Coding Environment

Set up tutorial

MSE 5540/6640

Spring 2026, University of Utah

Google Collab

Quick Tutorial On Google Collab

Go to this Google Collab Jupyter Notebook

https://colab.research.google.com/drive/1noSOB0CVgN7XDFCWuW8RCn0vU2MGLoyv?usp=sharing

Local Environment

1. Install uv

macOS/Linux

```
curl -LsSf https://astral.sh/uv/install.sh | sh
```

Windows

```
powershell -ExecutionPolicy ByPass -c "irm https://astral.sh/uv/install.ps1 | iex"
```

2. Initialize a project @ your directory (NEW)

3. Create / Sync Environment

```
uv venv
# On Windows: .venv\Scripts\activate
# On macOS/Linux: source .venv/bin/activate
```

NEW:
This creates a `.venv` folder and a `pyproject.toml` file.

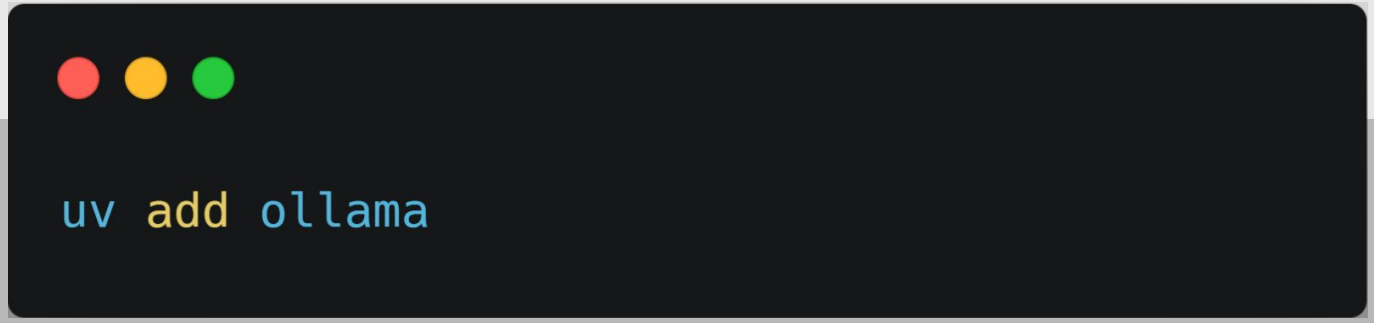
```
uv sync
```

READ:
Reads `pyproject.toml`
Updates `uv.lock`
Installs Packages
Removes Extras

Download and install Ollama meanwhile

https://ollama.com/download/

4. Add libraries



UV automatically updates `pyproject.toml`

Jupyter notebooks and Jupyter lab

```
uv add --dev ipykernel
```

Standard VS Code usage

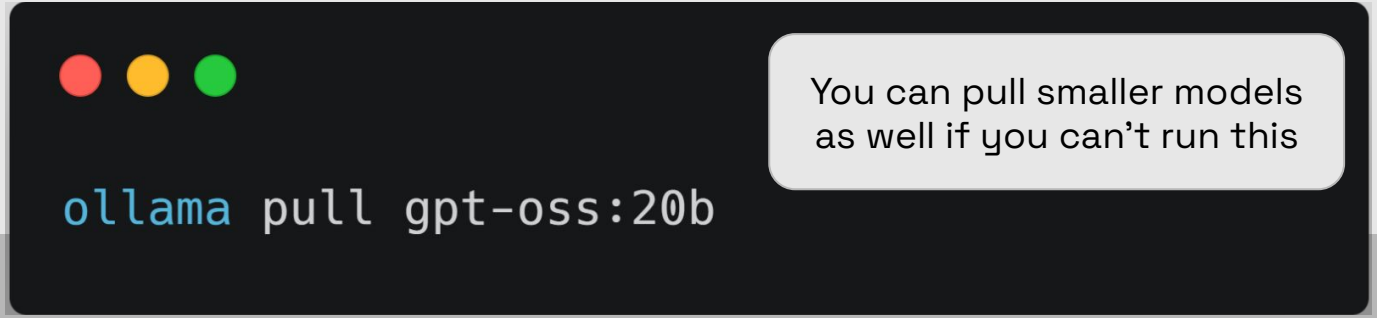
```
uv run --with jupyter
jupyter lab
```

Temporary setup,
no record in
`pyproject.toml`

```
uv add jupyterlab
```

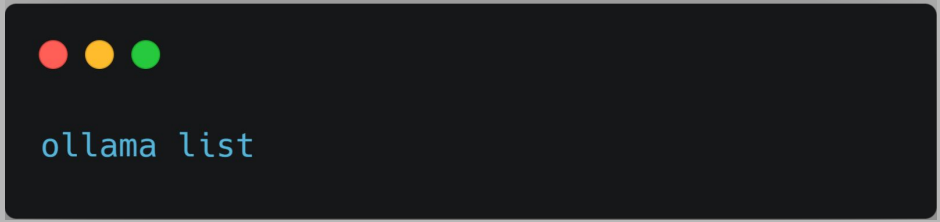
Work in browser

5. Pull model from Ollama



Storage: ~13GB
macOS: 24GB+ Unified Memory, Linux/Windows: 16GB+ VRAM

Check downloaded models



6. Run Ollama local server

Verify if it is actually running

```
curl http://127.0.0.1:11434
```

If needed to start it:

```
ollama serve
```

7a. Access Ollama

Human chat with model

7a. Access Ollama

```python
import ollama

def chat_with_local_model():
    response = ollama.chat(model='llama3.2', messages=[
        {
            'role': 'user',
            'content': 'How do the grain size and heat-
treatment temperature affect the yield strength and
toughness of a steel alloy, and how would I design an
experiment to measure both?',
        },
    ])

    print("Model Response:")
    print(response['message']['content'])

if __name__ == "__main__":
    chat_with_local_model()
```

i. Write a python script
ii. Run the python script

```
uv run question.py
```