Tutorial on Datahub

ECE 176 - WI26

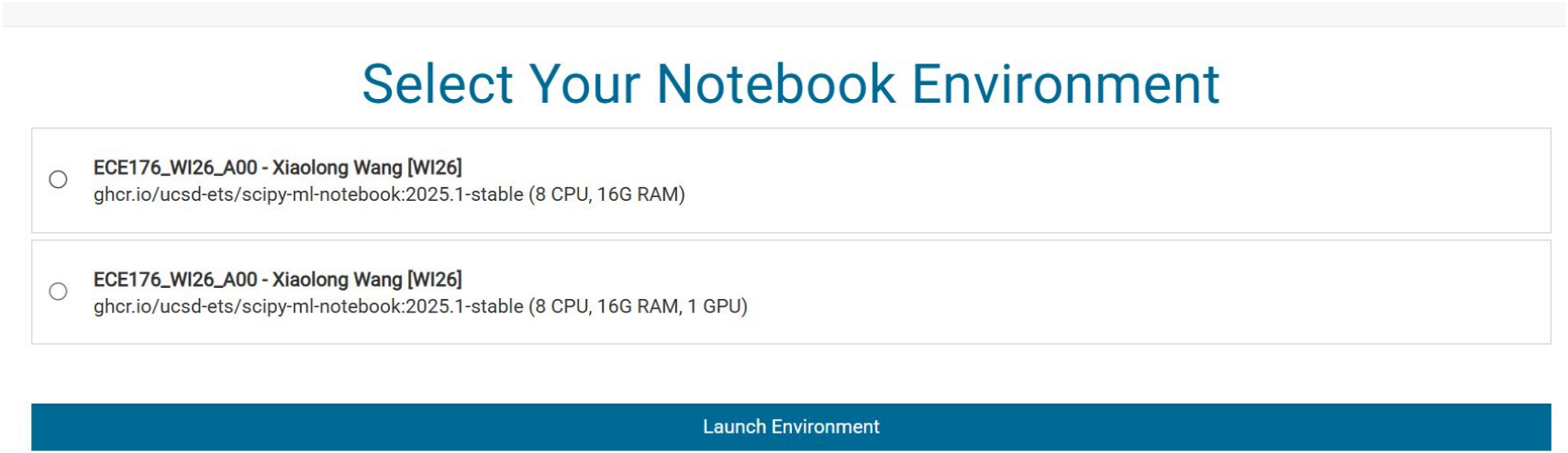
Credit: Jianglong

Overview

1. Datahub Basics
2. Jupyter Notebook Basics
3. How to Start with Assignment

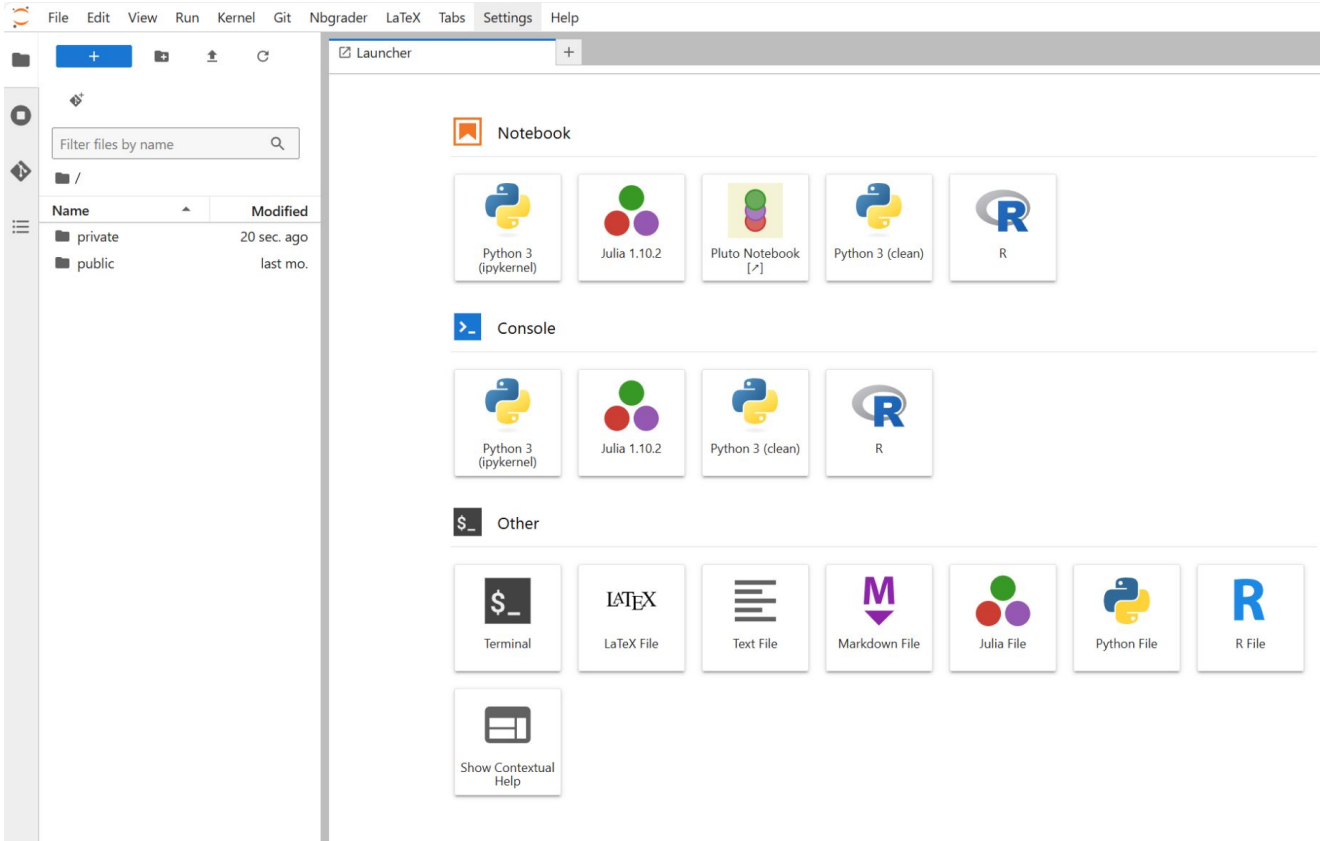
Datahub

- Link: https://datahub.ucsd.edu
  - Log in with your UCSD account
  - Multiple types of machines are available, choose the gpu one when you need it:



Datahub Interface

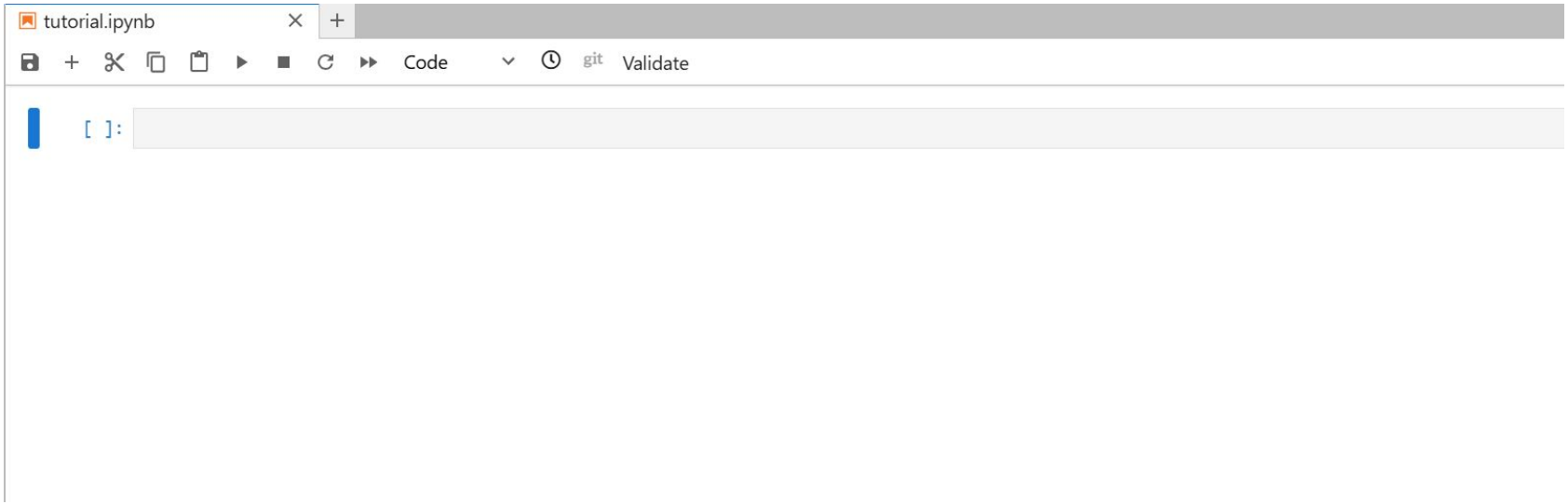
- JupyterLab
  - Jupyter Notebook
  - Terminal



Let’s try it.

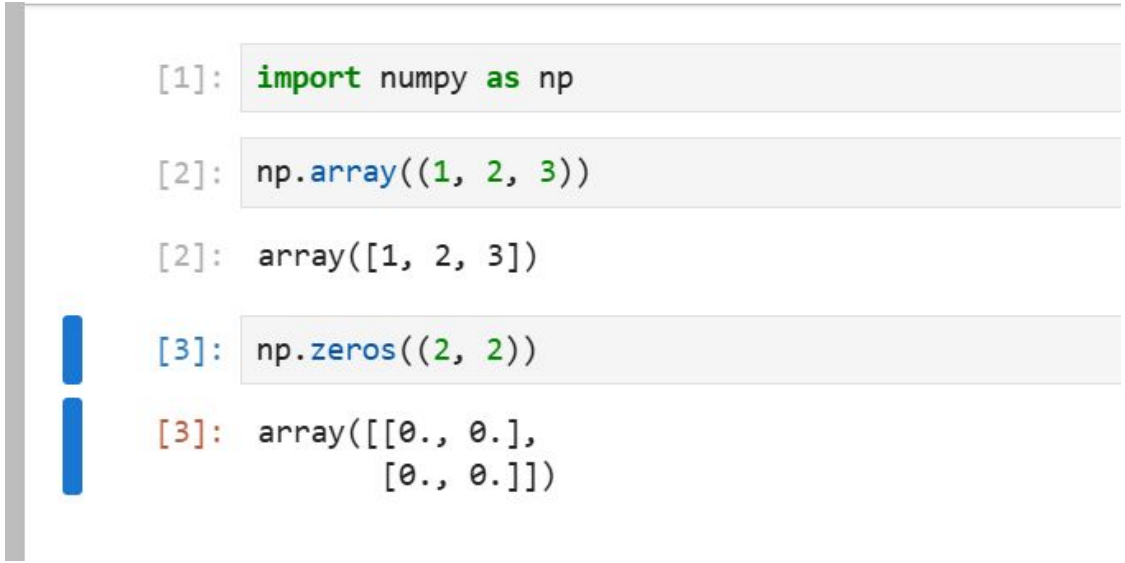
Jupyter Notebook

- A powerful tool for interactive python development.
  - It can run code, record output, visualize images, write Markdown, and more.



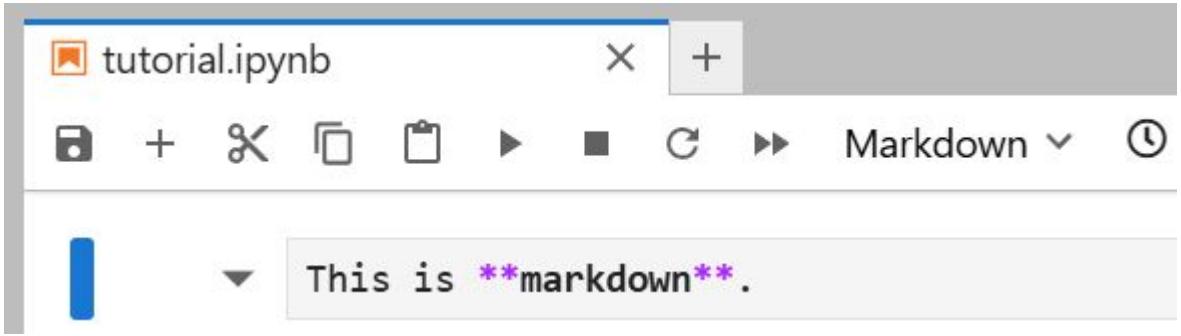
Code Block

- Contains python code
  - A block can be run many times
  - Blocks can be run in any order



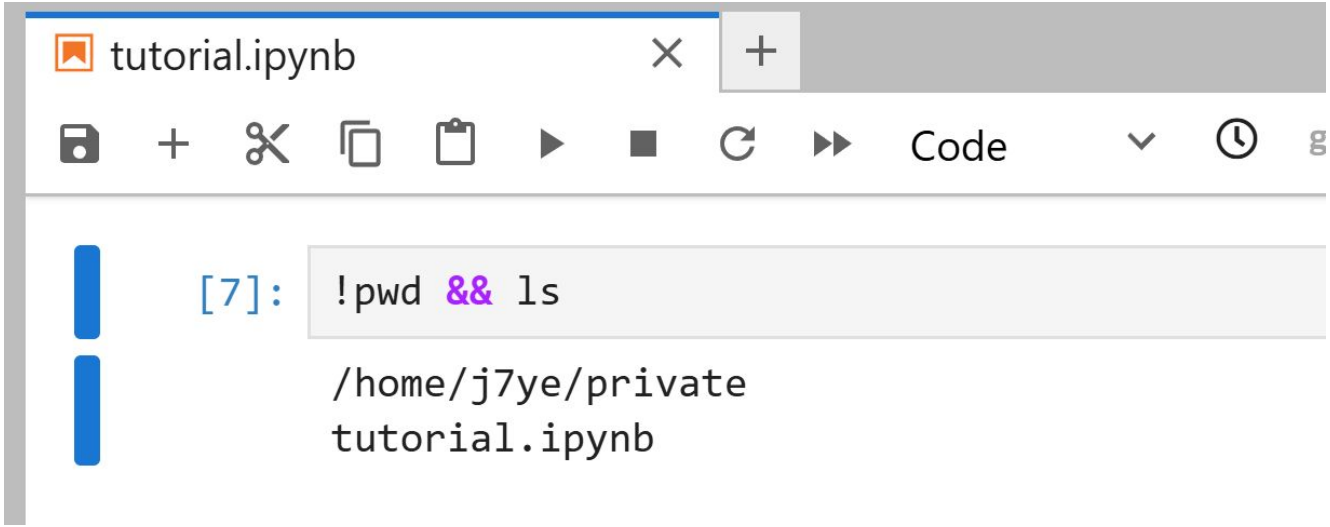
Markdown Block

- You can write markdown in notebook.



Run Shell Command

- Start with ! (exclamation mark)
  - For how to use shell, you can take a look at the missing semester



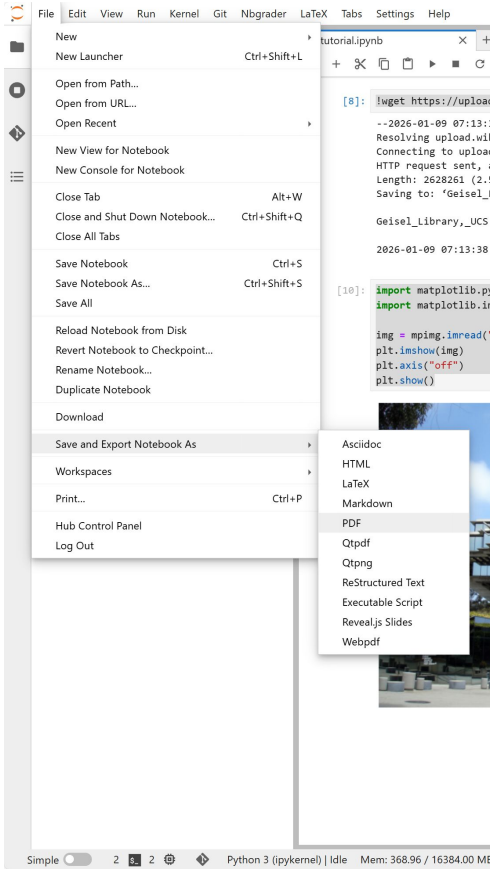
Visualize Image

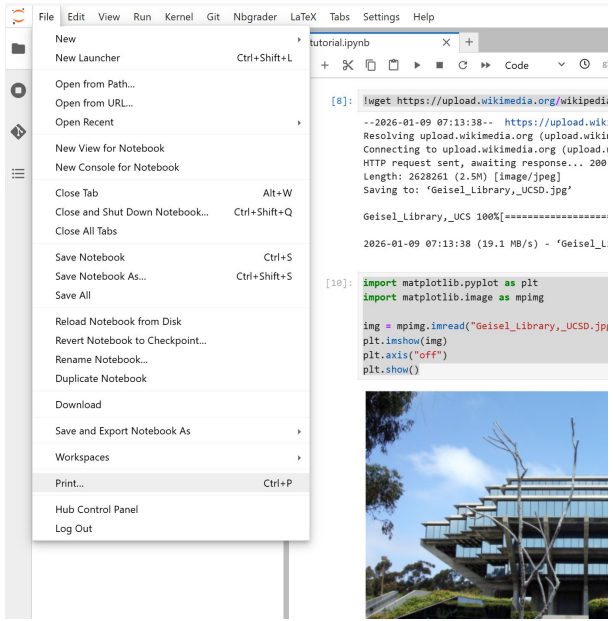
- Show image with matplotlib

[10]:
```
import matplotlib.pyplot as plt
import matplotlib.image as mpimg

img = mpimg.imread("Geisel_Library,_UCSD.jpg", format="jpg")
plt.imshow(img)
plt.axis("off")
plt.show()
```

Export as PDF

- You need to do this for the assignment
  - Upload generated PDF to Gradescope
  - Export as PDF or Print





Let’s try it.

How to Start with Assignment

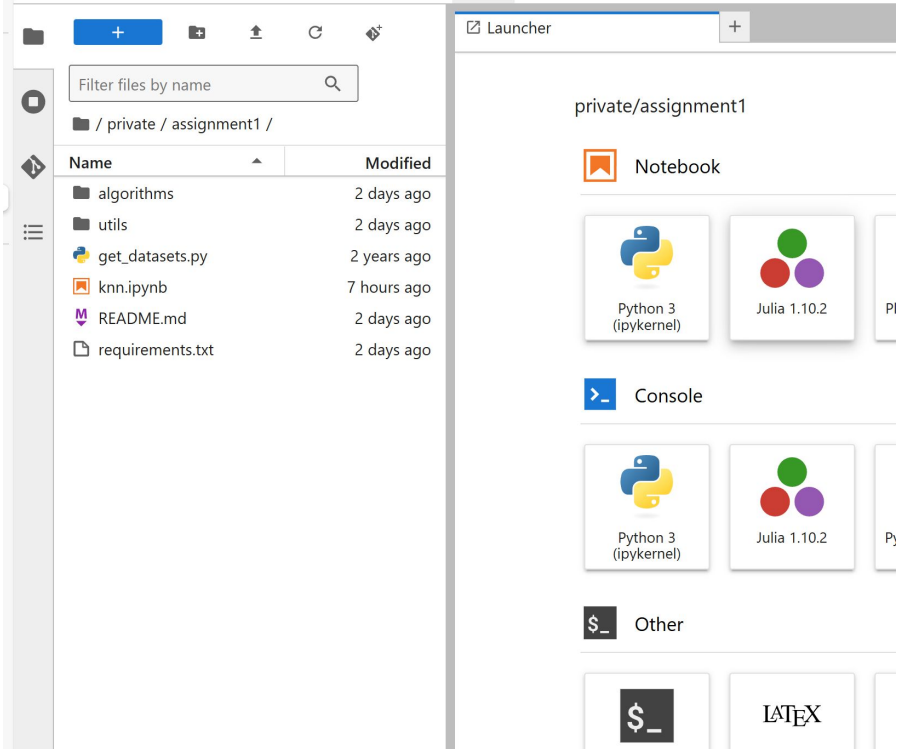
- Upload and unzip assignment on JupyterLab

Terminal 4

```
j7ye@dsmlp-jupyter-j7ye:~/private$ wget https://xiaolonw.github.io/ece176/assignments/assignment1.zip
--2026-01-09 07:26:40--  https://xiaolonw.github.io/ece176/assignments/assignment1.zip
Resolving xiaolonw.github.io (xiaolonw.github.io)... 185.199.109.153, 185.199.111.153, 185.199.108.153, ...
Connecting to xiaolonw.github.io (xiaolonw.github.io)|185.199.109.153|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11200 (11K) [application/x-zip-compressed]
Saving to: ‘assignment1.zip’

assignment1.zip                                     100%[=================================================
============================================================>]  10.94K  --.-KB/s    in 0s

2026-01-09 07:26:40 (41.4 MB/s) - ‘assignment1.zip’ saved [11200/11200]

j7ye@dsmlp-jupyter-j7ye:~/private$ unzip assignment1.zip
Archive:  assignment1.zip
   creating: assignment1/
  inflating: assignment1/requirements.txt
   creating: assignment1/algorithms/
 extracting: assignment1/algorithms/__init__.py
  inflating: assignment1/algorithms/knn.py
  inflating: assignment1/knn.ipynb
   creating: assignment1/utils/
  inflating: assignment1/utils/answer.py
  inflating: assignment1/utils/evaluation.py
 extracting: assignment1/utils/__init__.py
  inflating: assignment1/utils/data_processing.py
  inflating: assignment1/README.md
  inflating: assignment1/get_datasets.py
```

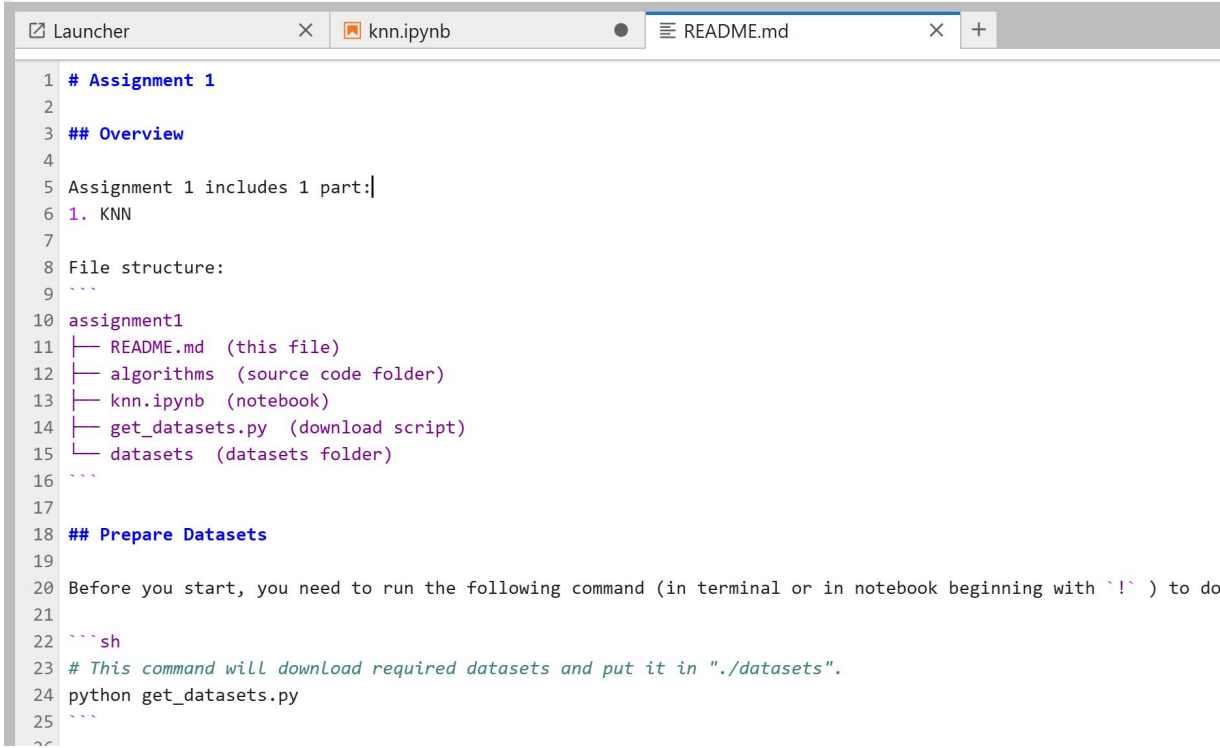
How to Start with Assignment

- Upload and unzip assignment on JupyterLab



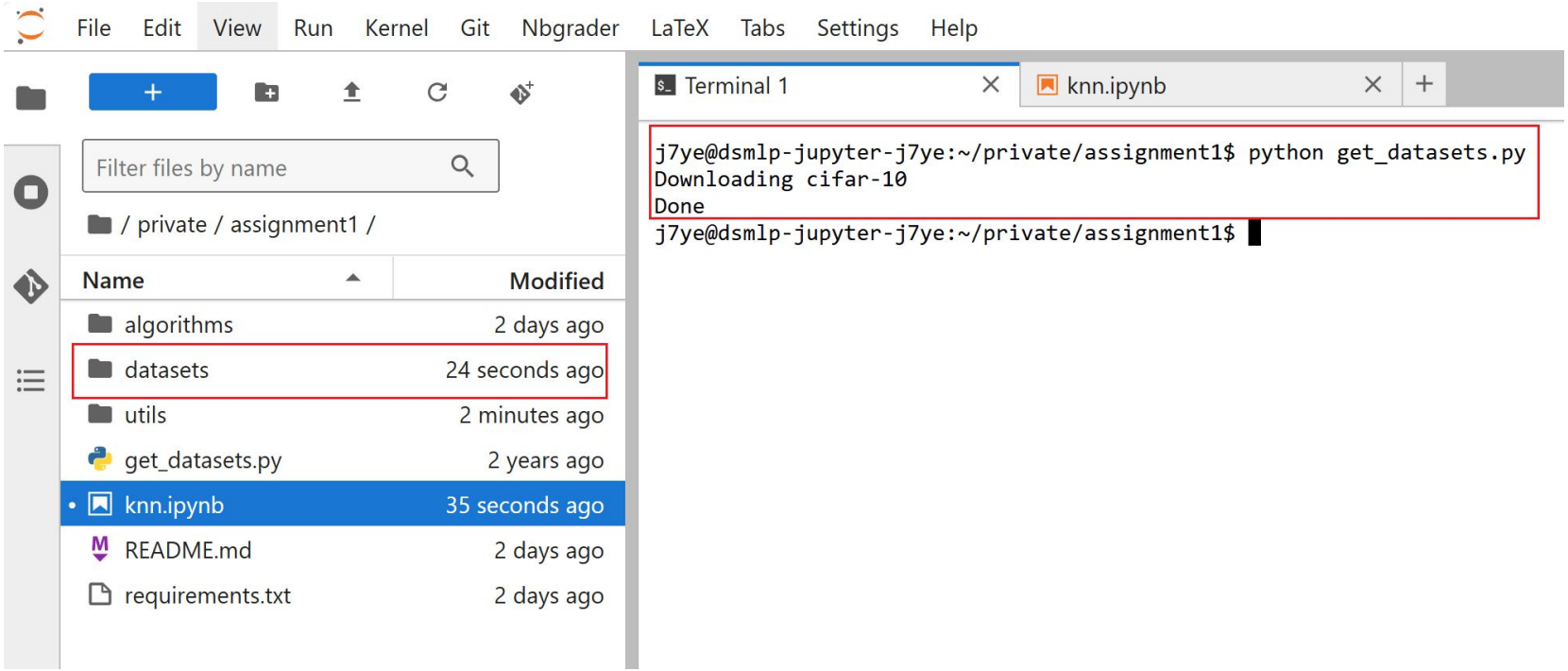
How to Start with Assignment

- Read the README file!



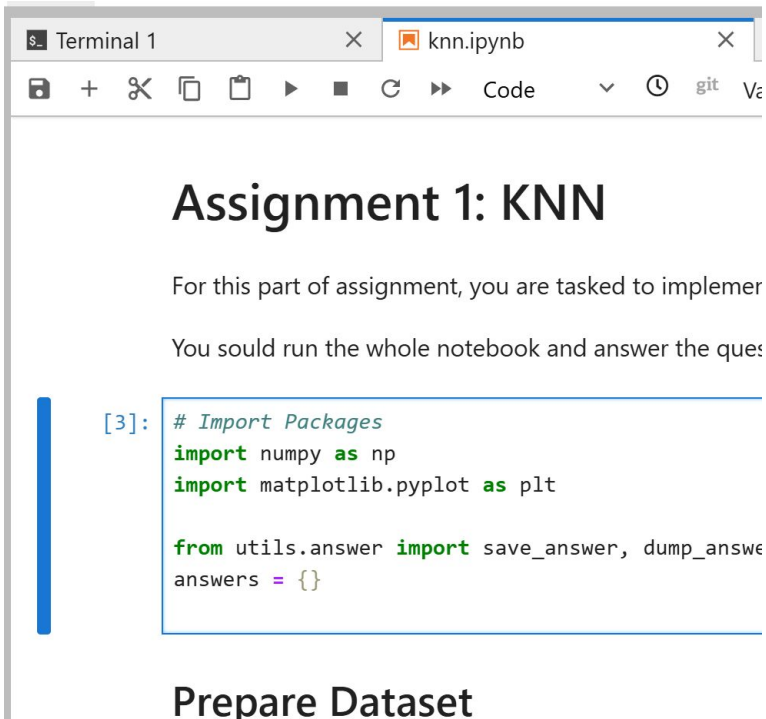
How to Start with Assignment

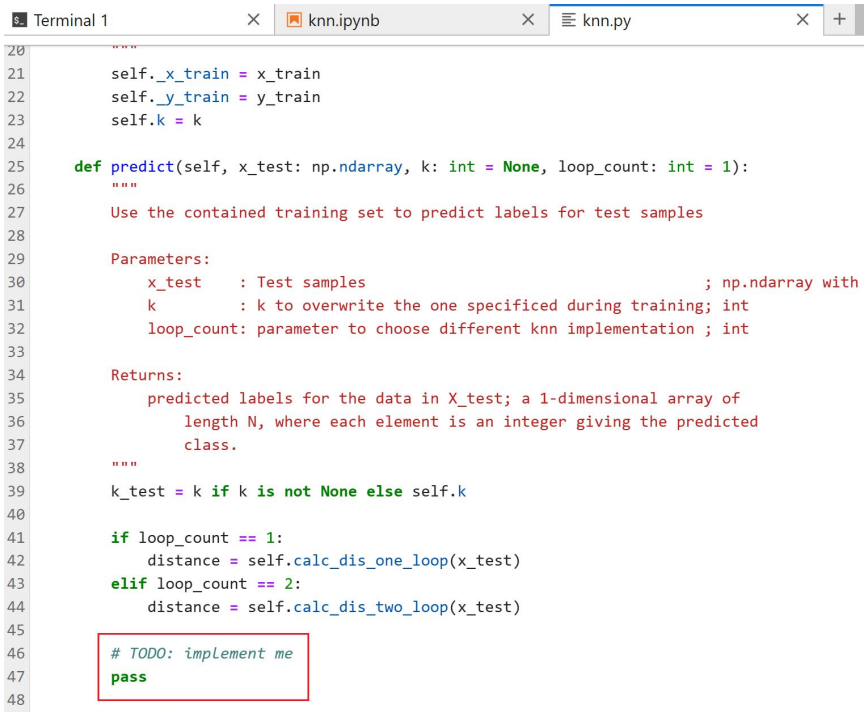
- Download the dataset.



How to Start with Assignment

- Run the whole knn.ipynb, implement knn.py





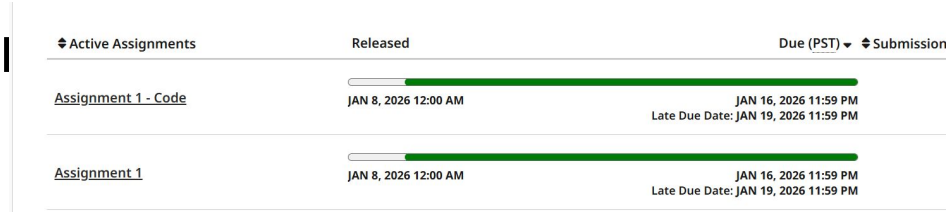
How to Start with Assignment

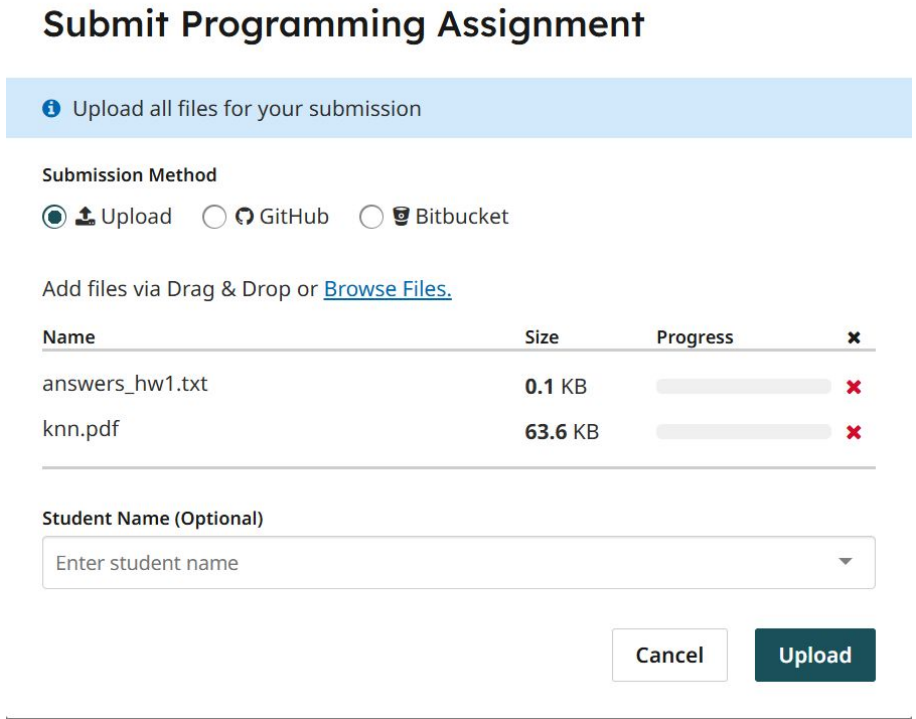
- Enable auto-reload of jupyter notebook for faster iteration
  - This is super helpful!

```
[34]: %load_ext autoreload
      %autoreload 2
```

How to Start with Assignmer

- Submit answers.txt and pdf to Assignment 1
- Submit knn.py to Assignment 1 - Code





Let’s try it.

Thanks