EECS16A Lab

Welcome!

Today's Agenda

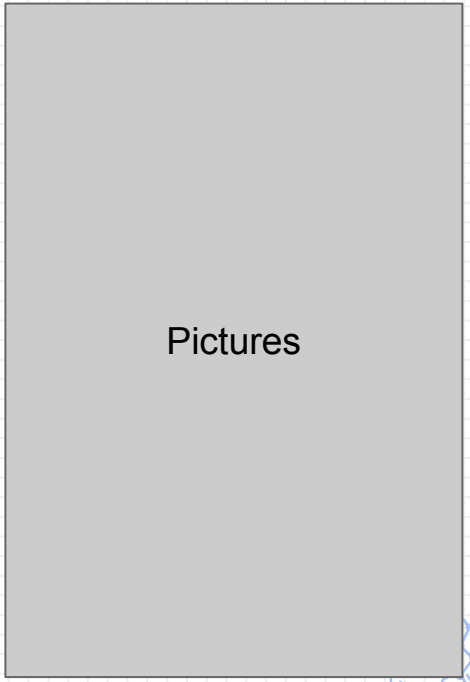
- ✘ Quick Poll
- ✘ About Us
- ✘ About Lab: Policies & Overview
- ✘ Ipython Bootcamp

Survey Time!

About Us!

TA Name - Lab TA

- ✘ Year, major
- ✘ Fun
- ✘ Facts
- ✘ Interests



Lab Logistics & Policies

- ✘ Go to your registered section.
- ✘ Work in **groups! (breakout rooms)**
- ✘ Arrive on time! Lab presentation at start of section
- ✘ Individual lab score is binary: complete / incomplete.
- ✘ **Free 15%** of your grade!
- ✘ Question and checkoff queue at lab.eecs16a.org
- ✘ Lab is for lab
- ✘ Help your peers!
- ✘ Buffer labs? What are those!?

Semester Outline

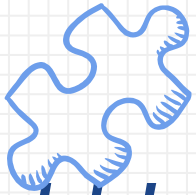
Imaging Module

Touchscreen Module

Acoustic Positioning Module

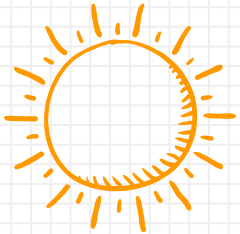
“Lab is awesome! It inspired me to start more personal projects.”

-Fall ‘15 student



“I really enjoy lab because it’s the physical manifestation of lecture. Learning about something is one thing, but actually building it is much more rewarding.”

-A hands-on learner



“Even though my lab is at 8am, I always looks forward to going because it's so much fun! It’s like breakfast...for your brain!”

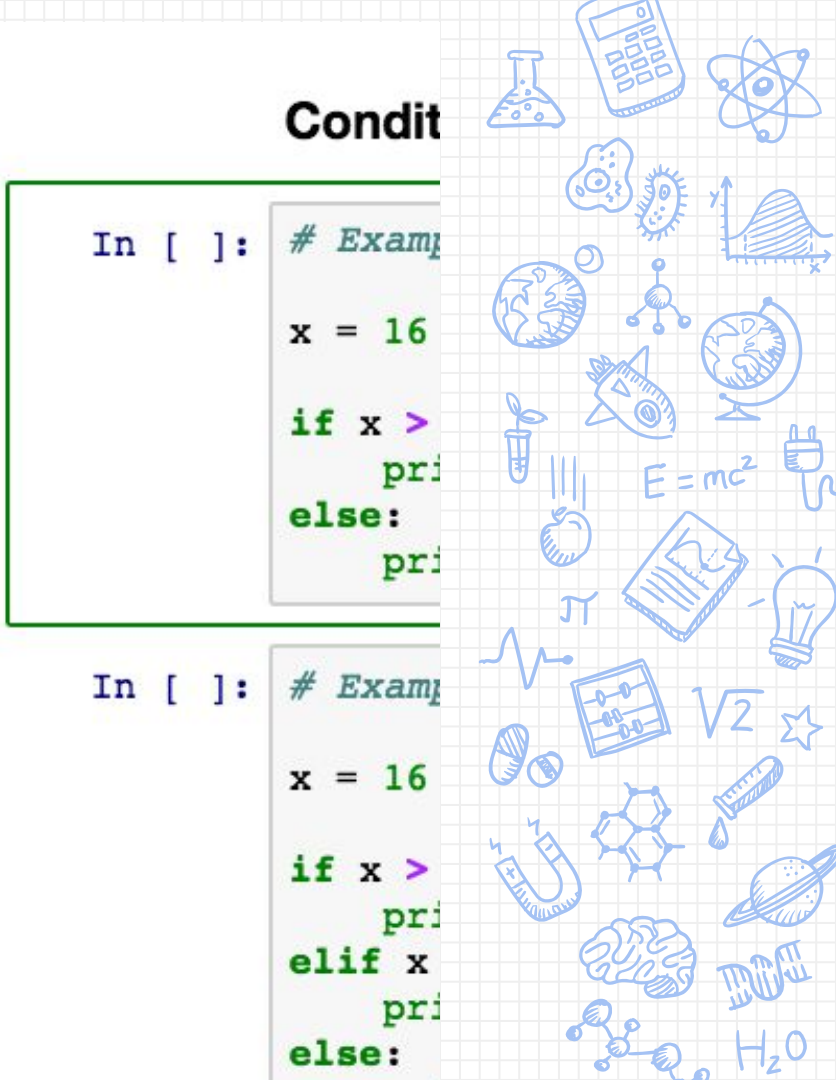
-Actual 16A student…not kidding

Jupyter Notebook

- ✘ A web-based interactive computational environment
  - ✗ Document containing an **ordered list** of input/output cells
  - ✗ Can contain code, text, mathematics, plots and rich media.
  - ✗ .ipynb filename
  - ✗ But what does this look like?

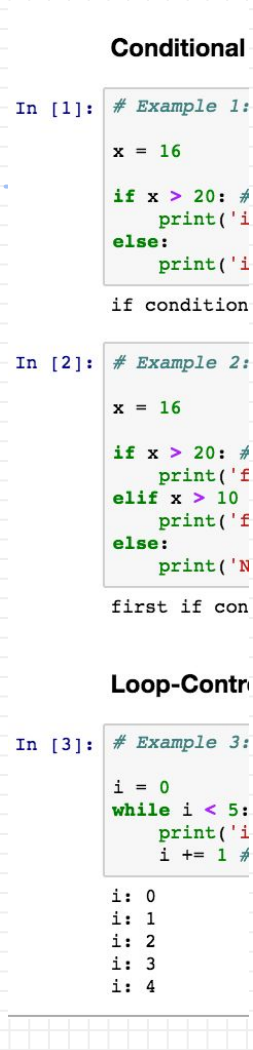
Jupyter Notebook

- **Ordered** list of **input & output**



Jupyter Notebook

- ✘ **Ordered** list of **input & output**
- ✘ Control + Enter to run current block
- ✘ Shift + Enter to run and move forward



Jupyter Notebook

- ✘ **Ordered** list of **input & output**
- ✘ ***Order matters!***

In [ ]:
```
a = True
```

In [ ]:
```
if a:
    print("hello")
else:
    print("goodbye")
```

In [ ]:
```
a = False
```

Jupyter Notebook

- ✘ **Ordered** list of **input & output**
- ✘ ***Order matters!***

```
In [1]: a = True

In [2]: if a:
            print("hello")
        else:
            print("goodbye")

        hello

In [3]: a = False
```

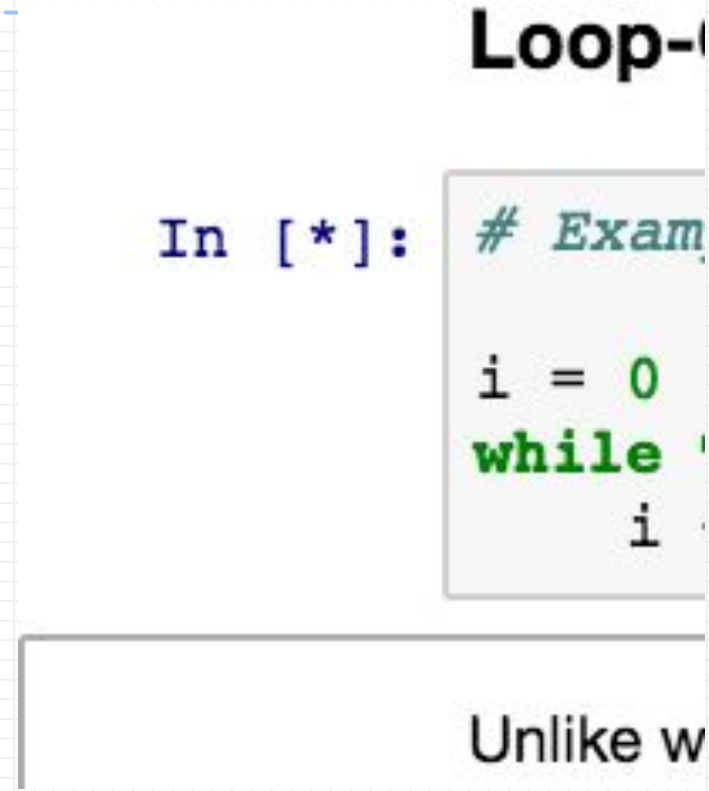
Jupyter Notebook

- ✘ **Ordered** list of **input & output**
- ✘ ***Order matters!***

```
In [1]: a = True

In [4]: if a:
            print("hello")
        else:
            print("goodbye")

        goodbye

In [3]: a = False
```

Jupyter Notebook

- **Ordered** list of **input & output**
- Asterisk means it's still running or it is queued up to run



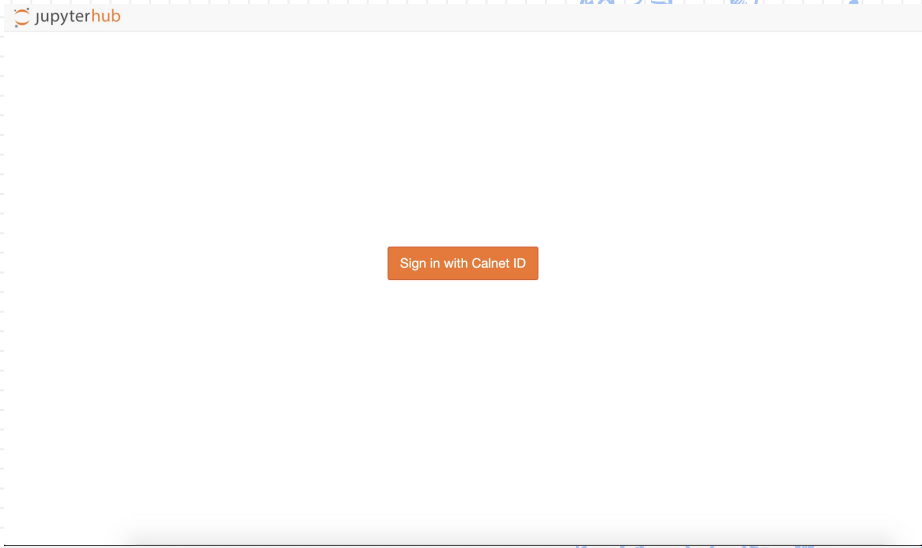
Jupyter Notebook

- ✘ Text/Markdown
- ✘ Shift+Enter to run and format

```
# Table of Contents
* [Overview](#overview)
* [Python](#python)
    * [Control Flow](#ctrl)
    * [List Comprehension](#lst)
* [NumPy](#numpy)
    * [Arrays](#arrays)
    * [Slicing](#slice)
    * [Useful Functions](#funcs)
* [Miscellaneous Functions](#misc)
* [Questions](#qs)
```

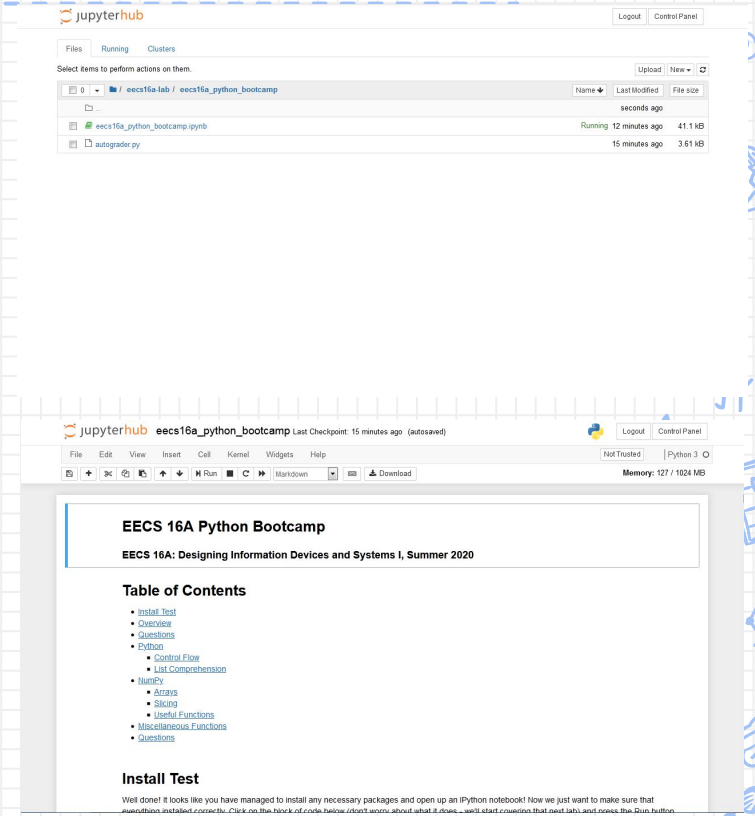
Running Jupyter Online

- ✘ You can run Jupyter notebooks online using DataHub, without needing to install anything locally
- ✘ The DataHub link for each lab is on the course website
- ✘ Login with your CalNet credentials (berkeley.edu email)



Running Jupyter Online

- ✘ Select the corresponding lab folder in the directory
- ✘ Click on the .ipynb file to launch the notebook in another tab
- ✘ P.S. Remember to hit logout to make sure your work is saved to the cloud



IPython Bootcamp

- ✘ Review Python
  - ✗ List comprehension
  - ✗ Numpy functions: np.linspace, np.eye
  - ✗ Numpy objects: arrays, matrices
  - ✗ All the tools you will need for future labs

Question queue: lab.eecs16a.org

CHECKING-OFF TODAY

- ✘ No graded check-off for IPython Bootcamp
- ✘ Work on IPython Bootcamp
- ✘ Follow the directions linked at bottom of the lab
  - ✗ Fill out google form
  - ✗ Submit checkoff request on lab queue (one per group)
- ✘ In checkoff:
  - ✗ Introduce yourself: **Name, major, year, hobbies**
  - ✗ Open the IPython bootcamp
  - ✗ Demonstrate how to run a code block
  - ✗ Find this presentation on the website