



# Visualization



# Python for Finance

- A lot of financial techniques will require us to be able to visualize our data!
- There are many libraries for visualization with Python, we will focus on Matplotlib and pandas' visualizations (built on top of matplotlib)



# Python for Finance

- We won't cover other libraries in order to really focus on the financial aspects, instead of just visualization.
- Other great libraries are seaborn, cufflinks, plotly, bokeh, vincent, etc...



# Python for Finance

- We will start by covering the basics of Matplotlib.
- Then with that knowledge we will be able to easily leverage pandas visualizations.
- We will also have a lecture focusing on time series visualizations.



# Python for Finance

- The majority of all our plots in this course will be static (non-interactive), but we will show you a quick trick with jupyter that will allow you to interact with the plots we create!



# Python for Finance

- This section will cover the following:
  - Matplotlib
  - Pandas Visualization
  - Pandas Time Series Visualization
  - Matplotlib Exercises
  - Pandas Visualization Exercises



# Matplotlib



# Python for Finance

- Matplotlib is a Python 2D plotting library which produces publication quality figures in a variety of hardcopy formats (png, jpg, etc...) and display plots in environments across platforms.





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- You can generate plots, histograms, power spectra, bar charts, errorcharts, scatterplots, etc., with just a few lines of code.
- It is the most powerful and customizable visualization library for Python!



# Python for Finance

- It was initially based off MatLab's plotting capabilities.
- People tend to love it or hate it, but either way, it is so fundamental to visualization with Python, you should know the basics of working with it!



# Python for Finance

- To get an idea of what is possible, go to:
  - <https://matplotlib.org/gallery.html>
- Let's explore the basics of matplotlib and its API.
- Understanding its core principles will be very helpful later on with pandas!



# Matplotlib - Part Two



# Matplotlib Exercises



# Pandas Visualizations



# **Pandas Visualization Exercise Solutions**