Topic Outline: Matplotlib Graphics
Revised: September 6, 2016

Materials

- Today's handouts: this outline, book chapter, code practice answers, stickers (as needed)

- All posted on *Topic outlines & links* page of website (except the stickers)

Preliminaries

- Tools and buzzwords
  - IPython notebooks in Jupyter
  - Graphing with Matplotlib: dataframe plot methods, figure and axis objects

- What is this?
  - Package
  - Pandas
  - `import` statement
  - csv file
  - A dataframe `df`
  - `df.shape`
  - `df.columns`
  - `df.index`
  - Dataframe methods: `set_index`, `rename`, `drop`
  - The "x" and "y" variables in the `plot` method
  - Jupyter

- **Exercise**
  - Put red sticker on your laptop
  - Download IPython notebook
    https://github.com/NYUDataBootcamp/Materials/blob/master/Code/IPython/bootcamp_graphics.ipynb
    and save Raw file in your `Data_Bootcamp` directory
    In short: GitHub ⇒ Code ⇒ IPython ⇒ `bootcamp_graphics.ipynb` ⇒ Raw
  - Start Jupyter and open notebook
  - Run this code:

    ```
    import pandas as pd
    print('Pandas version: ', pd.__version__)
    ```

  - Replace red sticker with green when you're set

- **Known issues**
  - Notebook has `.txt` extension. Solution: In Jupyter, navigate to the file, click on the box next to it, click on rename at the top, and delete the extension `.txt`.
  - Windows 10 + Chrome sometimes has no right-click Save As option. Solution: Use a different browser.
  - Some Macs generate the error: `ValueError:  unknown locale:  UTF-8`. Solution: Ask for help. More at StackOverflow: http://stackoverflow.com/a/19961403/804513

Python graphics: Introduction to Matplotlib

We'll follow the notebook:

- Jupyter

- Markdown

- Preliminaries: import statements, dataframes to work with

- Graphing in Excel

- Apply plot methods to dataframes

- `plot(x,y)` (skip)

- Figure and axis objects

- Recap

- Bells and whistles

- Examples

- Review
  - Put red sticker on, replace with green when done

After class

- Required
  - Nothing

- Recommended
  - **Write**: After class, write down everything you remember without using your notes
  - **Review:** Reread the chapter and fill in anything you missed.
  - Download the **Code Practice A** notebook and work through the questions. If you have trouble with the download step, keep practicing with notebooks in the `IPython` and `Lab` directories. You will need this ability for the exam in a few weeks.