



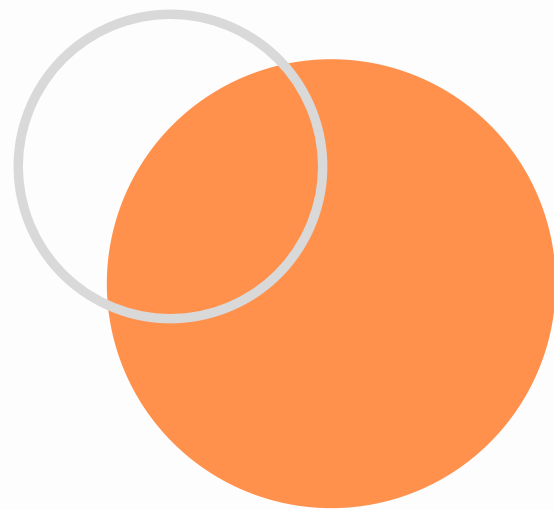
Building Code Literacy: Using Jupyter Notebook as a DH Sandbox

Adriana Cásarez





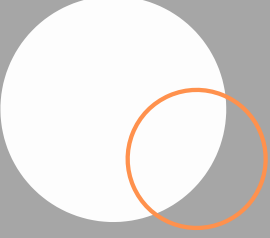
PRE-SURVEY

SURVEY QUESTIONS
RESPONSES



OVERVIEW


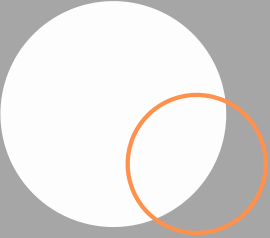

- **CODE LITERACY & LITERATE PROGRAMMING**
- **RUNNING WITH ANACONDA**
- **WHAT IS JUPYTER NOTEBOOK?**
 - TERMS & FUNCTIONALITY
- **USES: PEDAGOGY & RESEARCH**
- **MOMA NOTEBOOK DEMO**
- **LET'S TRY IT!**
- **SHARING NOTEBOOKS**



**"The ability to read, write, and
modify computer code in order
to create or tailor software
and media channels"**

DEFINITION OF **CODE LITERACY**
(DUDENEY, HOCKLY AND PEGRUM, 2013)

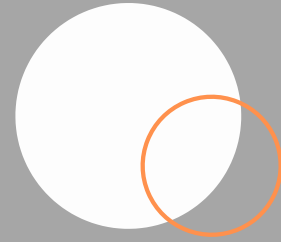




**"Literate programming treats
a program as literature
understandable to human
beings"**

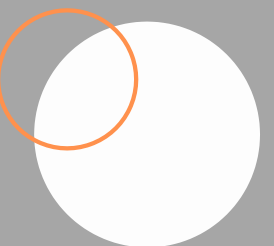
DEFINITION OF **LITERATE PROGRAMMING**
(PROGRAMMING HISTORIAN, 2019)





"Emphasize what's happening and how, what the approach is, how it fits into a context..

LITERATE PROGRAMMING
(MATTHEW LEVIN, 2016)



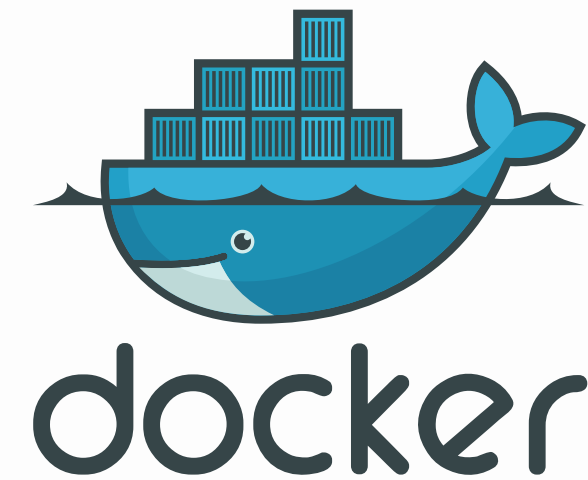
INSTALLATION OPTIONS



ANACONDA



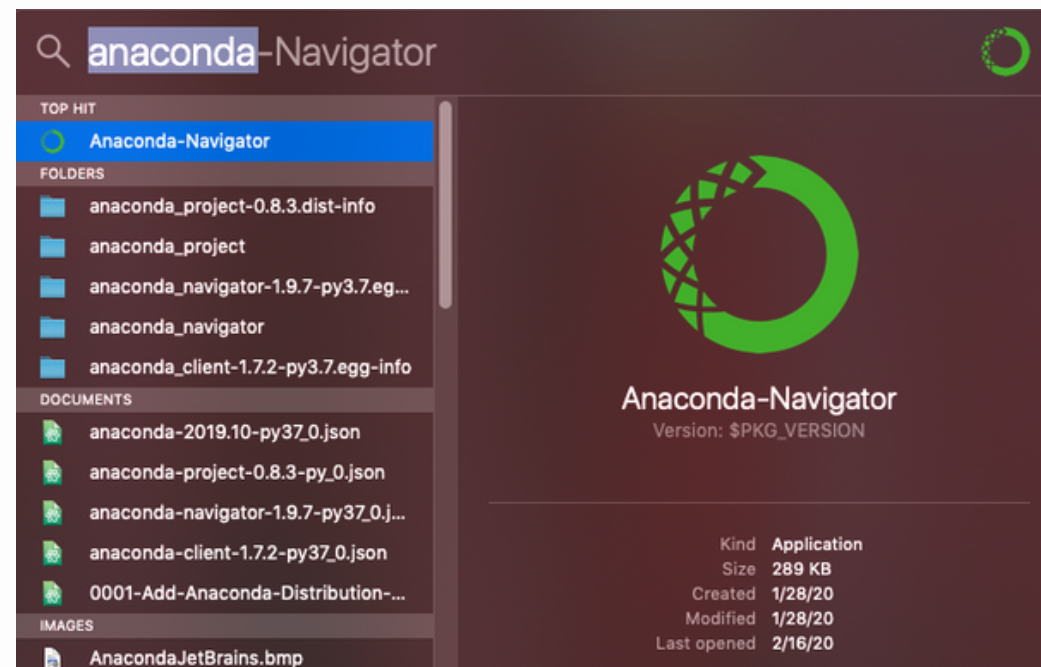
PIP



DOCKER



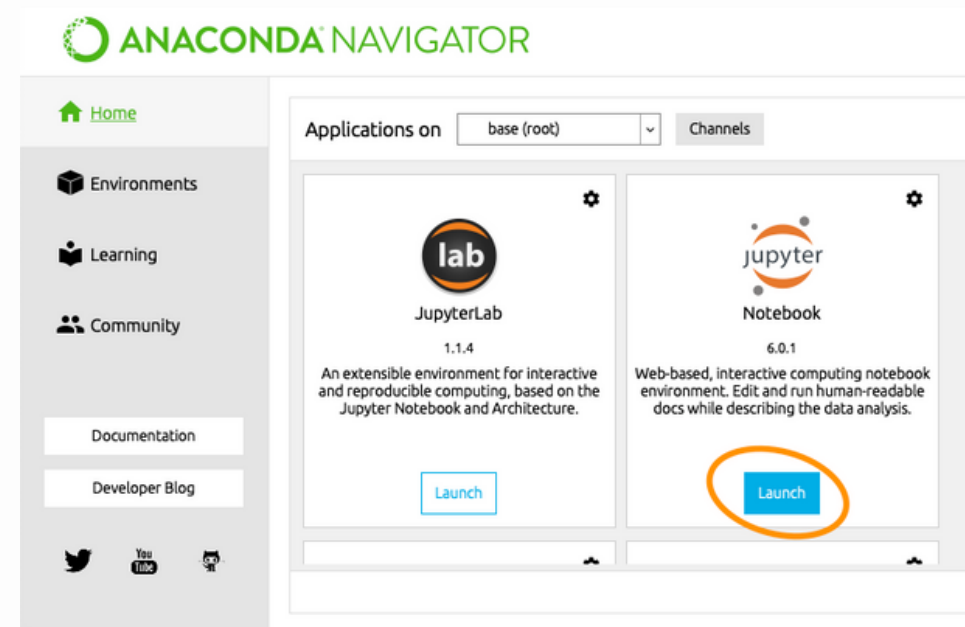
RUNNING WITH ANACONDA



OPEN ANACONDA

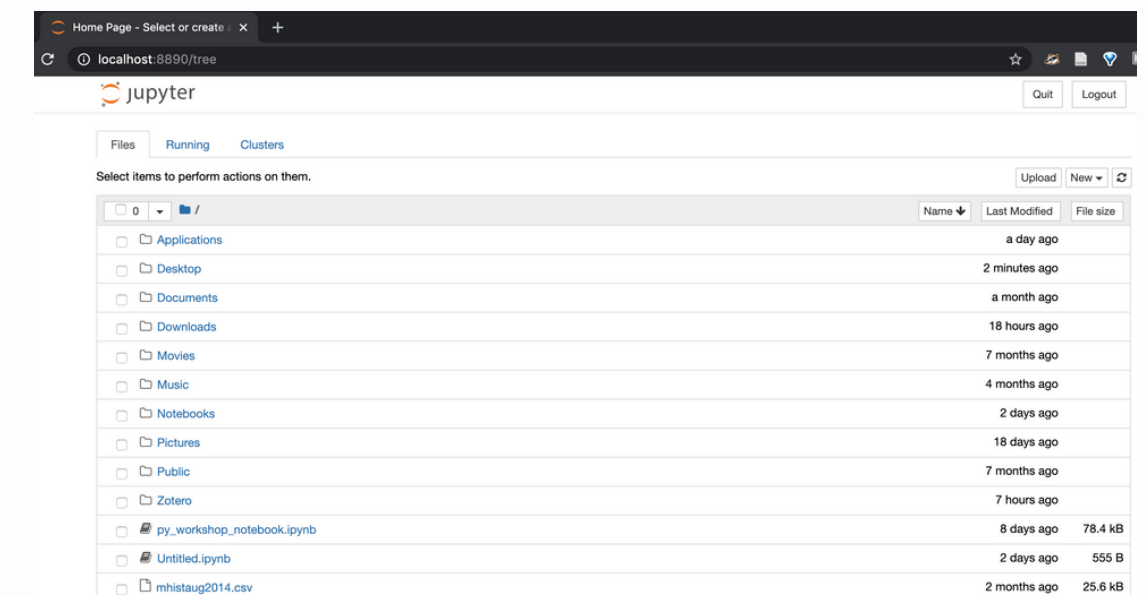
On Mac: search for 'anaconda' using Spotlight

On Windows: Start, search 'anaconda', select and open



LAUNCH JUPYTER NOTEBOOK

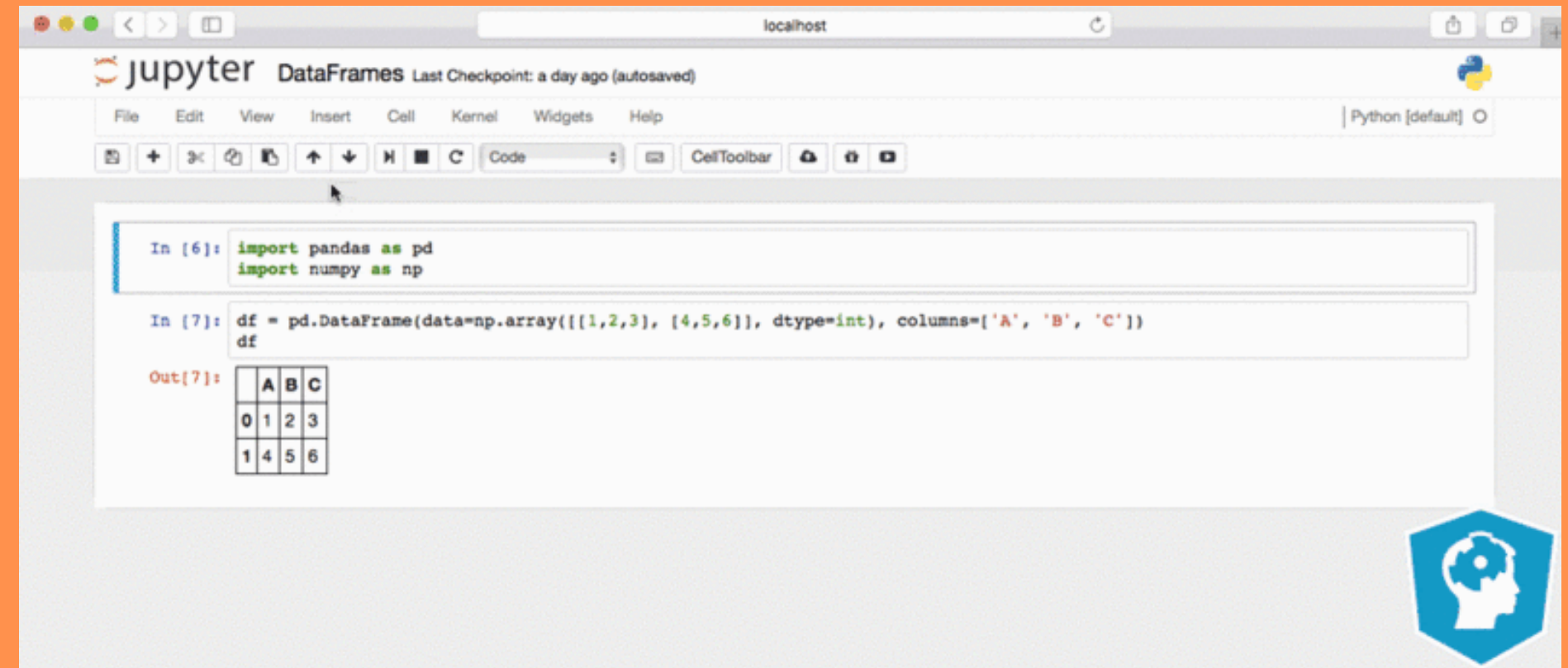
Click the blue "Launch" button under "Jupyter Notebook"



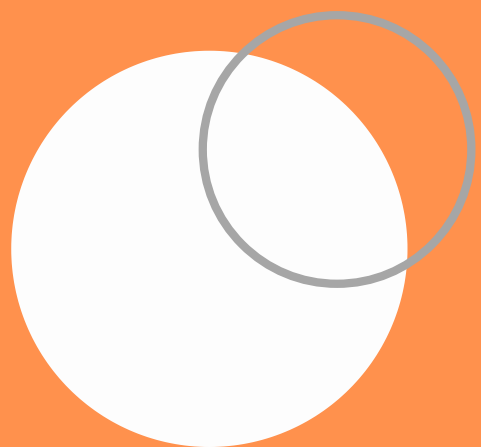
WINDOW OPENS, DASHBOARD APPEARS

A terminal window may appear and a new window will open in your browser, showing the Jupyter Dashboard

WHAT IS JUPYTER NOTEBOOK?



GIF courtesy of [DataCamp](#)



WEB APPLICATION

CREATE AND SHARE DOCUMENTS CONTAINING
CODE, EQUATIONS, VISUALIZATIONS, NARRATIVE TEXT



MORE SIMPLY

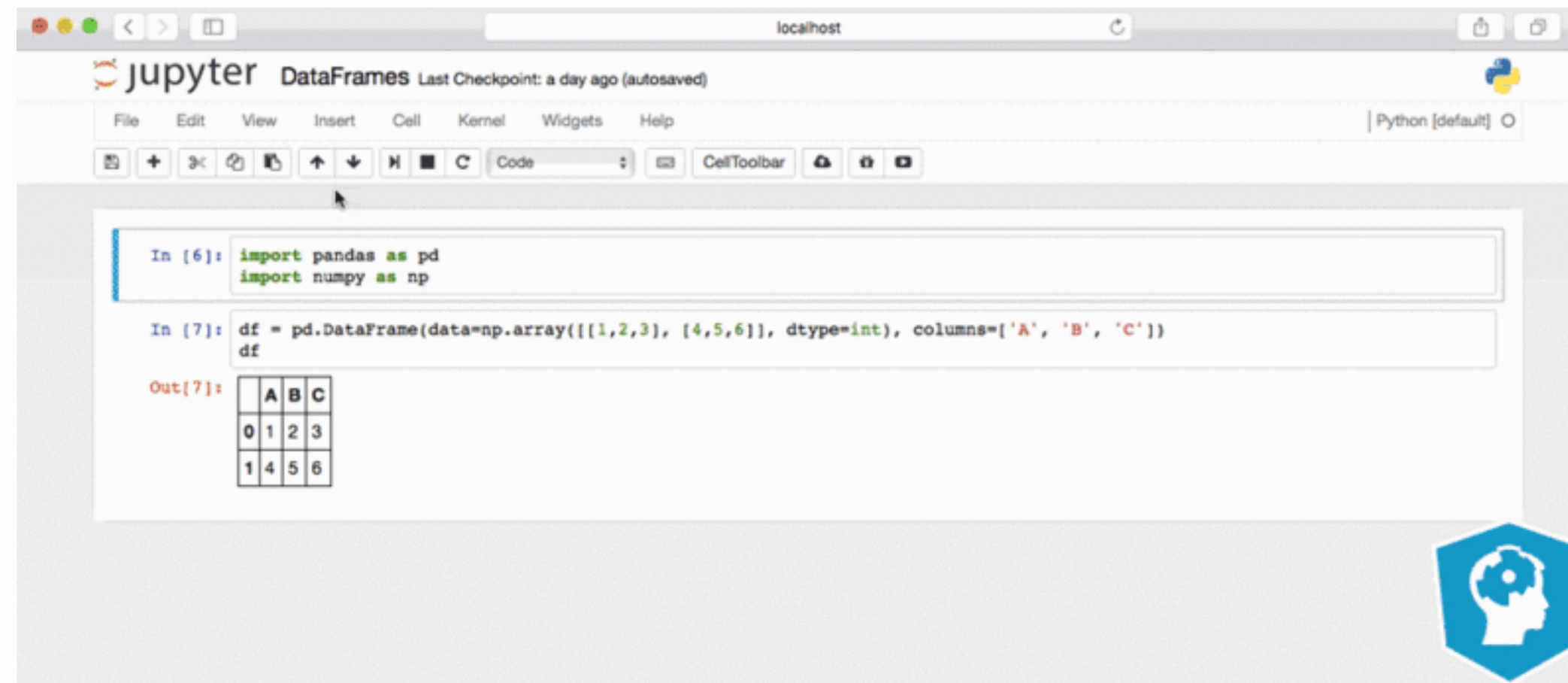
TYPE AND EXECUTE CODE IN SEGMENTS
ADD TEXT TO GIVE CONTEXT TO CODE
INCORPORATE VISUALIZATIONS



WHAT IS A 'NOTEBOOK'?

RUN VIA WEB BROWSER

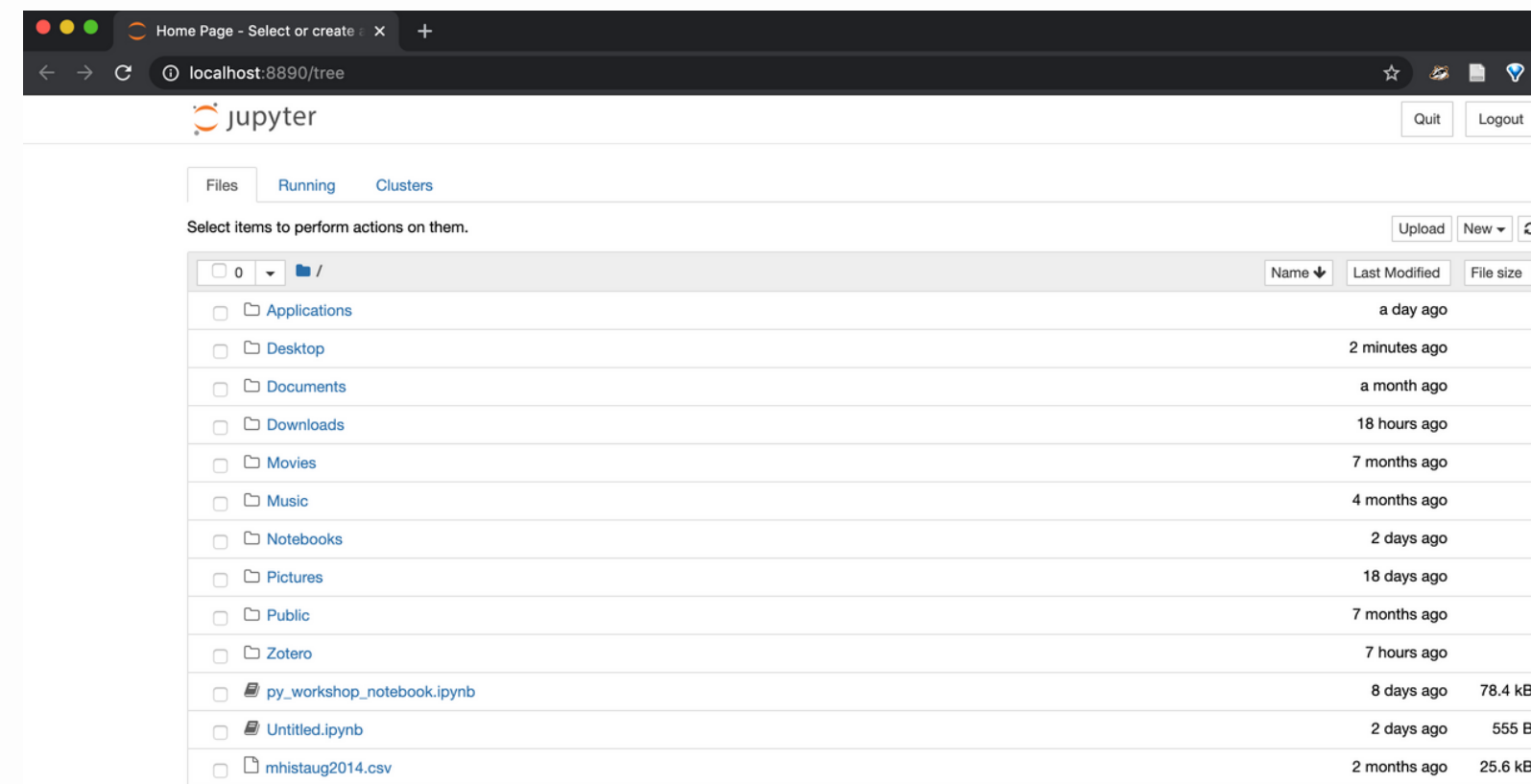
Must be run through Jupyter notebook application or they will just display the contents- won't be interactive



WHAT IS A 'DASHBOARD'?

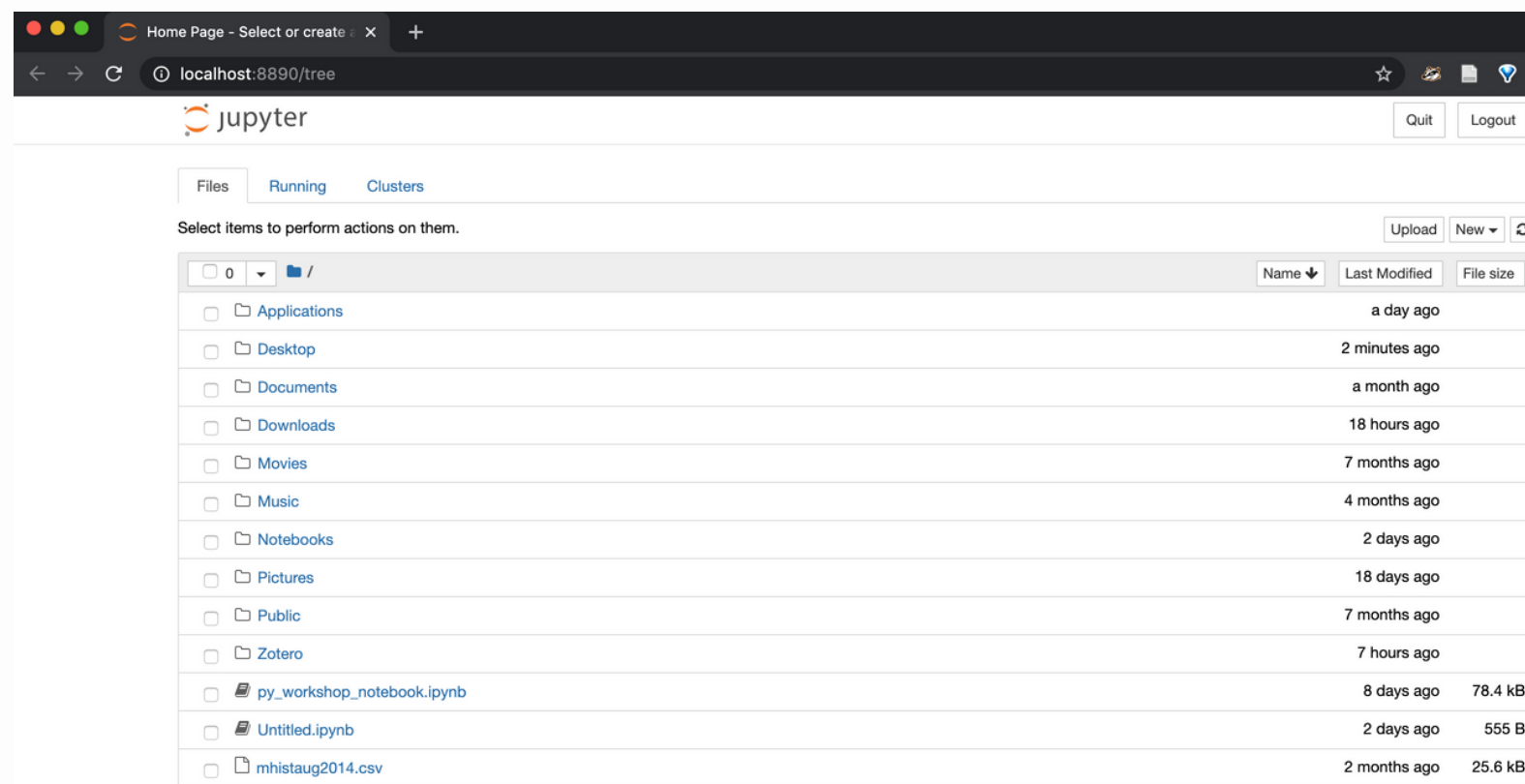
NOTEBOOKS

Displays notebooks in your library and is where you **create** notebooks and folders to keep notebooks organized



WHAT'S THE URL ABOUT?

WHAT IS A 'DASHBOARD'?



NOTEBOOKS

Displays notebooks in your library and is where you **create** notebooks and folders to keep notebooks organized

WHAT'S THE URL ABOUT?

<http://localhost:8888/tree>

Content is from your local machine

Jupyter is a web app that starts a local Python server for your content-

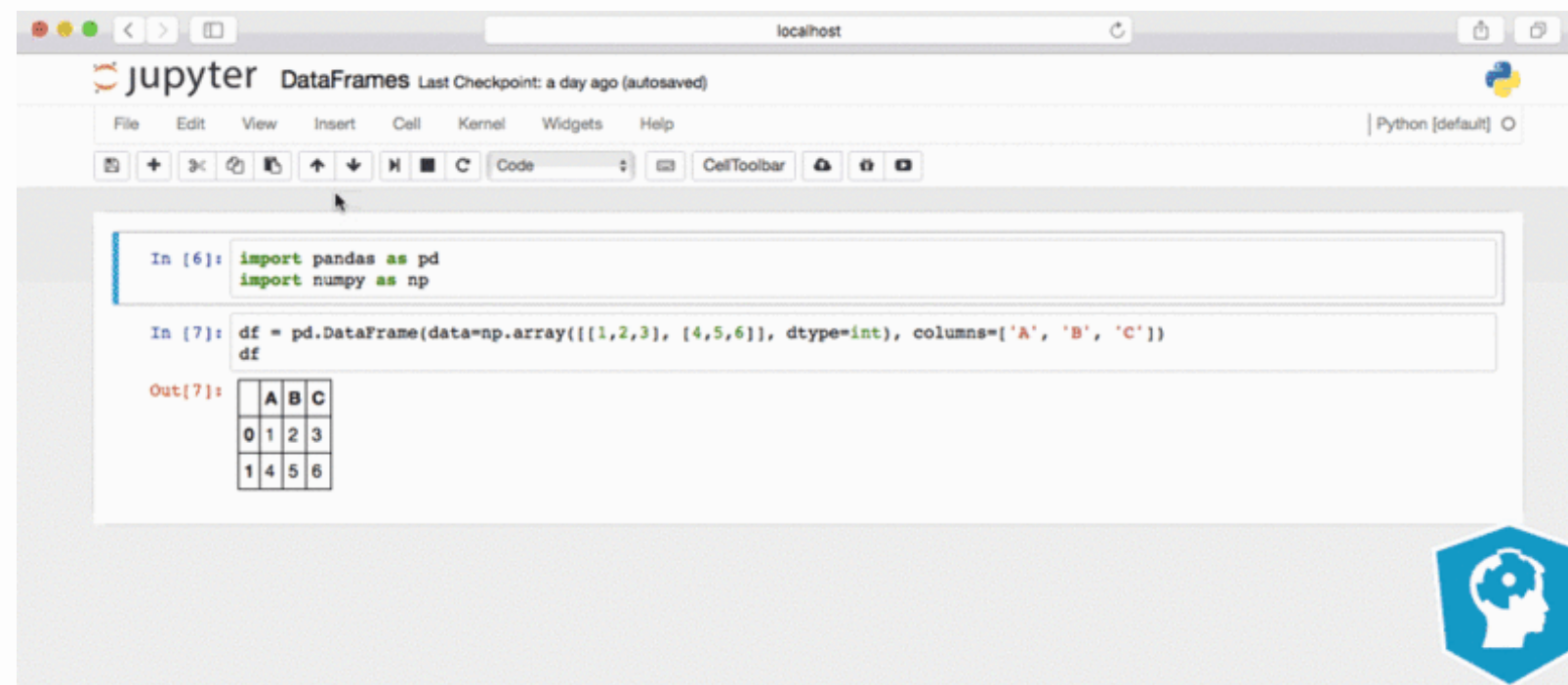
PLATFORM INDEPENDENCE HURRAH

WHAT IS A 'KERNEL'?

RUNS AND INSPECTS CODE

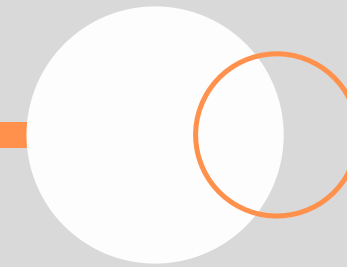
SPECIFIC TO LANGUAGE

Notebooks primarily designed to work with Python 3 but others are available including R, ...



TEACHING

- Provide guidance while allowing students to remix/experiment with code and examples
- Ideal for teaching coding to an audience with varying proficiencies



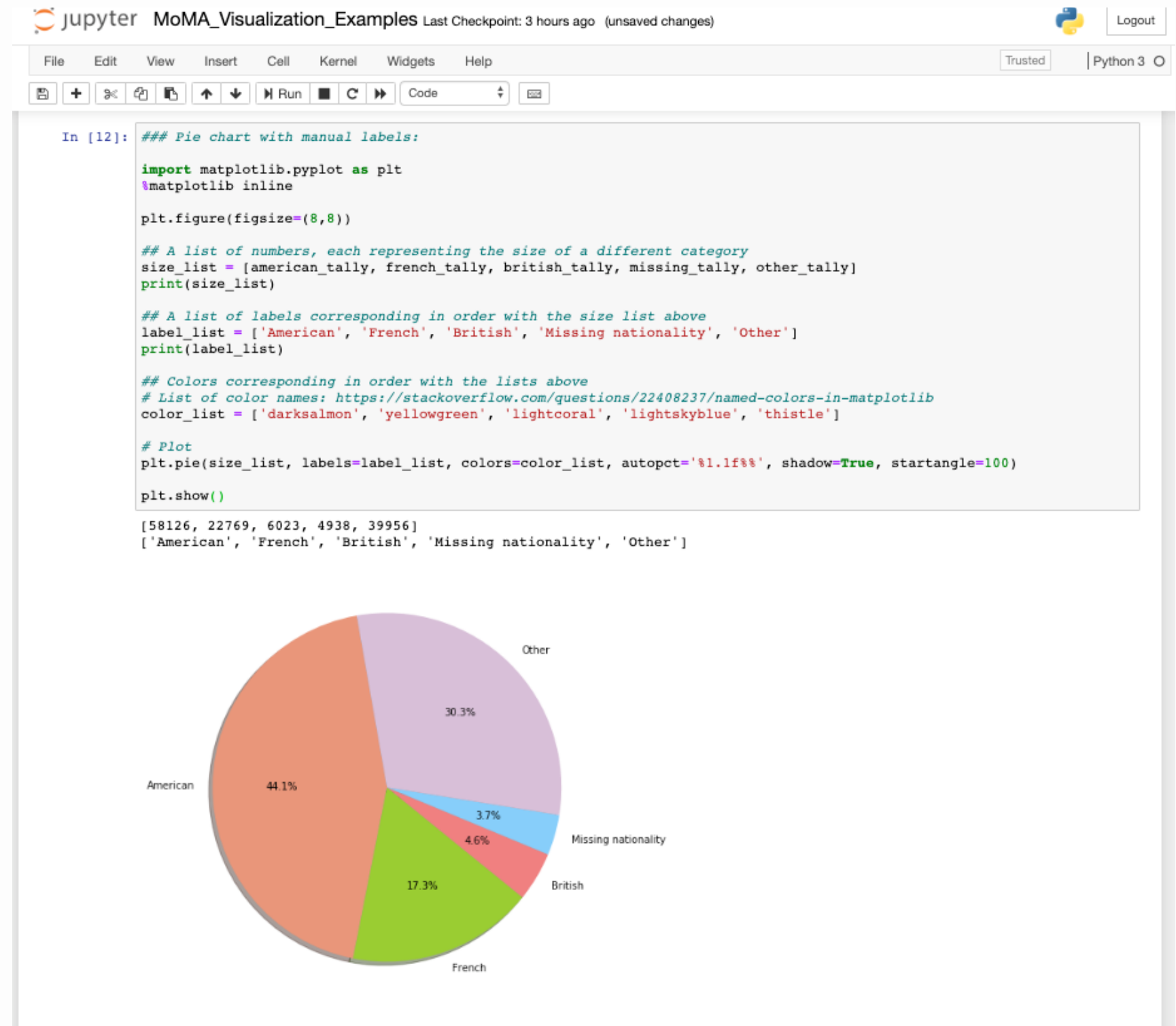
USES

LEARNING

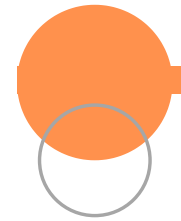
- Provide platform for literate programming
- You don't have to be a 'programmer'– make changes to provided code **WITHOUT RUINING EVERYTHING** (the line, program, your life, etc.)

DEMO: VISUALIZATIONS WITH MOMA DATA

DR. TANYA CLEMENT
Programming for Cultural Data
Analysis 2017 Course

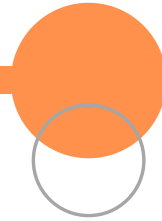


USES: RESEARCH & PROJECTS



BUGHUNT

Text mining of English children's literature 1789-1914 for the representation of insects and other creepy crawlies



SOCIALIST REALISM PROJECT

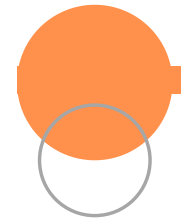
Uses text analysis to examine characteristics of Soviet socialist realism of the pre-WII era



TOPIC MODELING: POLICE VIOLENCE

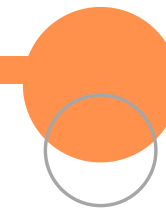
Public Archive of Police Violence in Cleveland
transcripts: topic modeling experiment to guide the use of tags or a controlled vocabulary for the content stored in Omeka

USES: PUBLICATIONS



ARTICLE ON STYLOMETRY

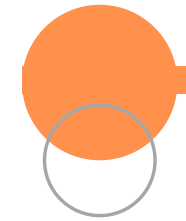
Notebook accompanies an article on stylometry (in Spanish) by José Calvo



CODE + BOOK = CONTEXT CITY

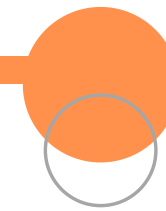
Author published a set of notebooks to accompany his book, *Critical Digital Humanities: The Search for a Methodology*, which directly addresses Jupyter notebooks as scholarly objects

USES: COURSES & TUTORIALS



APPLIED DATA ANALYSIS

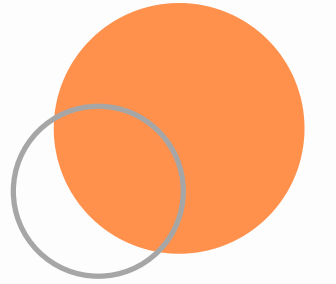
As taught at DHOxSS 2019: covers tidying data, visualization, modeling, and advanced applications of data analysis. By Giovanni Colavizza and Matteo Romanello.



LITERATURE AND DATA COURSE AT UC BERKELEY

a mix of readings and Jupyter notebooks that experiment with popular statistical methods that have recently gained visibility in literary study, and consider them as forms of “distant reading.” By Teddy Roland.

SHARING NOTEBOOKS



DOWNLOAD AS... MYBINDER

Python file (.py), Jupyter Notebook (.ipynb), PDF, Markdown (.md)

MYBINDER

Turn your GitHub repository into a collection of interactive notebooks

GOOGLE COLAB

Hosts your notebooks with a different interface.
Compatible with Google Drive.

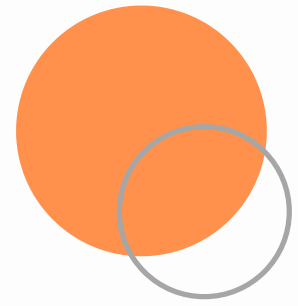
RECAP

- **HOW JUPYTER SUPPORTS LITERATE PROGRAMMING WITH CODE, VISUALIZATIONS & NARRATIVE TEXT**
- **BASIC JUPYTER NOTEBOOK FUNCTIONS**
 - RUNNING, EDITING, ADDING, DISTINGUISHING CELLS
- **PEDAGOGICAL & RESEARCH APPLICATIONS**
- **HOW TO SHARE NOTEBOOKS**
- **RESOURCES, RESOURCES, RESOURCES**



THANK YOU!

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