🍏 Setting Up Your Mac for Code Development (VSC + Conda + Terminal)

This guide will help you set up a professional coding environment on **macOS** using:

- **Visual Studio Code (VSC)** as your main editor
- **Terminal** (or iTerm2) for command-line access
- **Conda** for managing environments and Python packages

1️⃣ Install Homebrew (Package Manager)

Homebrew makes it easy to install software on macOS.

1. Open **Terminal** (press `Command + Space`, type “Terminal” and hit Enter).
2. Paste the following command and press Enter:

```
/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

3. Once installation finishes, run:

```
brew --version
```

If you see a version number, Homebrew is ready.

2️⃣ Install Miniconda (Recommended Lightweight Conda)

1. Download Miniconda for macOS (Apple Silicon or Intel):
   👉 https://docs.conda.io/en/latest/miniconda.html
2. Or install it via Terminal (for Apple Silicon M1/M2/M3):

   ```
   curl -O https://repo.anaconda.com/miniconda/Miniconda3-latest-MacOSX-arm64.sh
   ```

   For Intel-based Macs:

   ```
   curl -O https://repo.anaconda.com/miniconda/Miniconda3-latest-MacOSX-x86_64.sh
   ```

3. Run the installer:

   ```
   bash Miniconda3-latest-MacOSX-*.sh
   ```

3️⃣ Create a Conda Environment with Key Libraries

Create a dedicated environment for Python development:

```
conda create -n dev_env python=3.10 pandas numpy scipy scikit-learn matplotlib jupyter -y
```

Activate it:

```
conda activate dev_env
```

List installed packages:

```
conda list
```

4️⃣ Install and Set Up Visual Studio Code (VSC)

1. Download and install **Visual Studio Code**:
   👉 https://code.visualstudio.com/
2. When prompted, allow VSC to access developer tools.
3. Open **Command Palette** (`Command + Shift + P`) and type:

   ```
   Shell Command: Install 'code' command in PATH
   ```

   This allows you to open folders via Terminal using `code .`.
4. Open VSC and create a workspace folder for your projects.

5 Install Essential VSC Extensions

In VSC, open the **Extensions** tab (left sidebar or `Command + Shift + X`) and install the following:

Extension	Description
Python	Core support for Python development (by Microsoft)
Jupyter	Run Jupyter notebooks directly in VSC
SQLTools	Connect and query SQL databases
SQLTools Driver: SQLite	Enables SQLite database connections
Data Wrangler	Visual interface for exploring and cleaning data

After installing, reload VSC

6️⃣ Verify the Environment

In VSC, open the integrated terminal (**Control + `**) and run:

```
conda activate dev_env
python --version
```

Then test your libraries:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression
```

If no errors occur — your setup is good to go! ✅

7️⃣ (Optional) Set Up Jupyter Notebooks in VSC

To use notebooks directly inside VSC:

1. Create a new file → Save it as `notebook.ipynb`.
2. Select the interpreter linked to your Conda environment (`dev_env`).
3. Run code cells interactively within VSC.

8️⃣ (Optional) Alternative Terminal (iTerm2)

For better performance and usability, you can install **iTerm2**:

```
brew install --cask iterm2
```

You can use it instead of the default macOS Terminal — both work with Conda and Python.

✅ You are ready to code!

You now have:

- A fully working **Conda** setup for Python
- A professional **Visual Studio Code** environment
- Data science libraries (pandas, numpy, scipy, scikit-learn, matplotlib, jupyter) preinstalled

You can now develop, test, and visualize your code seamlessly on macOS!