyter in VS Code

1. In VS Code, open the repository folder (File Open Folder).
2. Click any *.ipynb* file to open a notebook.
3. In the top-right, ensure the kernel uses your *.venv* interpreter. If not, click the kernel name and switch to the *.venv*.



8) Download and unzip dataset



1. Download `object_detection_dataset` from the assignment description
2. Create a folder `/data/` under the root project
3. Move zip file from downloads to the data folder
4. Unzip it
5. Ensure that the test, train, valid, and data.yaml are all in the `/data/` directory
6. Your project should look something like this