

Python Virtual Environment Setup Guide (macOS/Linux)

Step 1: Install Python (Optional if Already Installed)

Use Homebrew to install the latest Python 3:

```
brew install python
```

Step 2: Install pip (if missing)

Verify pip is installed:

```
python3 -m ensurepip --upgrade
```

Step 3: Create a Virtual Environment

In your project folder:

```
python3 -m venv venv
```

This creates a folder named `venv/` that holds isolated Python libraries.

Step 4: Activate the Virtual Environment

For macOS/Linux:

```
source venv/bin/activate
```

You'll see `(venv)` at the beginning of your terminal prompt.

Step 5: Upgrade pip Inside the venv

```
pip install --upgrade pip
```

Step 6: Install Required Packages

If you have a `requirements.txt`:

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

Or manually install what you need:

```
pip install spacy
```

```
python -m spacy download en_core_web_sm
```

```
pip install torch
```

Step 7: Add to .gitignore (Important)

Avoid committing the venv to Git:

```
echo "venv/" >> .gitignore
```

Step 8: Set VS Code to Use This Environment

1. Open Command Palette (Cmd+Shift+P)
2. Type: Python: Select Interpreter
3. Choose: ./venv/bin/python

Step 9: Deactivate When Done

To exit the virtual environment:

```
deactivate
```

Bonus: Auto-activate (Optional)

Add this to `.zshrc` if you'd like auto-activation on folder entry:

```
cd() {
```

```
builtin cd "$@" && source ./venv/bin/activate 2>/dev/null
```

```
}
```