Statistics for Data Science

Introduction

Introductions

- Your name
- The place you call home
- A number that has some significance to you

Classroom guidelines

- Ask lots of questions
  - You are welcome to unmute and ask your question at any time
  - Raise hand button in Zoom
  - You can also use the chat
- 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

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Class Format

- New concepts introduced through slides or interactive demonstrations
- Jupyter Notebook to put these concepts into code
- Exercises to practice + build off of what was learned in class
    - Exercises will be reviewed at the beginning of class on Tuesday (with one exception at the end)
- Some review questions at the beginning of class on Thursdays
- For students who have or are planning to do the data science bootcamp, we'll have a post-course assessment

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Topic Outline

Week 1: Introduction to Statistics, Descriptive Statistics, and Single-Variable EDA

Week 2: Multi-variable EDA, Introduction to Probability

Week 3: Probability and Random Variables (Binomial and Normal Distributions)

Week 4: Estimation, Sampling Distributions, Confidence Intervals, and the Bootstrap

Week 5: Hypothesis Testing

Week 6: Linear Regression

Week 7: Logistic Regression

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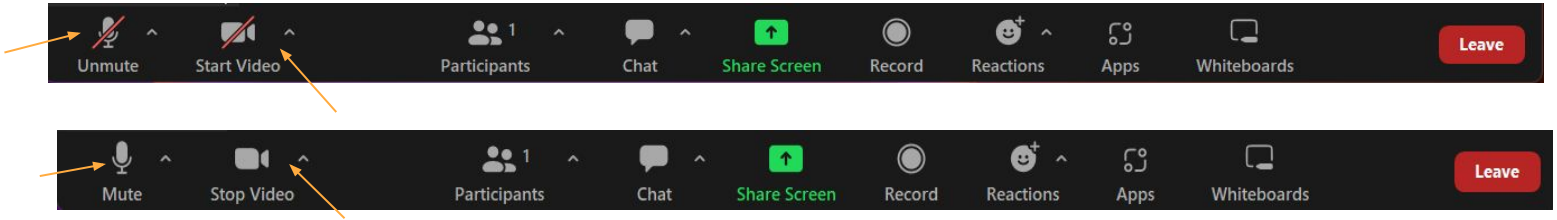
Checklist

- Joined Slack
- Installed Anaconda

Zoom Features - Audio and Camera Settings

The buttons to mute/unmute and turn your camera off/on are located along the bottom of the Zoom window. Simply click the relevant icon to switch yourself from muted to unmuted or your camera from off to on. For more advanced audio and video settings, click on the carrot next to the relevant icon.



Icon appearances when unmuted and camera on:

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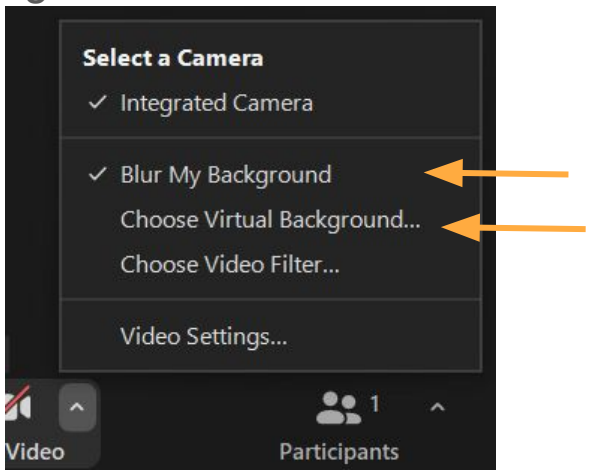
Zoom Features - Backgrounds

You may at times be working in a space that has a distracting appearance. You can make use of Zoom's built in features to maintain a professional background appearance. By clicking the carrot next to the video icon, you can blur your background or open the Virtual Background options to choose a digital background.



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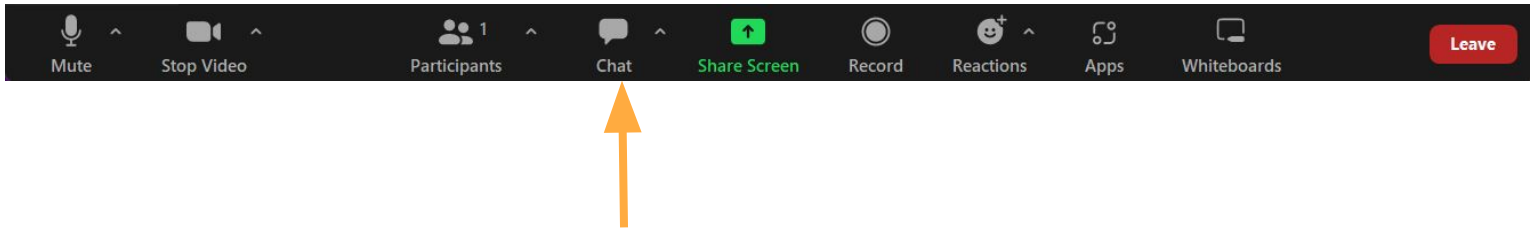
Zoom Features - Chat

During lectures, additional information/links will often be shared in the session's chat, so keep an eye out for activity here.

This can also be a good place to add your observations and/or questions if you don't want to interrupt the person who is speaking.



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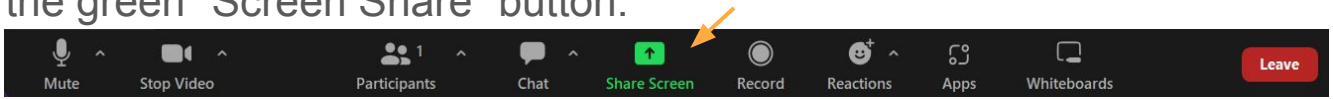
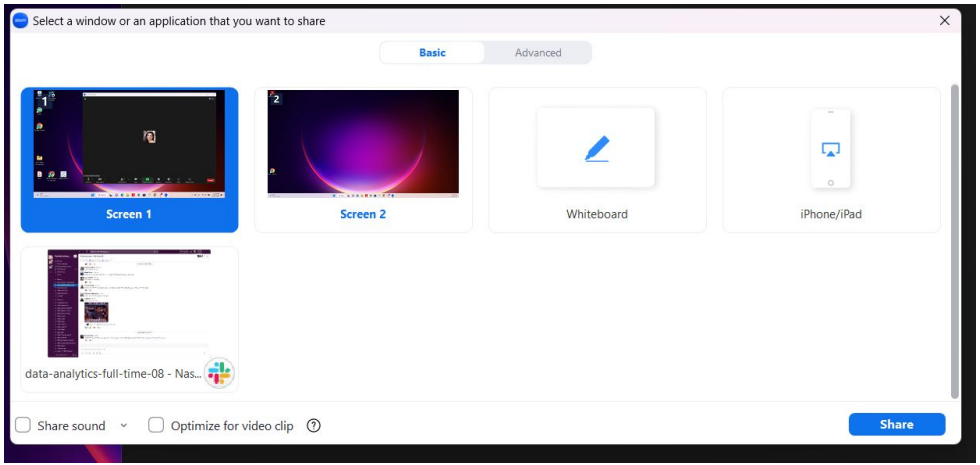
Zoom Features - Share Screen

If you are having difficulty with something, we will often ask you to share your screen so that we can help you troubleshoot. To initiate screen sharing, click on the green “Screen Share” button:



Then select the relevant screen or specific window to share:



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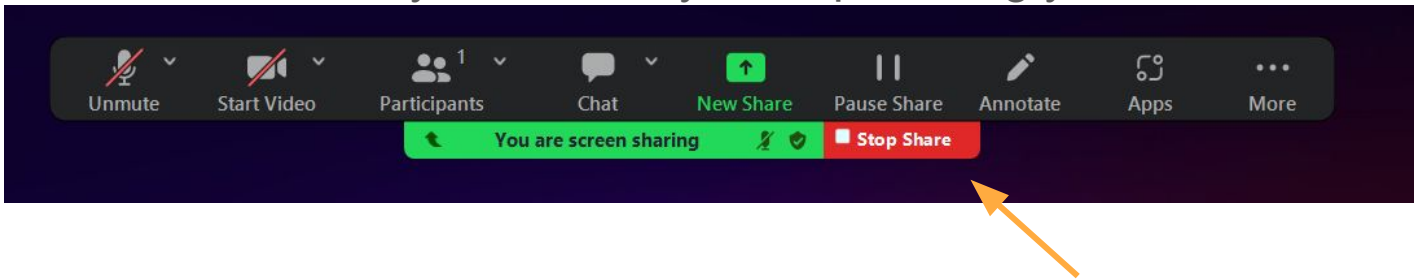
Zoom Features - Screen Share

Once you are sharing your screen, the Zoom controls tend to move to the top of the screen, though if you have multiple screens, they may move to a screen you are NOT sharing. Use the red “Stop Share” button when you are ready to stop sharing your screen.



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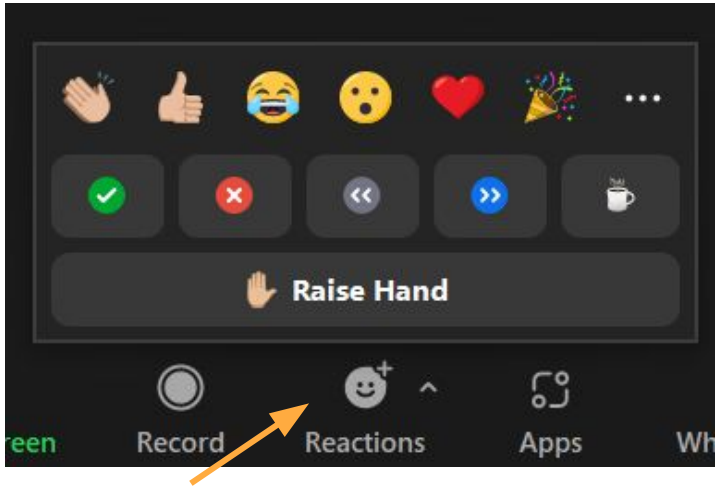
Zoom Features - Reactions

You can click the “Reactions” button to see available reactions. Options like the green check or “Raise Hand” will remain in place until you or the host remove them. Other reactions like clapping will only remain visible for a short time.



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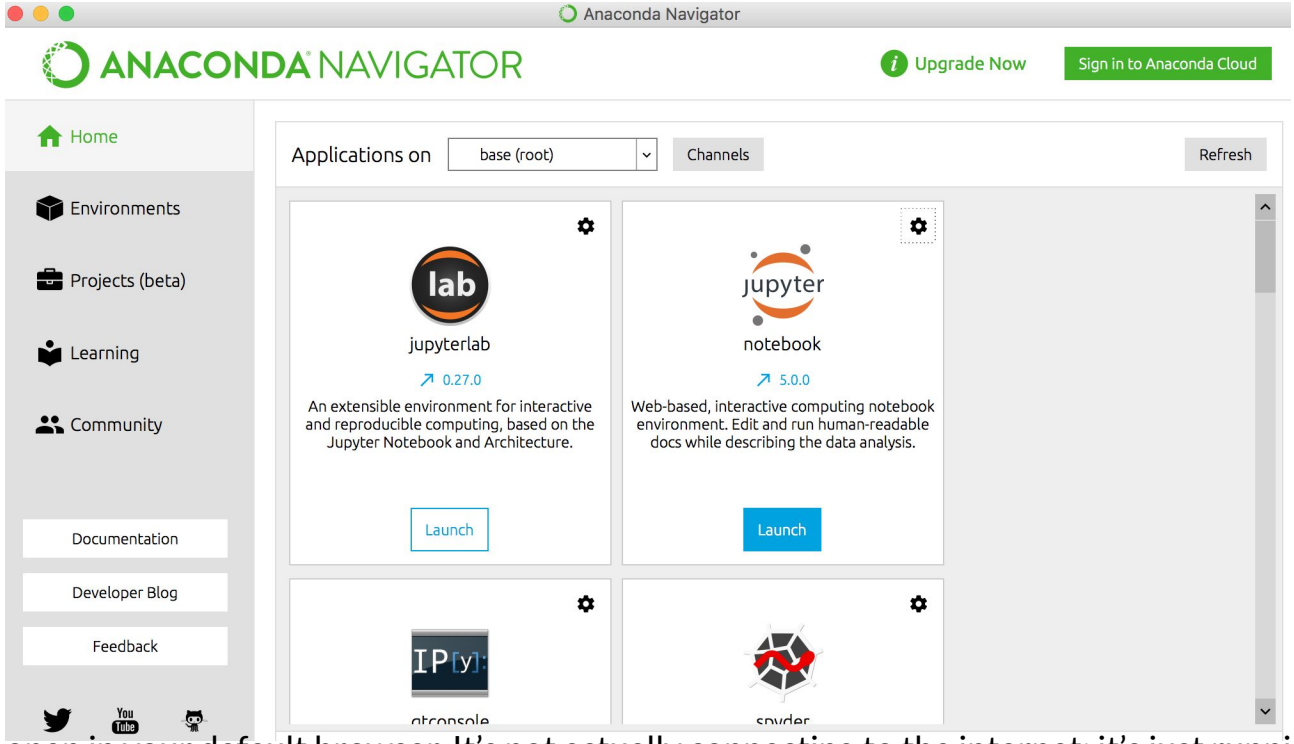
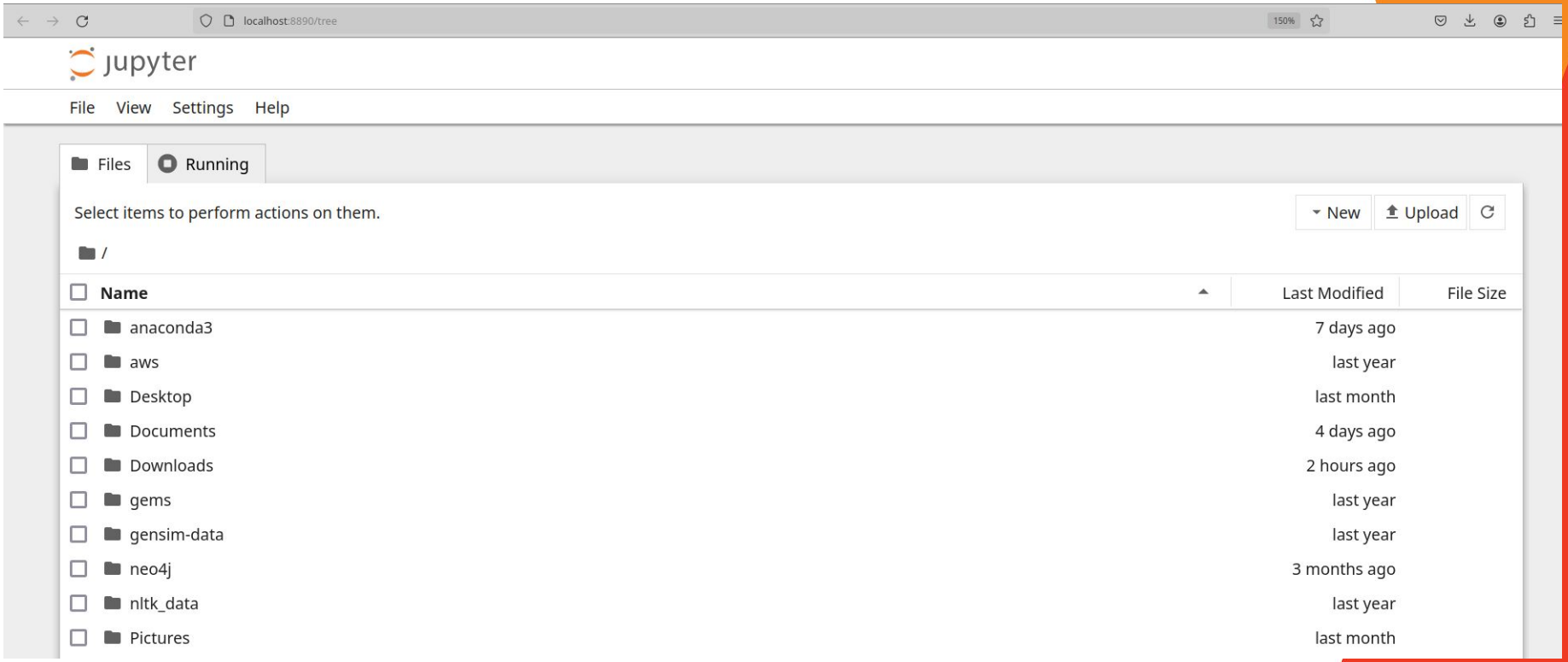
Orientation to Jupyter Notebook

Open Anaconda Navigator, install, and launch Jupyter Notebook

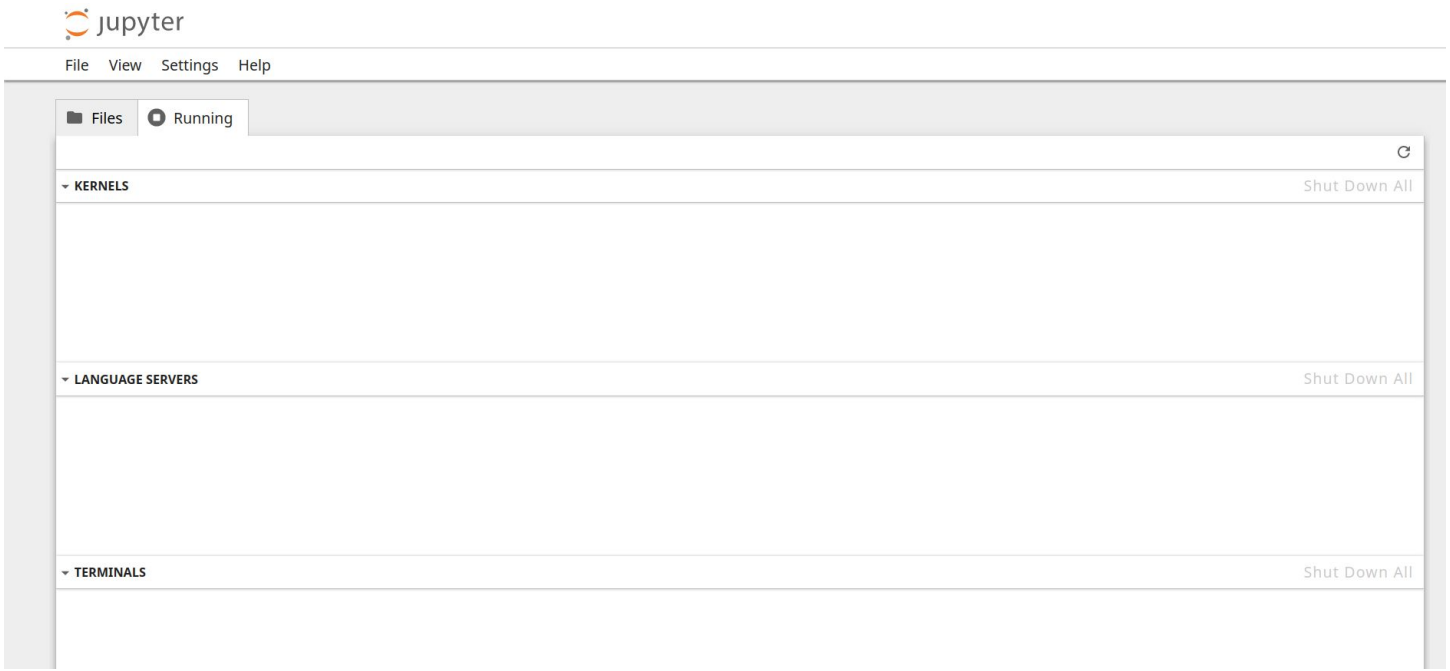


A new tab will open in your default browser. It's not actually connecting to the internet; it's just running on your machine

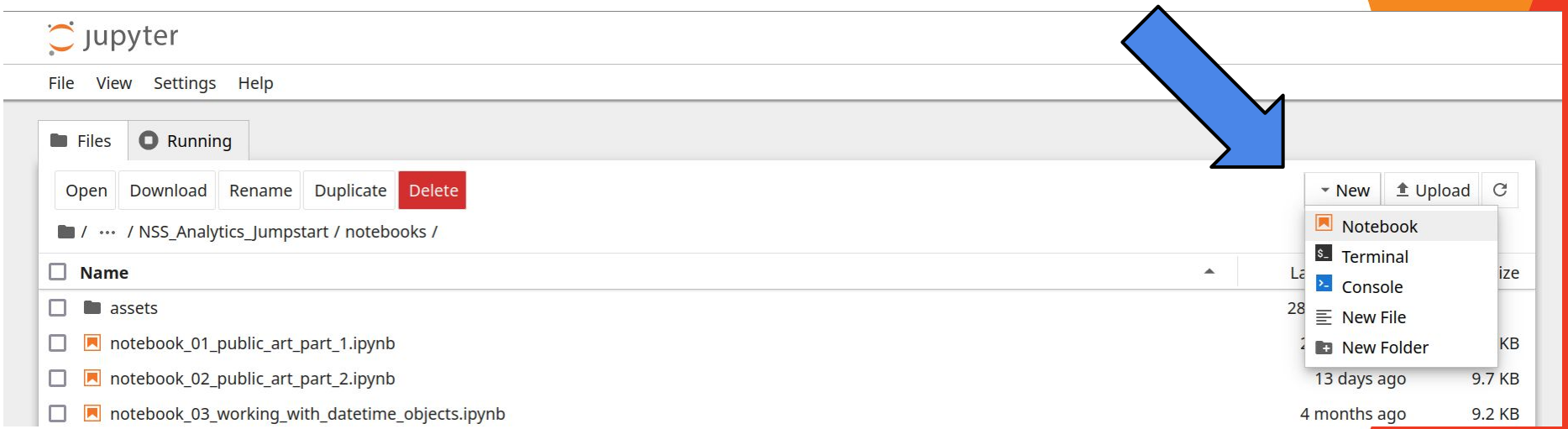
You will see the file structure from your computer, and you can navigate as normal



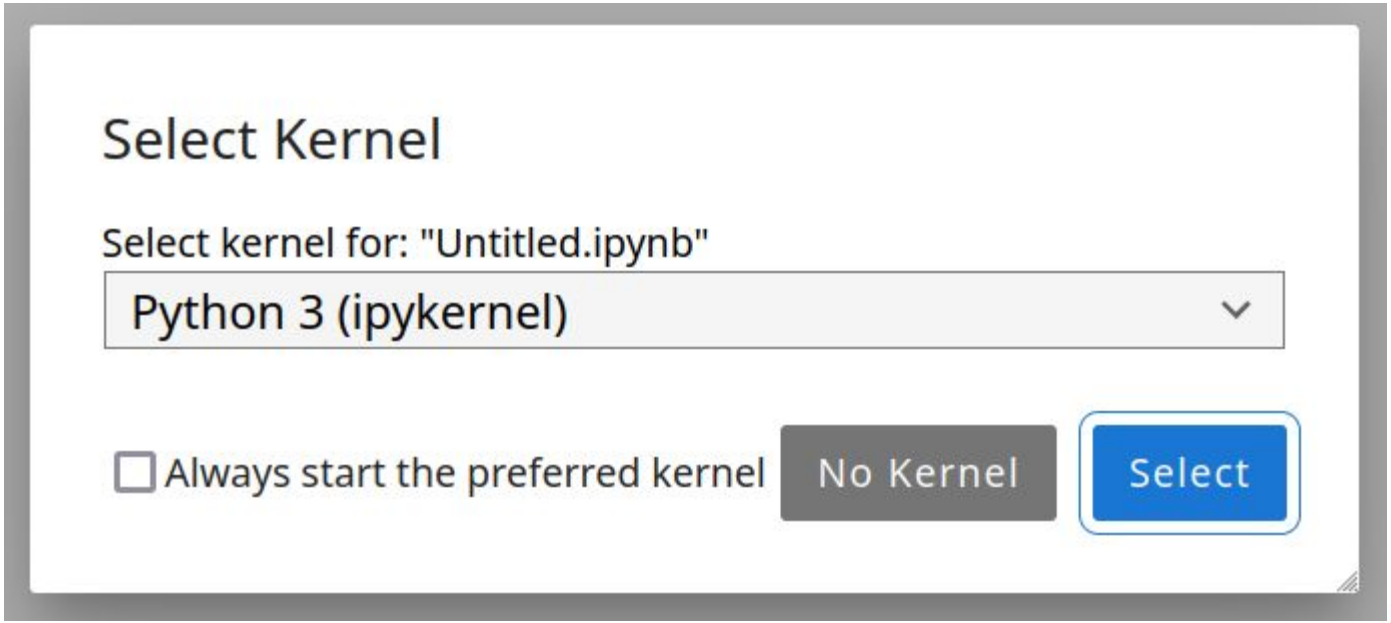
See what notebooks are already running (should be empty if just opening Jupyter)



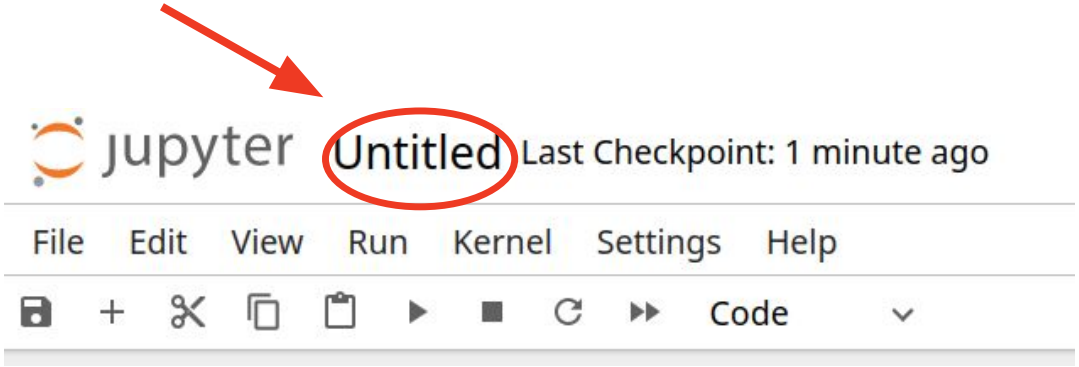
Navigate to analytics_jumpstart/notebooks and create a new notebook.

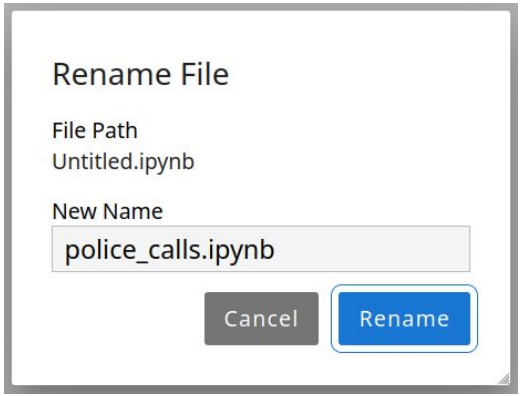


When prompted, select the Python 3 kernel.



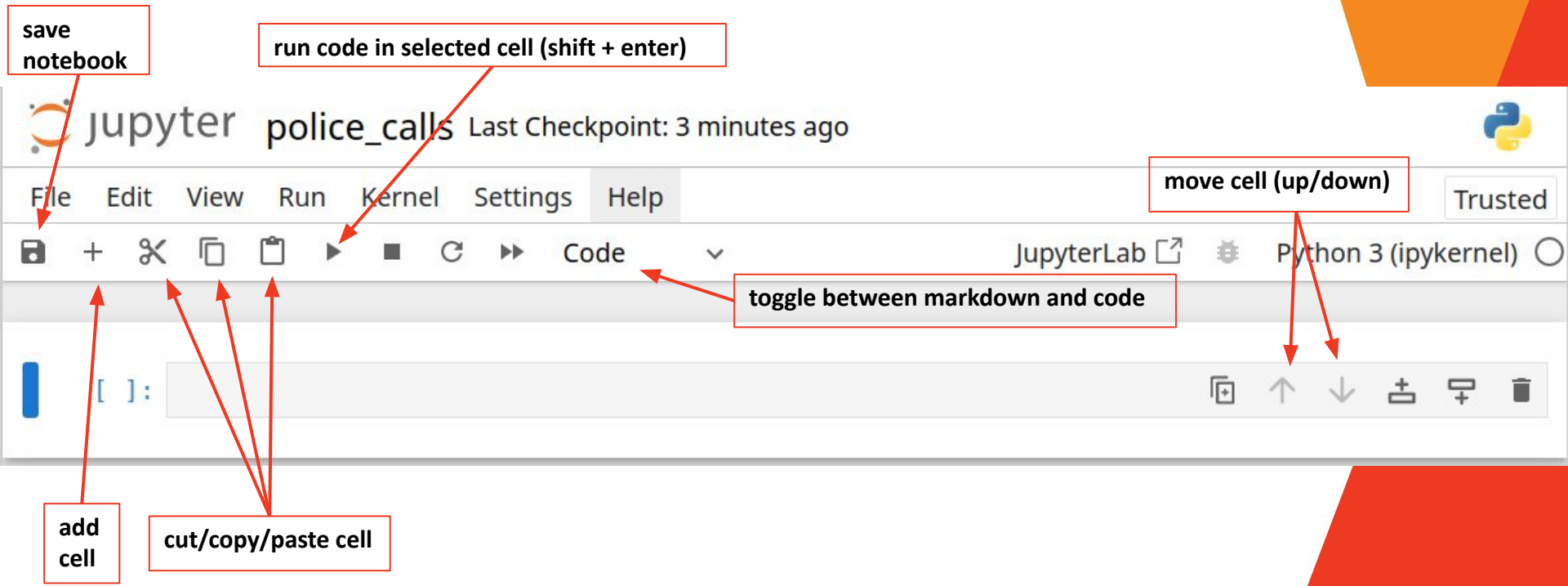
Give your notebook a title





**The notebook name should be meaningful and contain no spaces

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

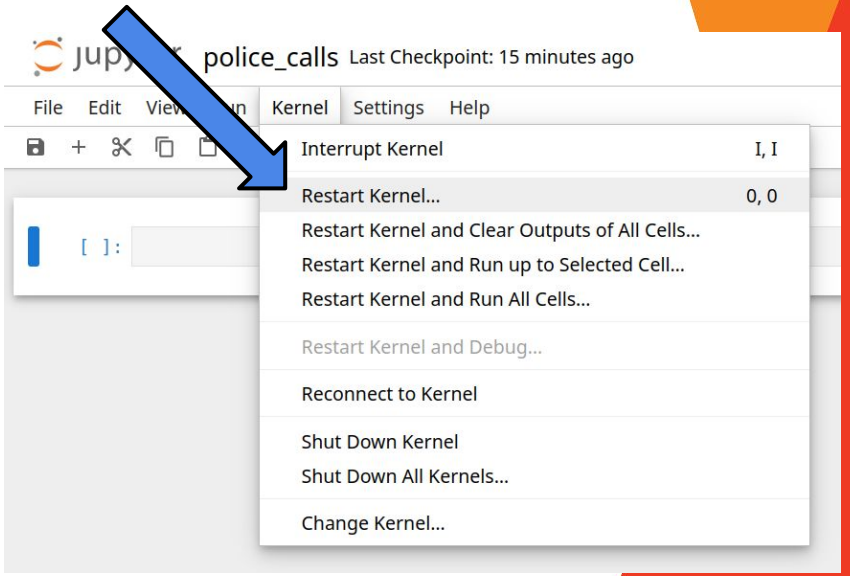


If your code is taking too long or is giving unexpected results, try restarting the kernel

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 earlier instances of it being run were 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!



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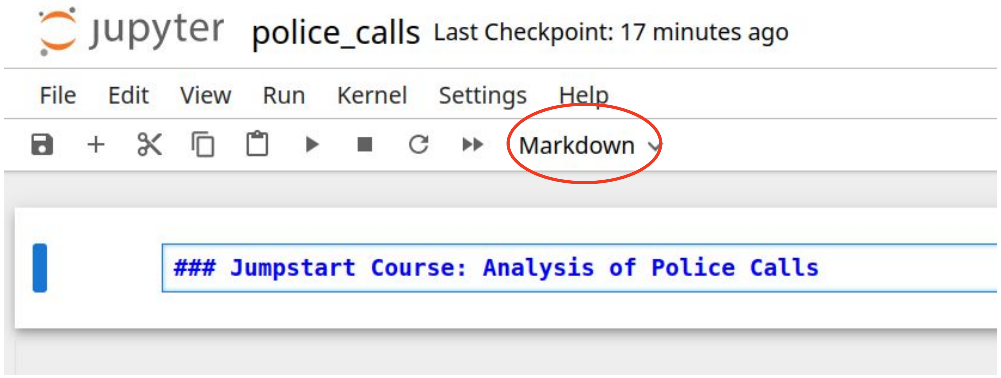
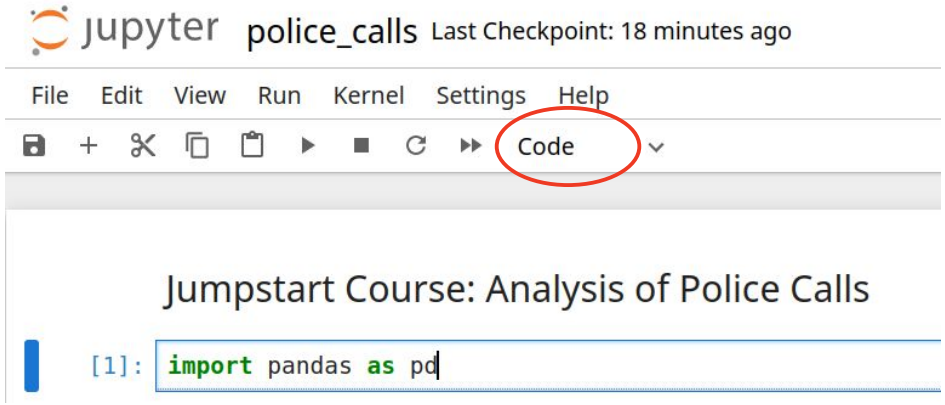
Change the format of the cell to add notes or run code





Questions?