Jupyter/IPython: EuroPython 2016 tutorial

Note: This repo is derived from the official IPython-in-Depth tutorial here (https://github.com/ipython/ipython-in-depth) first presented at PyCon 2012.

Setup

- For discussion, self-help tips please connect to this
    - Gitter chat room (https://gitter.im/mjbright/ipython-in-depth)
- Refer to the logistics page for installation information
    - Logistics page on github (https://github.com/mjbright/ipython-in-depth/blob/master/EuroPython2016-Logistics.ipynb)
    - Local (/notebooks/EuroPython2016-Logistics.ipynb)

Working through the tutorial

- We will first make sure you all have Jupyer installed and working
- We then invite you to follow along during the tutorial
- There will also be exercises along the way

There are a lot (~ 100) more detailed notebooks in this same directory that cover other topics, but we can not cover all in a 3-hour tutorial.

We encourage you to explore them and practice on your own.

For even more detail, you can visit our example collection (http://nbviewer.ipython.org/github/ipython/ipython/blob/master/examples/Index.ipynb) from our site, also included in this IPython source code repository.

Class outline:

- Overview of Jupyter (http://jupyter.org) and IPython (http://ipython.org) projects on the official websites.
- Super basic intro to the dashboard (/tree), notebook, Jupyter Lab (/lab) alpha.
- Notebook Basics (examples/Notebook/Notebook Basics.ipynb)
- IPython - beyond plain python (examples/IPython Kernel/Beyond Plain Python.ipynb)
- Markdown Cells (examples/Notebook/Working With Markdown Cells.ipynb)
- Rich Display System (examples/IPython Kernel/Rich Output.ipynb)
- Introduction to Interactive Javascript Widgets (examples/Interactive Widgets/Using Interact.ipynb)
- Customizing IPython - a condensed version **out of date** (exercises/Customization/Condensed.ipynb)
- Running a Secure Public Notebook Server (examples/Notebook/Running%20the%20Notebook%20Server.ipynb#Securing-the-notebook-server)
- How Jupyter/IPython works (examples/Notebook/Multiple%20Languages%2C%20Frontends.ipynb) to run code in different languages.

Resources-1

After this tutorial you may be interested to look at the following pages

- Jupyter (http://jupyter.org) and IPython (http://ipython.org) projects
- https://jupyter.readthedocs.io/ (https://jupyter.readthedocs.io/en/latest/) and http://ipython.readthedocs.io/ (http://ipython.readthedocs.io/en/stable/)
- Galleries of existing notebooks
  - https://nbviewer.org (https://nbviewer.org): submit your url, browse by theme
  - https://github.com (https://github.com): *> 200k notebooks* [*since May '15*] (http://blog.jupyter.org/2015/05/07/rendering-notebooks-on-github/)
  - IPython gallery (https://github.com/ipython/ipython/wiki/A-gallery-of-interesting-IPython-Notebooks): notebooks organized by domain
  - [Notebook Gallery[http://nb.bianp.net/]** (http://nb.bianp.net/]**) - view submitted notebooks by '*most viewed*' or '*data*
- Available Kernels for other lanuages/environments: kernels page (https://github.com/ipython/ipython/wiki/IPython-kernels-for-other-languages)

Resources-2

- Try Jupyter online
    - try.jupyter.org (https://try.jupyter.org)
    - mybinder.org (https://mybinder.org)
        - examples (https://github.com/binder-project?query=example)
        - On github click on "*launch binder*" icons

        launch binder

- Also cloud hosted *data science* environments are available from
    - Microsoft Azure Azure ML Studio (https://studio.azureml.net/)
    - IBM Data Scientist Workbench (https://datascientistworkbench.com/)
    - Google Cloud DataLab (https://cloud.google.com/datalab/)

Resources-3

- Jupyter Google Group (https://groups.google.com/forum/#!forum/jupyter)
- Jupyter Blog (http://blog.jupyter.org/)
- IPython Dev Mailing List (http://python.6.x6.nabble.com/IPython-Development-f1646922.html)
- StackOverflow
    - Jupyter hot topics (http://stackoverflow.com/tags/jupyter/hot)
    - IPython hot topics (http://stackoverflow.com/tags/ipython-notebook/hot)

Resources-4: Tools

- nbconvert (https://nbconvert.readthedocs.io/en/latest/): Execute or convert notebooks from command-line
- nbextensions (https://github.com/ipython-contrib/IPython-notebook-extensions) nbextensions-dashboard (/nbextensions)
- RISE (https://github.com/damianavila/RISE): Live Reveal slideshows in the notebook
- nbpresent (https://pypi.python.org/pypi/nbpresent): Another live slideshow tool