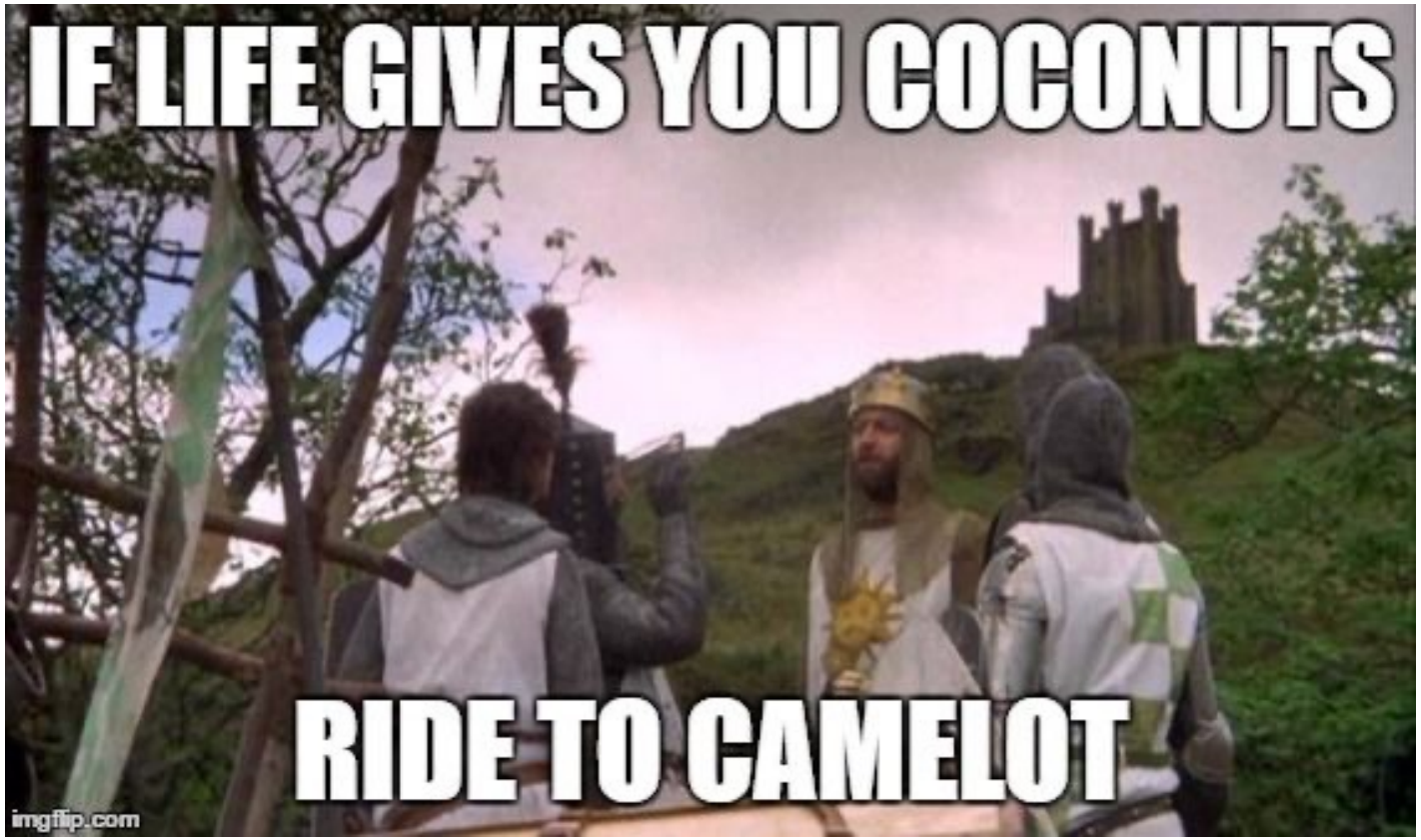
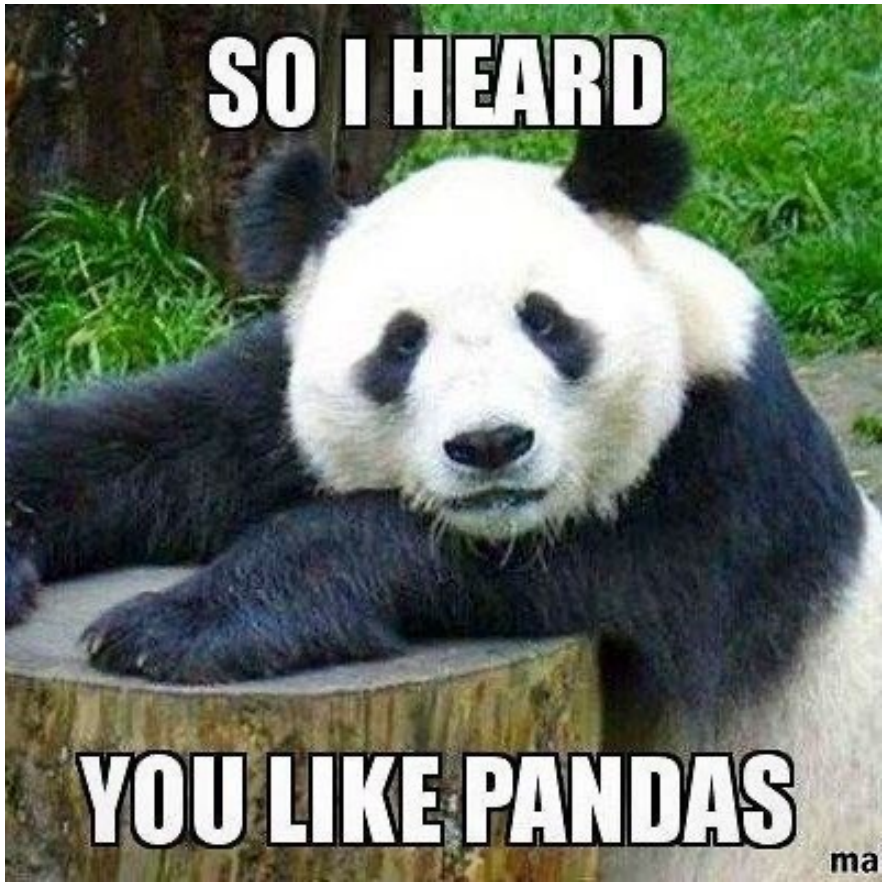

IF LIFE GIVES YOU COCONUTS
RIDE TO CAMELOT
imgflip.com


SO I HEARD
YOU LIKE PANDAS
ma

Python Packages

Jupyter, pandas, and matplotlib

Python

- Interpreted
- Common developing environments
  - What is an IDE?
  - What IDE did you use before?

- Installing packages
  - pip
  - https://pypi.org/

Jupyter Notebooks

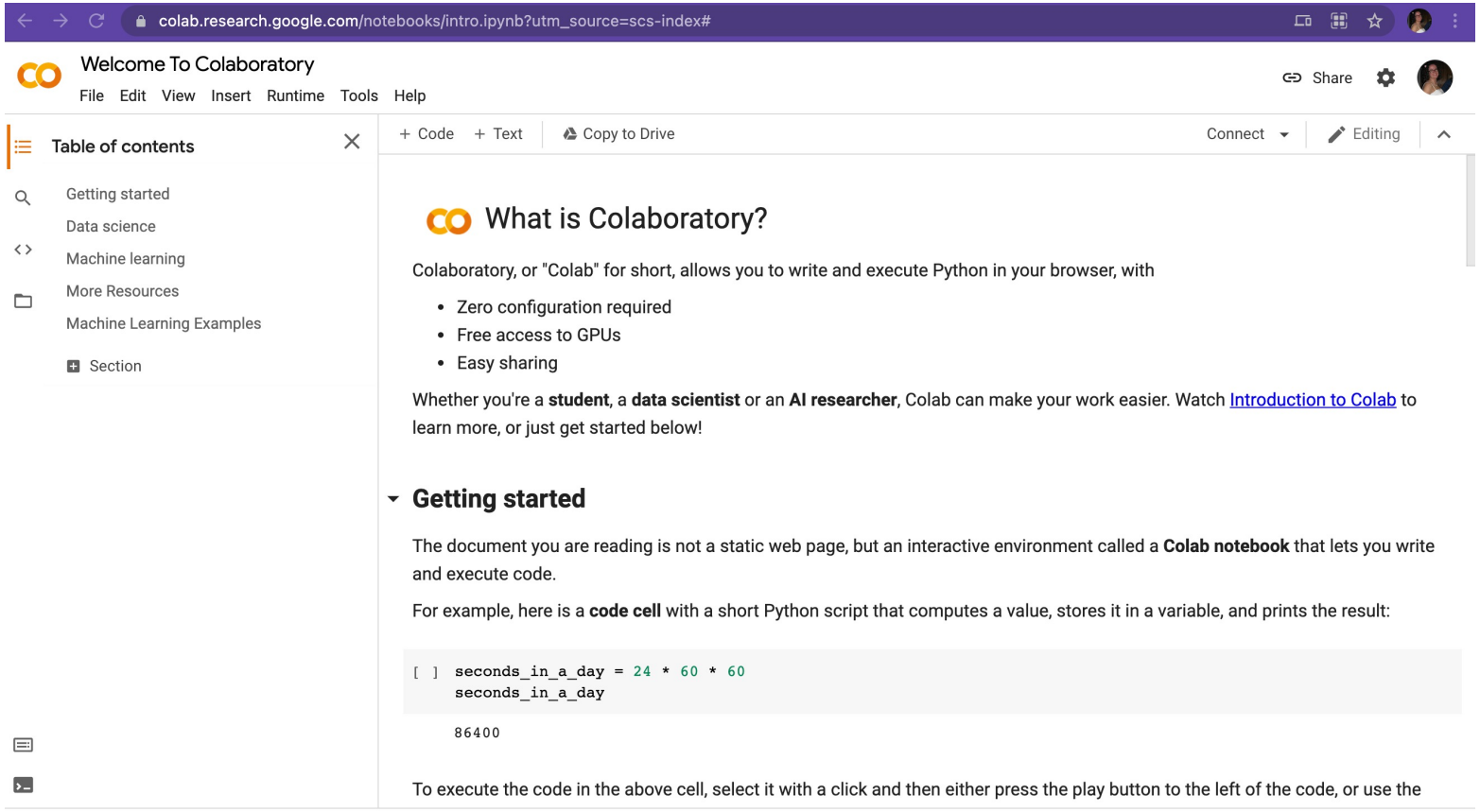
- Integrate markdown, code, and visualizations into one document
- Must live on top of a python kernel to execute cells
- A great format for presentation of results with accountability of how the results were created.
- Not typically used for autonomous processes, meant to be consumed by a human

Python Virtual Environments

- We need everyone in the class to be using the *exact same* python environment for grading consistency
- We'll use a cloud product called *Google Colabratory* that can manage your python distribution and your installed packages
- This enables group work, grading environment consistency, and gives you "real world" practice for environment hygiene

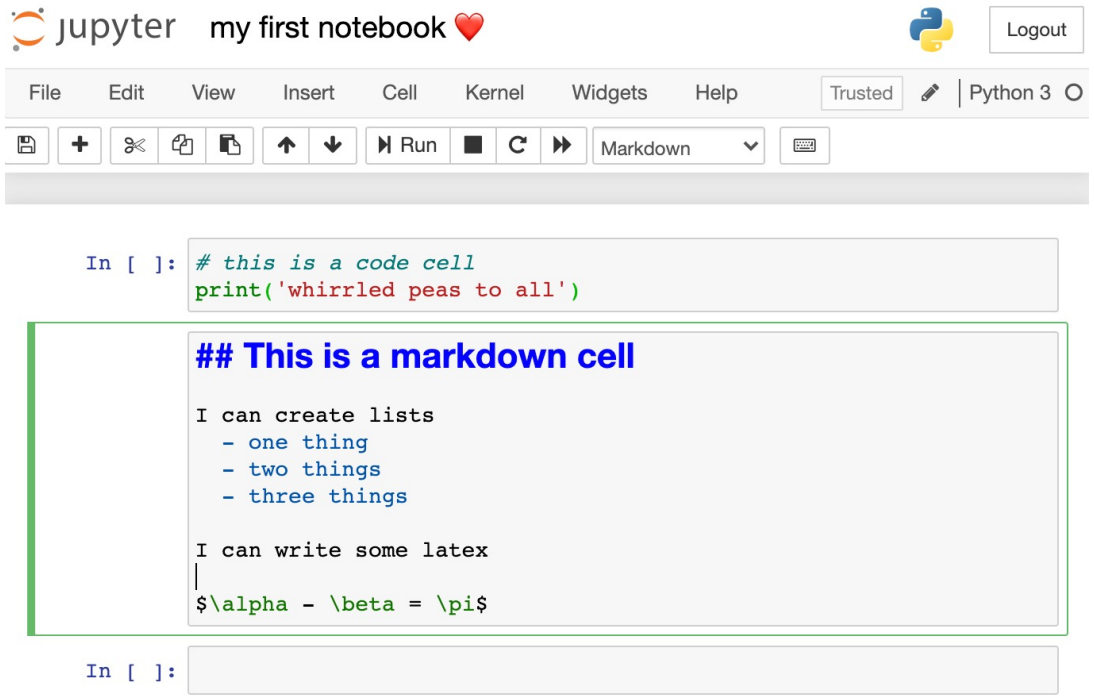
Create a notebook

- https://colab.research.google.com/notebooks/intro.ipynb

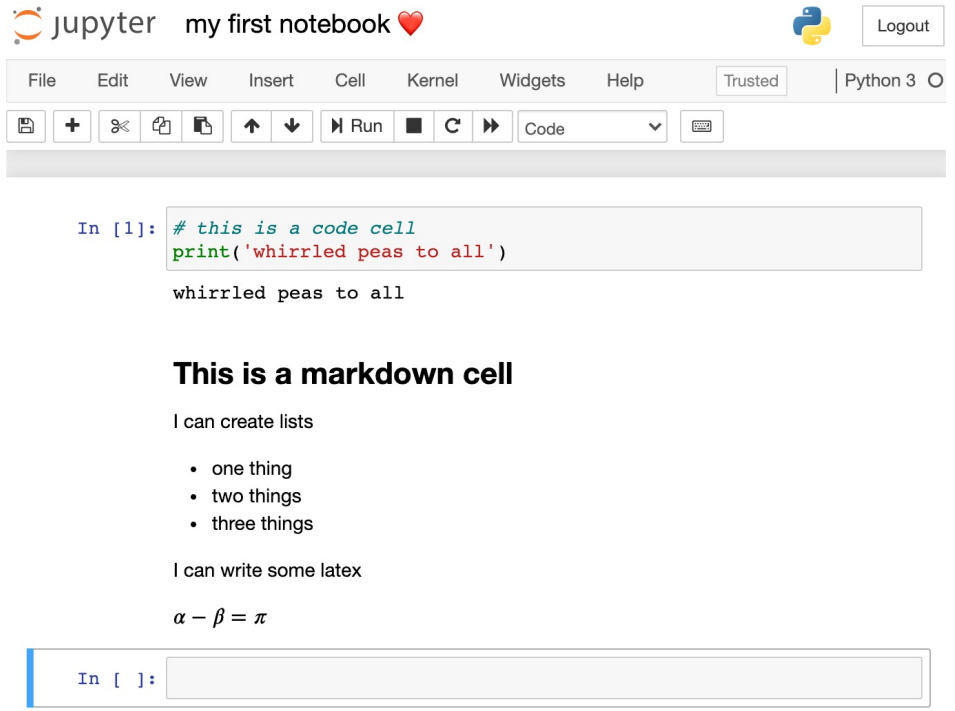


Your first notebook ❤️

Before eval



After eval

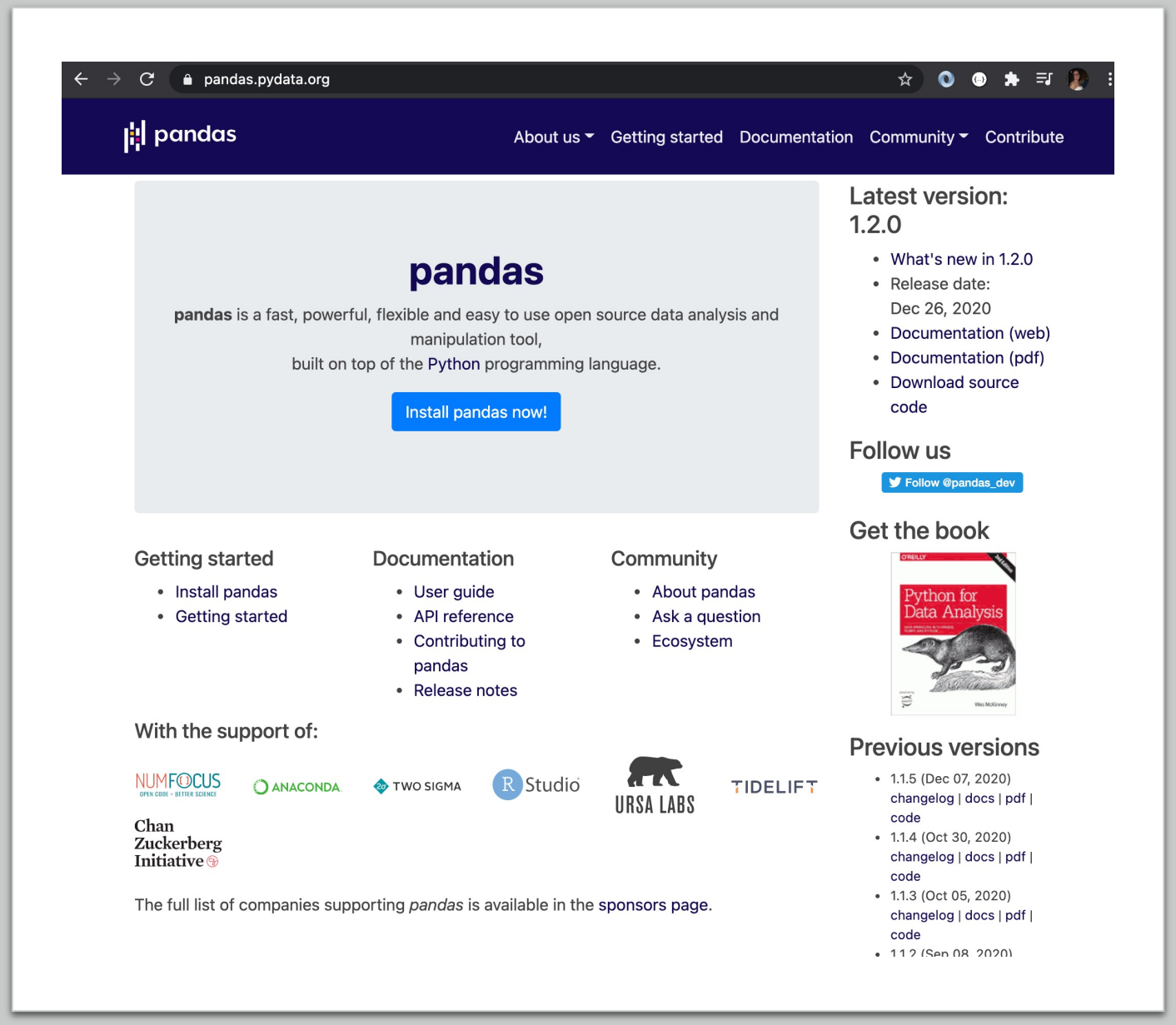


pandas – your first pacakage

- https://pandas.pydata.org/

- To install a package into a python environment there are many ways, it can be confusing to know what to use!

- The “pip” command is the most widely used



Installing Pandas with pip via Jupyter Notebook

$$\alpha - \beta = \pi$$

In [2]:
```
!pip install pandas
```

```
Requirement already satisfied: pandas in /Users/chaney/opt/anaconda3/lib/python3.8/site-packa
ges (1.0.5)
Requirement already satisfied: pytz>=2017.2 in /Users/chaney/opt/anaconda3/lib/python3.8/site
-packages (from pandas) (2020.1)
Requirement already satisfied: python-dateutil>=2.6.1 in /Users/chaney/opt/anaconda3/lib/pyth
on3.8/site-packages (from pandas) (2.8.1)
Requirement already satisfied: numpy>=1.13.3 in /Users/chaney/opt/anaconda3/lib/python3.8/sit
e-packages (from pandas) (1.18.5)
Requirement already satisfied: six>=1.5 in /Users/chaney/opt/anaconda3/lib/python3.8/site-pac
kages (from python-dateutil>=2.6.1->pandas) (1.15.0)
```

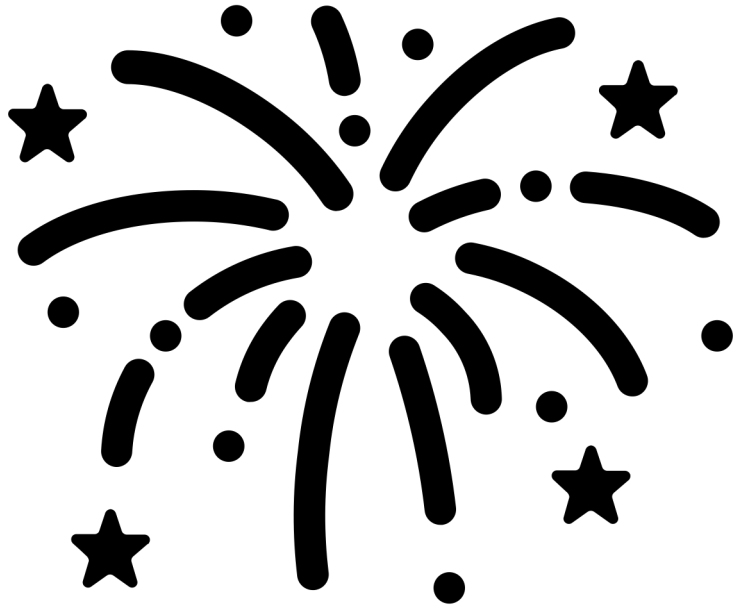
In [3]:
```
import pandas as pd
```

In [5]:
```
df = pd.DataFrame( {'a':[1,2,3],'b':['a','b','c']})
```

In [6]:
```
df
```

Out[6]:

	a	b
0	1	a
1	2	b
2	3	c

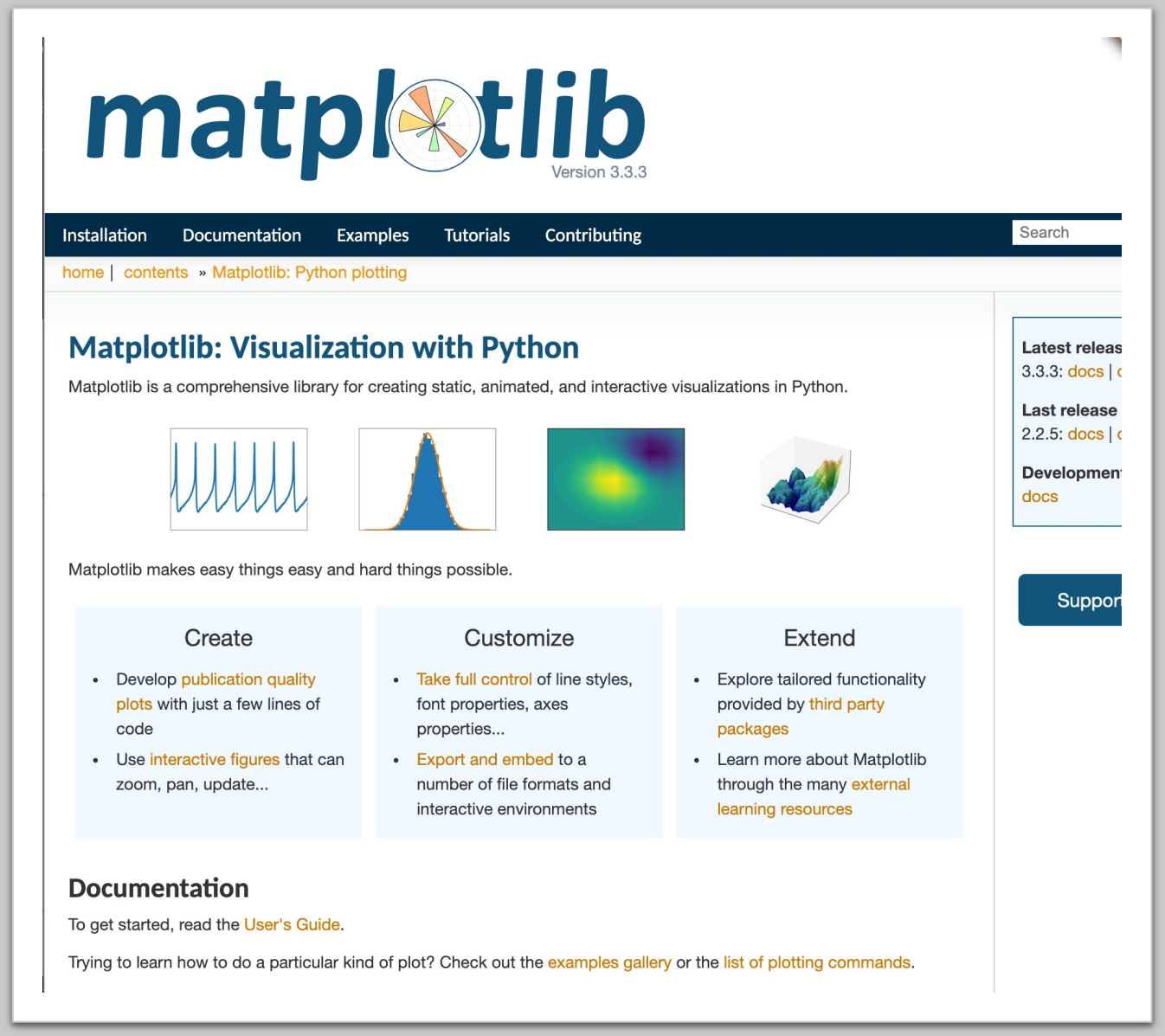


matplotlib

https://matplotlib.org/

The most common visualization tool in scientific python

Your second package

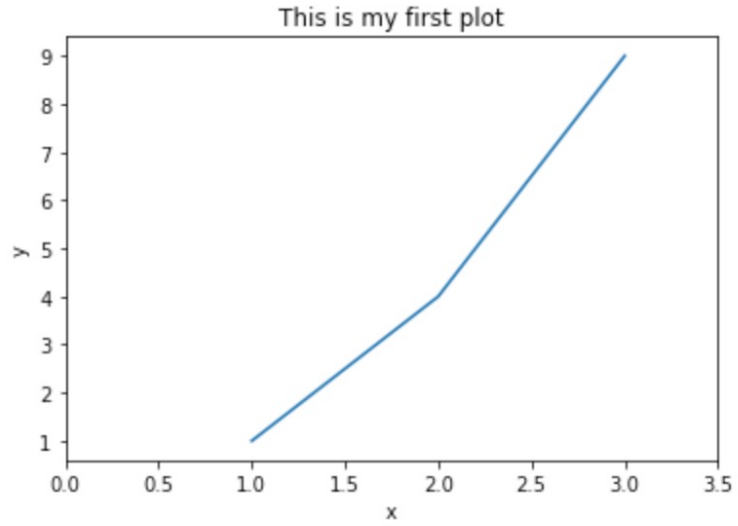


```
In [ ]: !pip install matplotlib

In [12]: import matplotlib.pyplot as plt

In [16]: plt.plot( [1,2,3],[1,4,9])
         plt.xlabel('x')
         plt.ylabel('y')
         plt.title('This is my first plot')
         plt.xlim([0,3.5])

Out[16]: (0.0, 3.5)
```



Install matplotlib and make a plot