

Analytics Jumpstart

Introduction



Meet Your Instructors

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- **Your name**
- **The place you call home**
- **Something new in the last (pandemic) year**



Goals for today

- Get an idea of what to expect
- Define the **Data Science Process** – *a basic mental model for analysis*
- Using Slack
- Folder Setup
- Jupyter Notebook walkthrough/orientation
- Analysis Guide walkthrough
- Get started on the project!



Classroom *guidelines*

- Ask lots of questions
- Help each other; learn from each other
- Get comfortable with discomfort. Making mistakes, figuring them out, and then correcting them is part of the learning process
- After working through the assignment, form your own ideas and do your own exploration beyond what has been suggested



Class format

1. Concepts/Code Lecture
2. Coding practice
3. Interactive with instruction team and other students!

The weekly targets are for help in pacing lectures. Feel free to work ahead, but be aware you may need to use Google or the pandas API!!

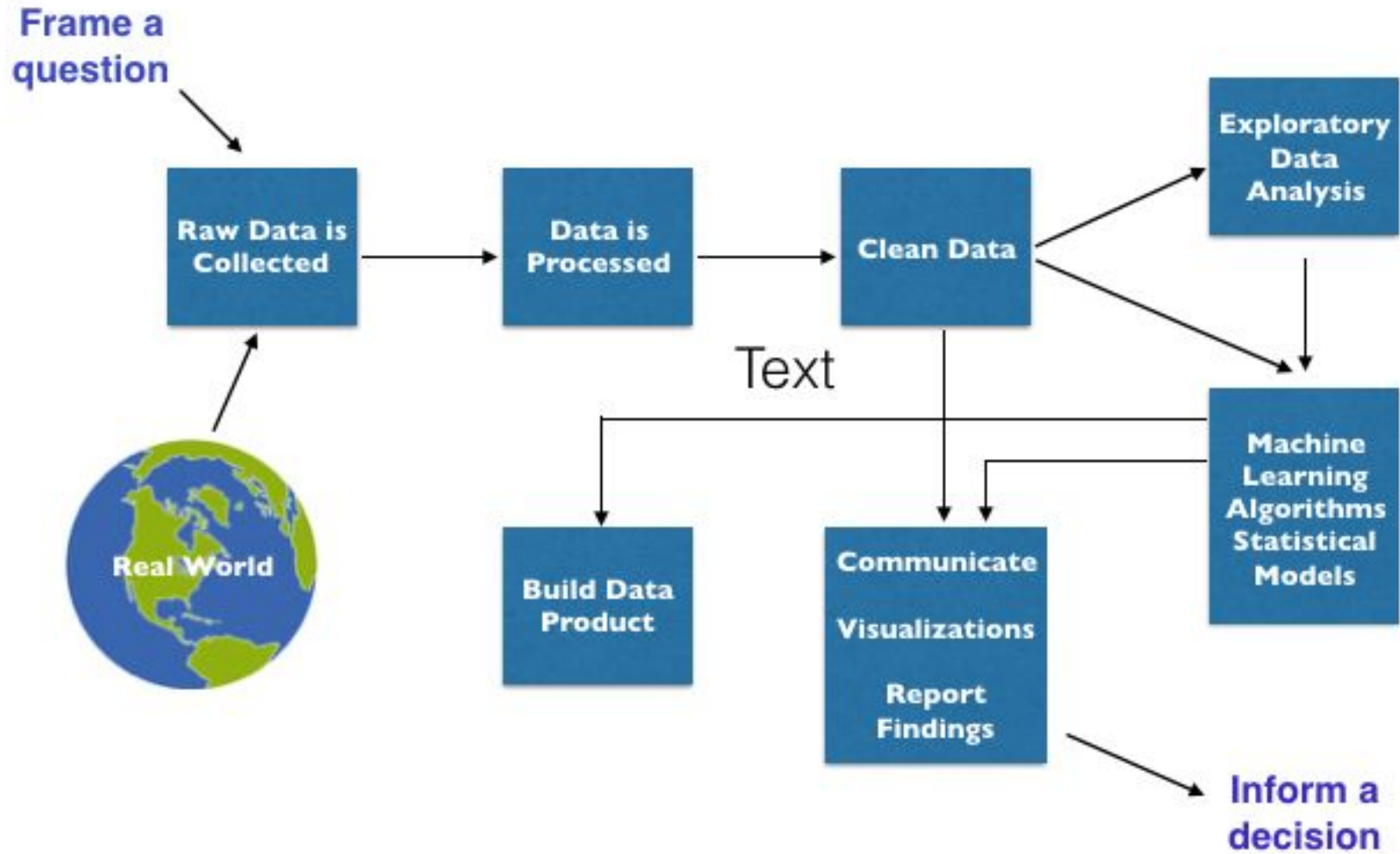


Goals for the class

- Get hands-on experience of what it might be like to work as a data analyst or data scientist
- Get an idea of whether or not this might be a good fit for a career
- Learn some tools to help you on personal analysis projects
- Make discoveries and have fun



The Data Science Process





Channels

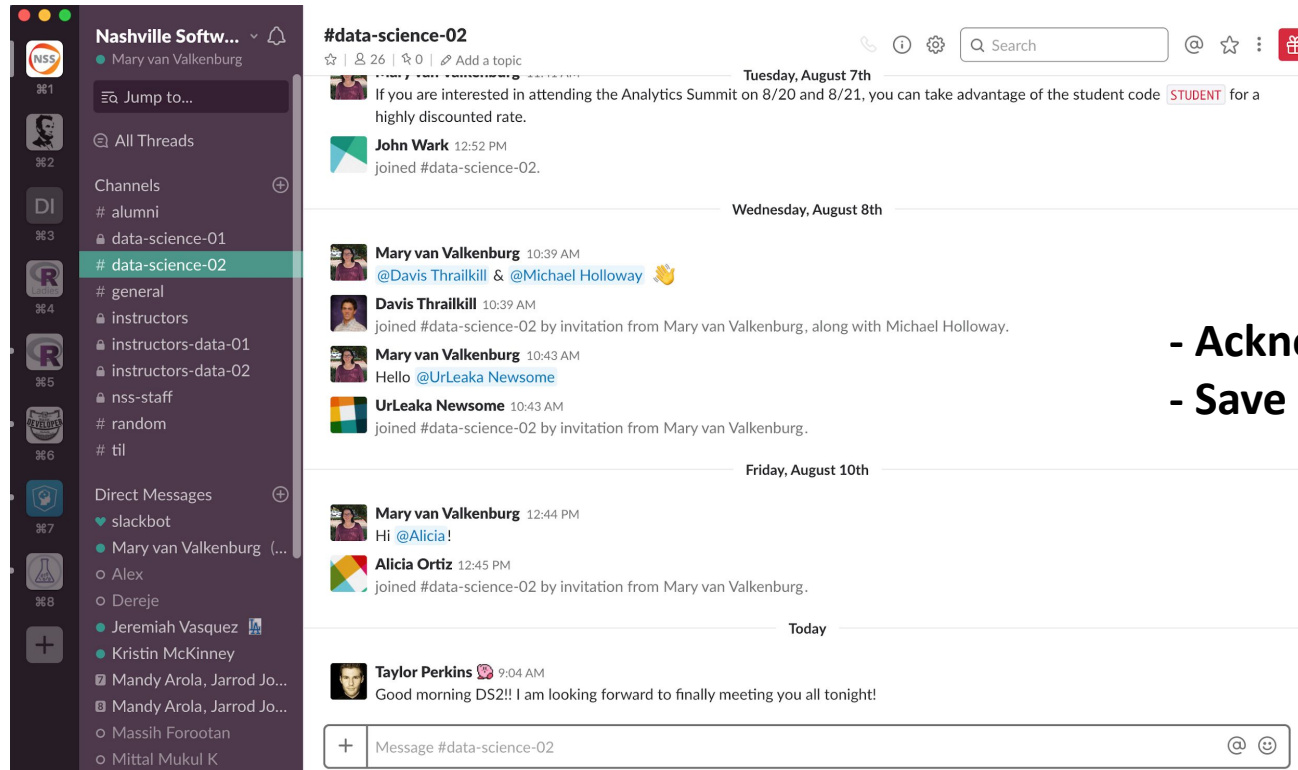
- use for teamwork and class communication
- public (anyone can see)


Tags

- notify a person by typing the person's user id (starting with @)
- notify an entire channel by typing **@channel (disabled for non-admins)**
- notify only the people who are online in a particular channel with **@here (disabled for non-admins)**

Direct Messages

- communicate privately (no @ needed)






- Acknowledge messages with **:+1:** 
- Save important shared items (free slack has limitations)

Organize your files in the structure shown

We will share a Zip file you can unzip and move to where you want (Documents, Desktop, etc)

Do not put your files on the cloud (One Drive, iCloud)

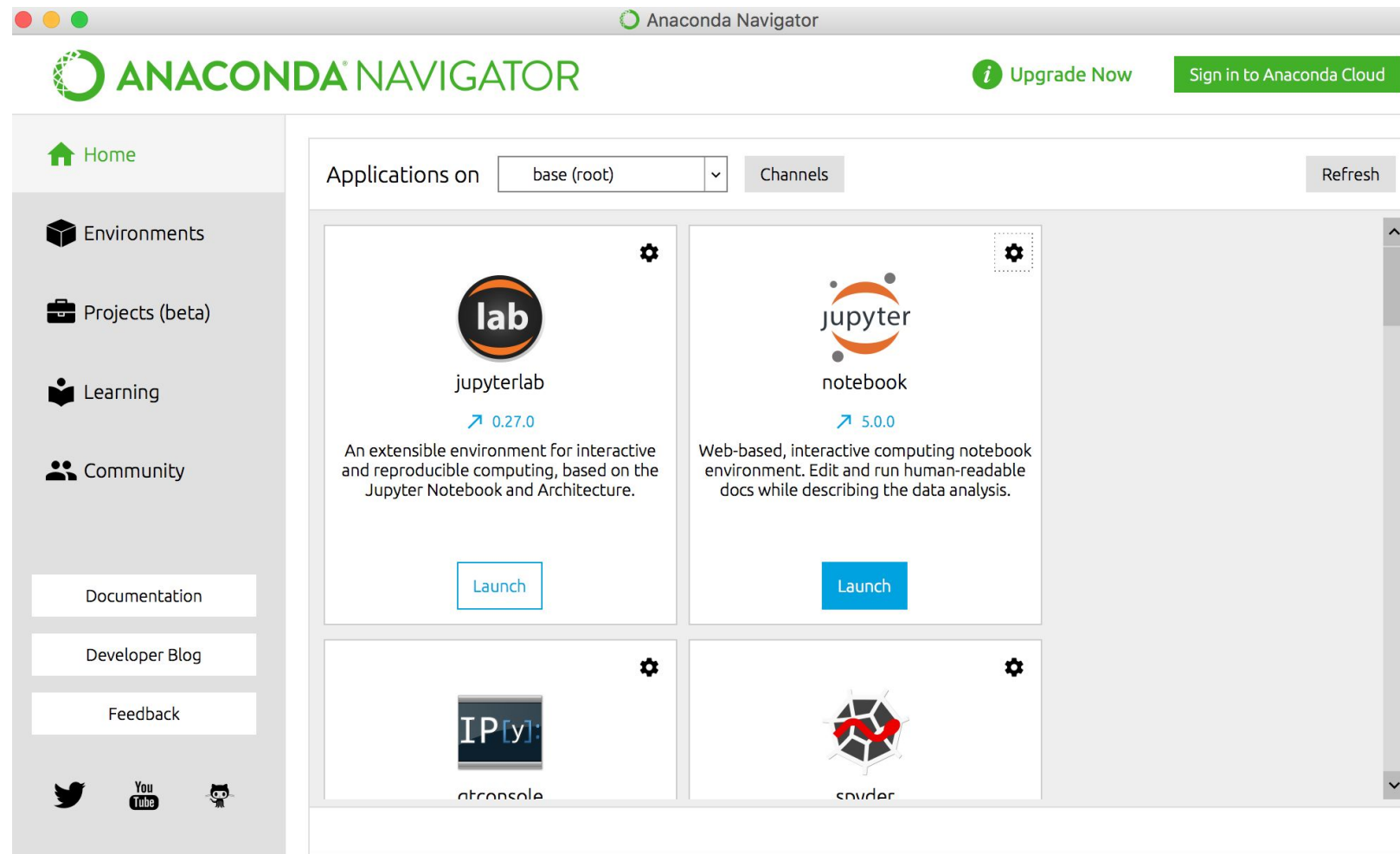
Name	Date Modified	Date Added	Size	Kind	^
▶ data	Today at 9:48 AM	Today, 9:48 AM	--	Folder	
▶ notebooks	Today at 7:48 AM	Today, 9:48 AM	--	Folder	
▶ slides	Today at 7:48 AM	Today, 9:48 AM	--	Folder	
 Analysis_Guide.docx	Jun 18, 2020 at 8:43 PM	Today, 9:48 AM	15 KB	Micros... (.docx)	
 Glossary.docx	Jun 5, 2020 at 7:43 AM	Today, 9:48 AM	10 KB	Micros... (.docx)	
 Syllabus.docx	Today at 7:45 AM	Today, 9:48 AM	7 KB	Micros... (.docx)	



Orientation to Jupyter Notebook



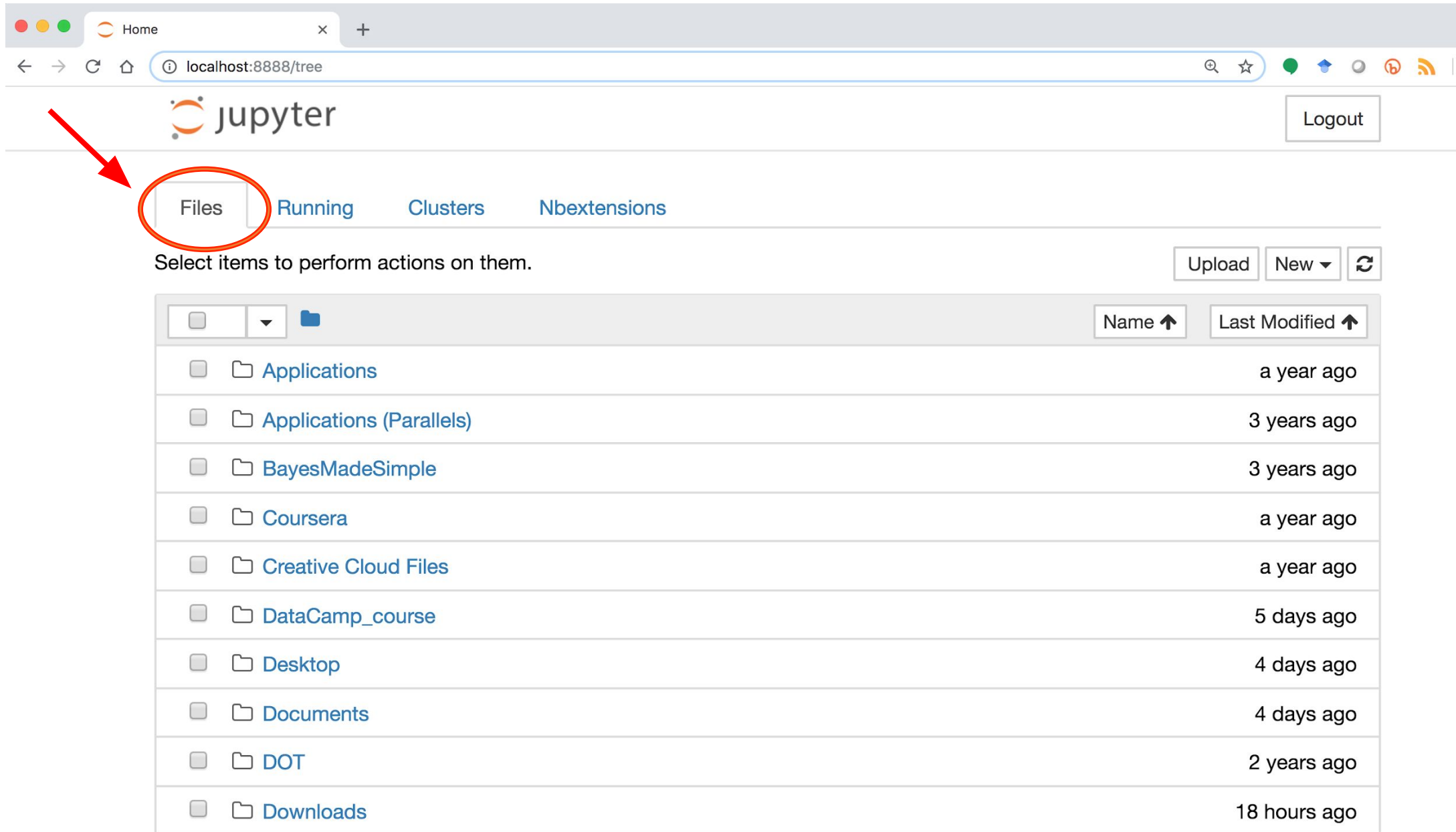
Open Anaconda Navigator, install, and launch Jupyter Notebook



A new tab will open in your default browser. It's not actually connecting to the internet, just running on your machine



You will see the file structure on your computer and can navigate as normal

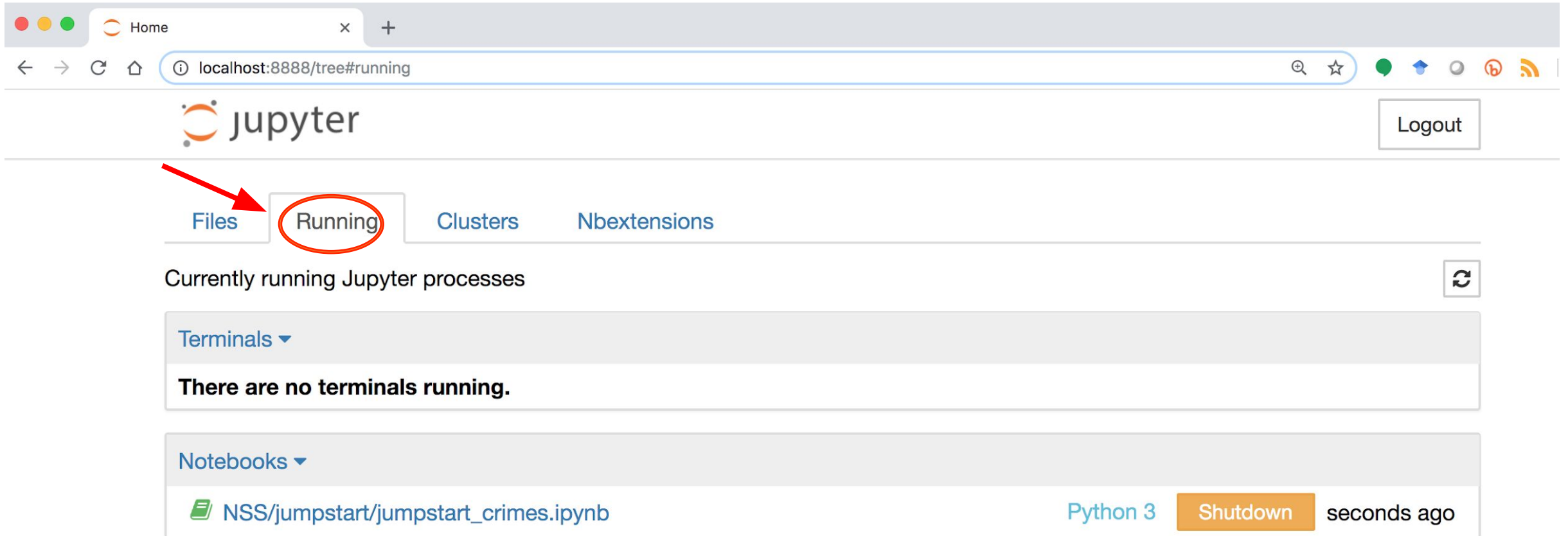


The screenshot shows the JupyterLab interface in a web browser. The address bar indicates the URL is `localhost:8888/tree`. The Jupyter logo is at the top left, and a 'Logout' button is at the top right. Below the logo, there are four tabs: 'Files', 'Running', 'Clusters', and 'Nbextensions'. The 'Files' tab is selected and circled in red, with a red arrow pointing to it. Below the tabs, there is a text prompt 'Select items to perform actions on them.' and three buttons: 'Upload', 'New', and a refresh icon. The main area displays a file browser interface with a sidebar on the left showing a tree view of the file system. The main area contains a table of files with columns for 'Name' and 'Last Modified'.

Name	Last Modified
Applications	a year ago
Applications (Parallels)	3 years ago
BayesMadeSimple	3 years ago
Coursera	a year ago
Creative Cloud Files	a year ago
DataCamp_course	5 days ago
Desktop	4 days ago
Documents	4 days ago
DOT	2 years ago
Downloads	18 hours ago



See what notebooks are already running (should be empty if just opening Jupyter)



The screenshot shows a web browser window with the address bar at `localhost:8888/tree#running`. The Jupyter logo is in the top left, and a 'Logout' button is in the top right. Below the header, there are four tabs: 'Files', 'Running', 'Clusters', and 'Nbextensions'. The 'Running' tab is selected and circled in red, with a red arrow pointing to it from the left. Below the tabs, the text 'Currently running Jupyter processes' is displayed. There are two expandable sections: 'Terminals' and 'Notebooks'. The 'Terminals' section is expanded and shows the message 'There are no terminals running.' The 'Notebooks' section is also expanded and shows a single notebook entry: 'NSS/jumpstart/jumpstart_crimes.ipynb'. To the right of the notebook name, it says 'Python 3' and 'Shutdown seconds ago'.

Home x +

localhost:8888/tree#running

jupyter Logout

Files **Running** Clusters Nbextensions

Currently running Jupyter processes

Terminals ▼

There are no terminals running.

Notebooks ▼

NSS/jumpstart/jumpstart_crimes.ipynb Python 3 Shutdown seconds ago

Navigate to analytics_jumpstart/notebooks and create a new Python 3 notebook

twareS x +

ree/Documents/NashvilleSoftwareSchool/analytics_jumpstart/notebooks

Home Trickster Euchre New folder Apple ESPN Google Maps YouTube remote

jupyter

Quit Logout

FilesRunningClusters

Select items to perform actions on them.

0

/ Documents / NashvilleSoftwareSchool / analytics_jumpstart / notebooks

Name

..

The notebook list is empty.

UploadNew

Notebook:

Python 3

Other:

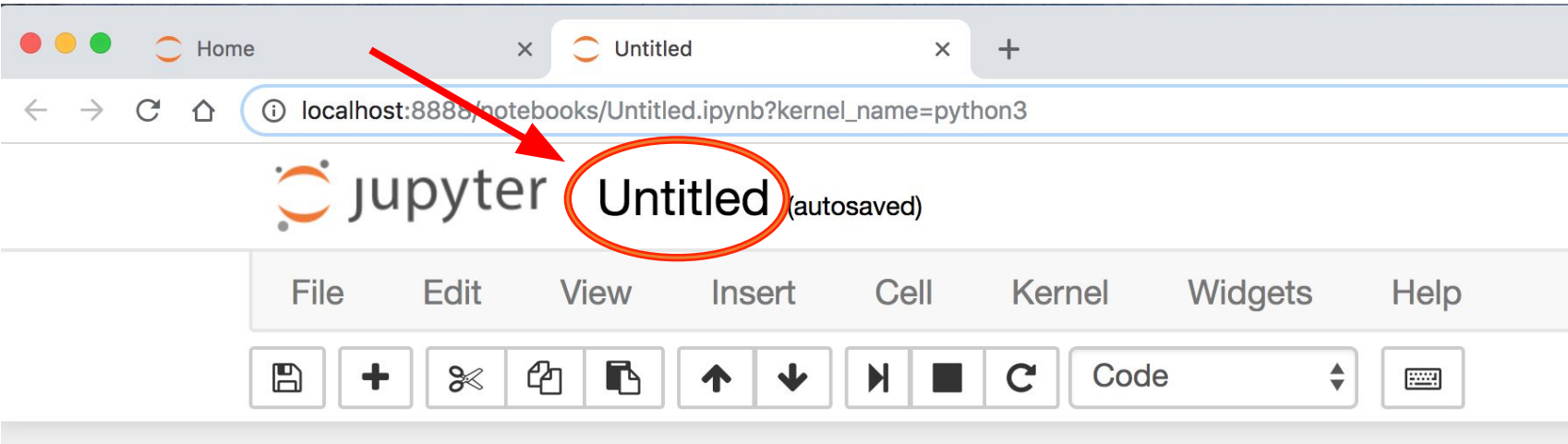
Text File

Folder

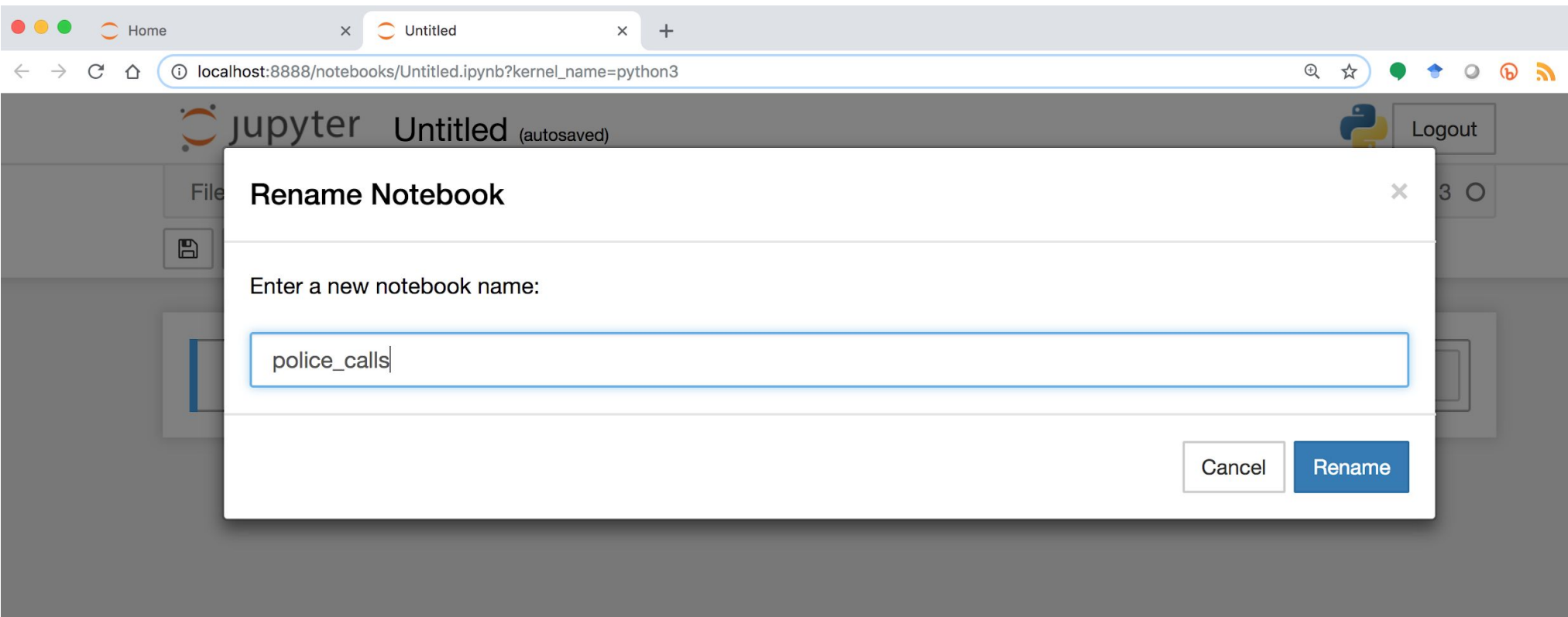
Terminal



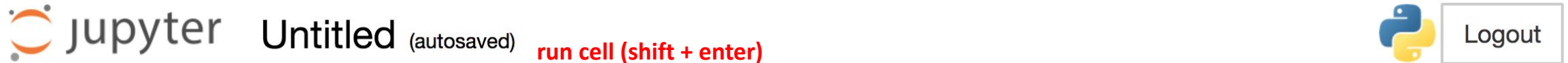
Title the notebook



- meaningful
- no spaces



Useful buttons (and shortcuts) for running code and moving cells around



run cell (shift + enter)



save add cell cut cell

move cell (up/down)

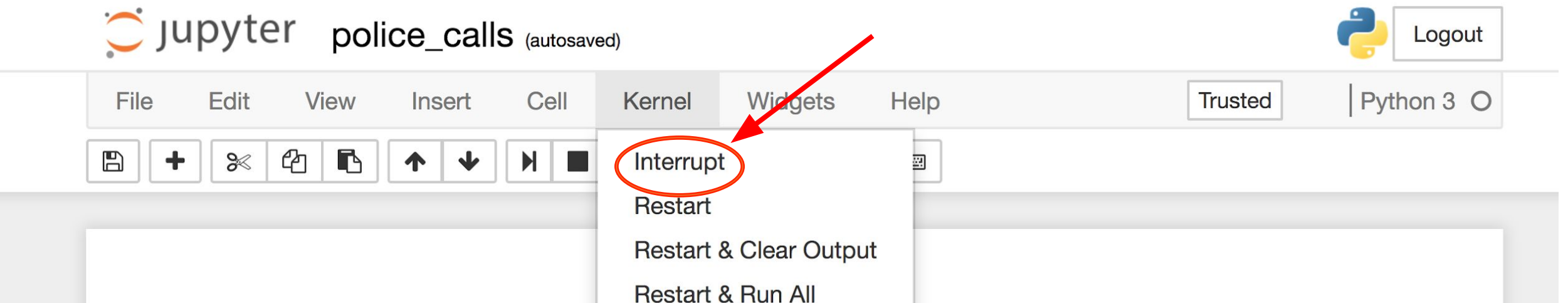
toggle between markdown and code

In []:

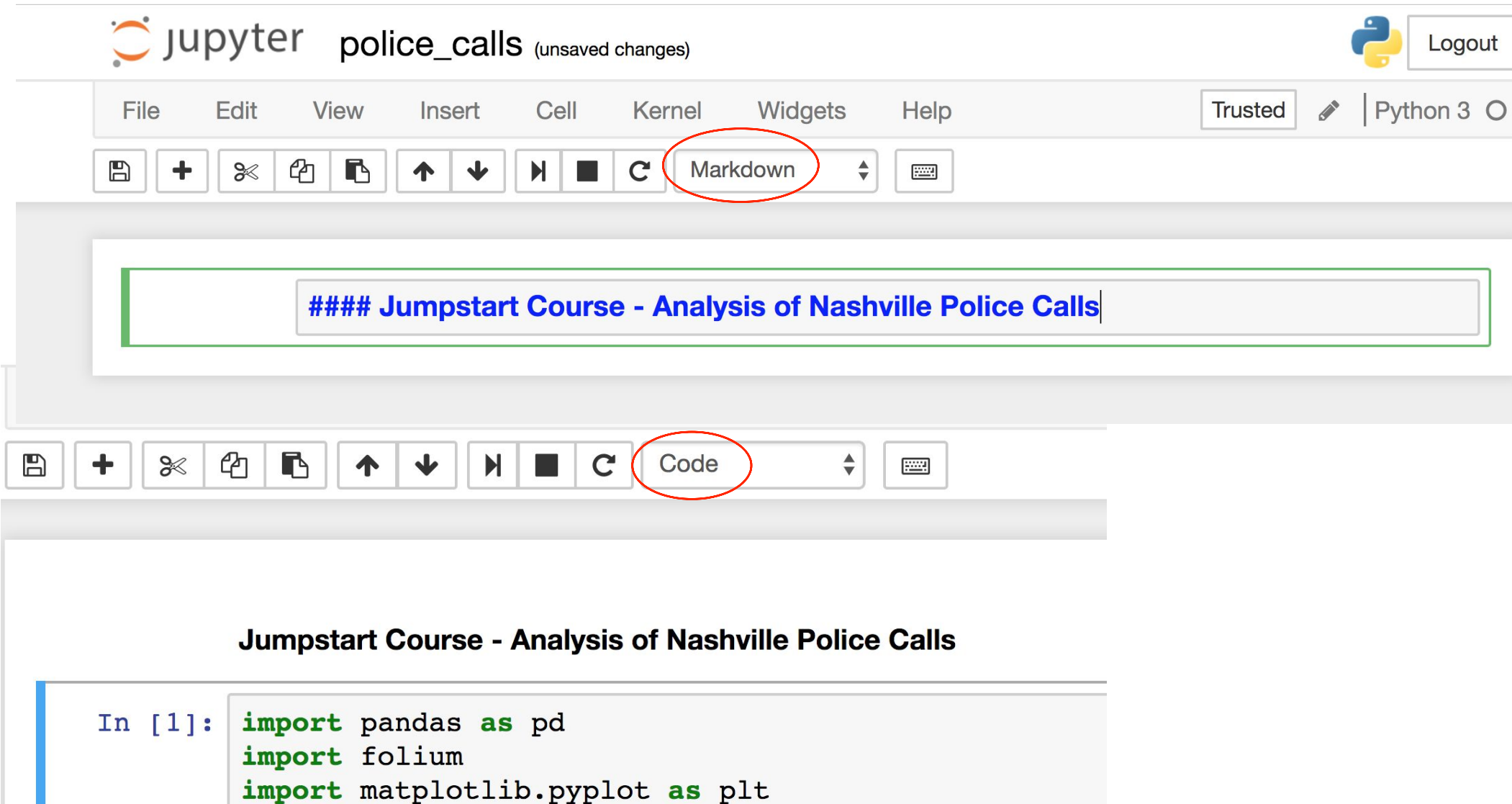


If your code is taking too long or is giving unexpected results, try restarting the kernel

Each time you run a piece of code in a Jupyter Notebook, that process is saved to a kernel. All the inputs, outputs, variables, etc. are saved. Even if you modify or delete a cell, the first time it was run was saved. This can sometimes lead to strange results. Restarting the kernel will clear out the memory so you can start fresh. Closing and opening the notebook will also do this. But remember to rerun all your code after you restart the kernel!



Change the format of the cell to add notes or run code



The screenshot displays the JupyterLab interface for a notebook named 'police_calls' with unsaved changes. The top menu bar includes File, Edit, View, Insert, Cell, Kernel, Widgets, and Help. On the right, there is a 'Trusted' status indicator, a pencil icon, and a 'Python 3' kernel selector. Below the menu bar is a toolbar with icons for saving, adding cells, cutting, copying, pasting, moving cells up/down, running, and refreshing. The 'Markdown' button in the toolbar is circled in red. Below the toolbar, a cell is shown in Markdown format with the text '#### Jumpstart Course - Analysis of Nashville Police Calls'. Below this cell, another toolbar is visible, where the 'Code' button is circled in red. At the bottom of the image, the rendered output of the code cell is shown, displaying the title 'Jumpstart Course - Analysis of Nashville Police Calls' and the executed Python code.

jupyter police_calls (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3

Markdown

Jumpstart Course - Analysis of Nashville Police Calls

Code

Jumpstart Course - Analysis of Nashville Police Calls

```
In [1]: import pandas as pd
import folium
import matplotlib.pyplot as plt
```