Introduction to Jupyter Notebook

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Unidata Python Workshop

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Overview

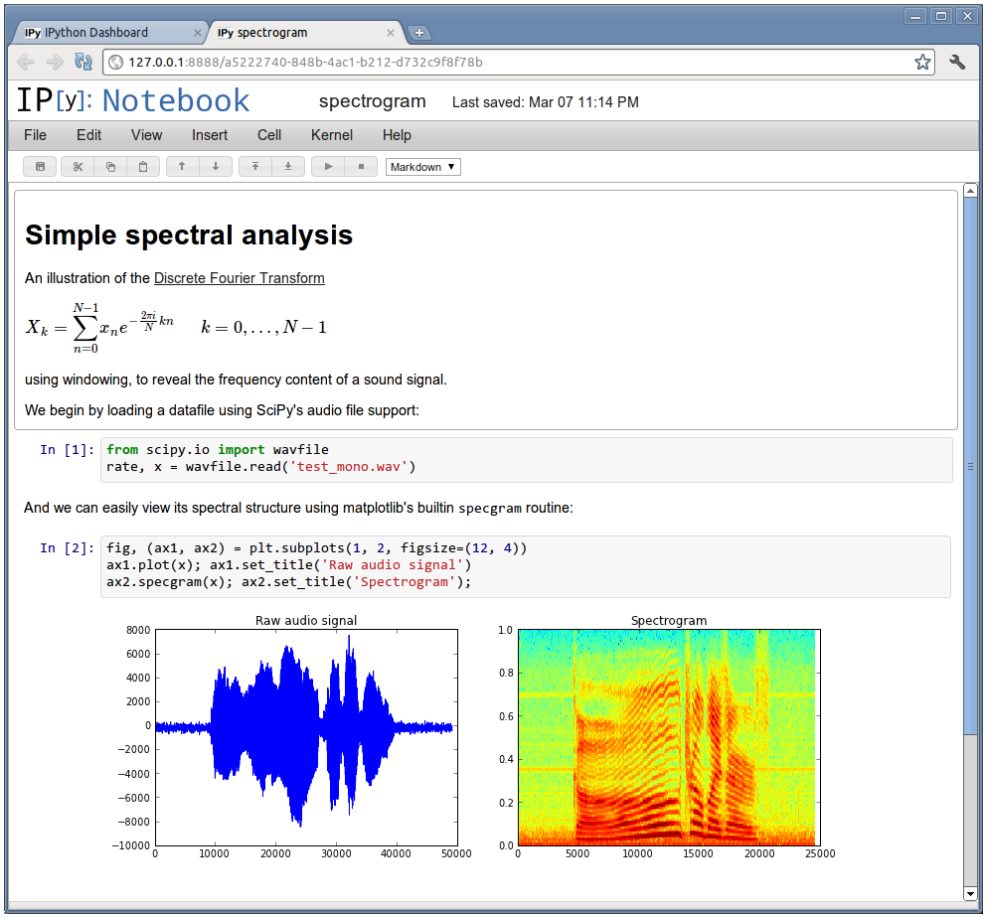
- Brief overview of Jupyter Notebook
  - What is it?
  - How do you use it?
- Examples of basic Jupyter Notebook Usage.
- Discuss some Advanced Jupyter Notebook Uses.

Overview

- *We* will not be going too in-depth with what you can do in regards to using Jupyter Notebooks for actual science.
- You will be seeing that throughout the rest of the workshop.

Remember IPython Notebook?

"The IPython Notebook is a web-based interactive computational environment where you can combine code execution, text, mathematics, plots and rich media into a single document"



http://ipython.org/notebook.html

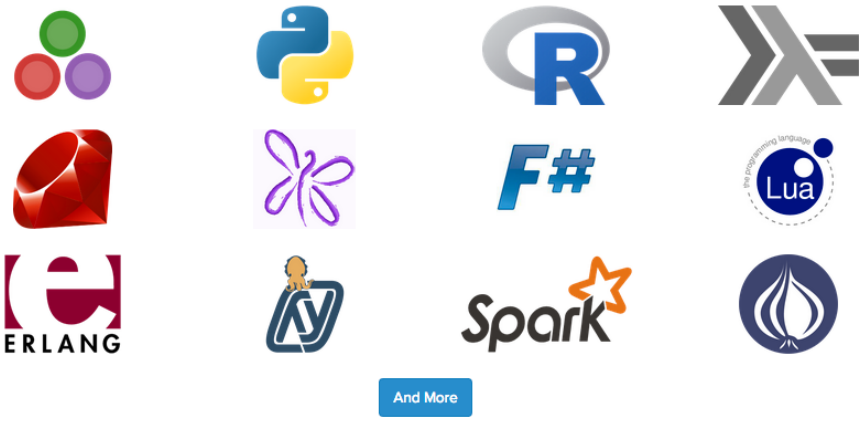
What is Jupyter Notebook?

(…) the language-agnostic parts of the project: the notebook format, message protocol, qtconsole, notebook web application, etc. will move to new projects under the name Jupyter.

IPython itself will return to being focused on interactive Python, part of which will be providing a Python kernel for Jupyter. IPython 3.0 contains some indications of the project transition, including the logo in the notebook web UI being that of Jupyter.

Evolved from the IPython Project

The language-agnostic parts of IPython are getting a new home in Project Jupyter

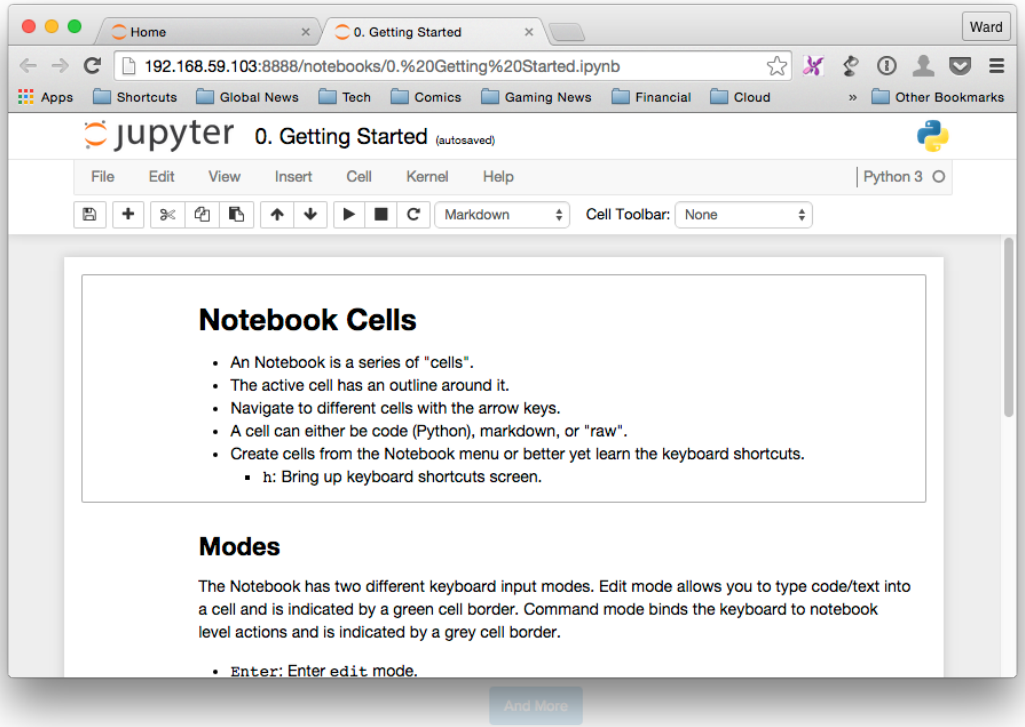


What is Jupyter Notebook?

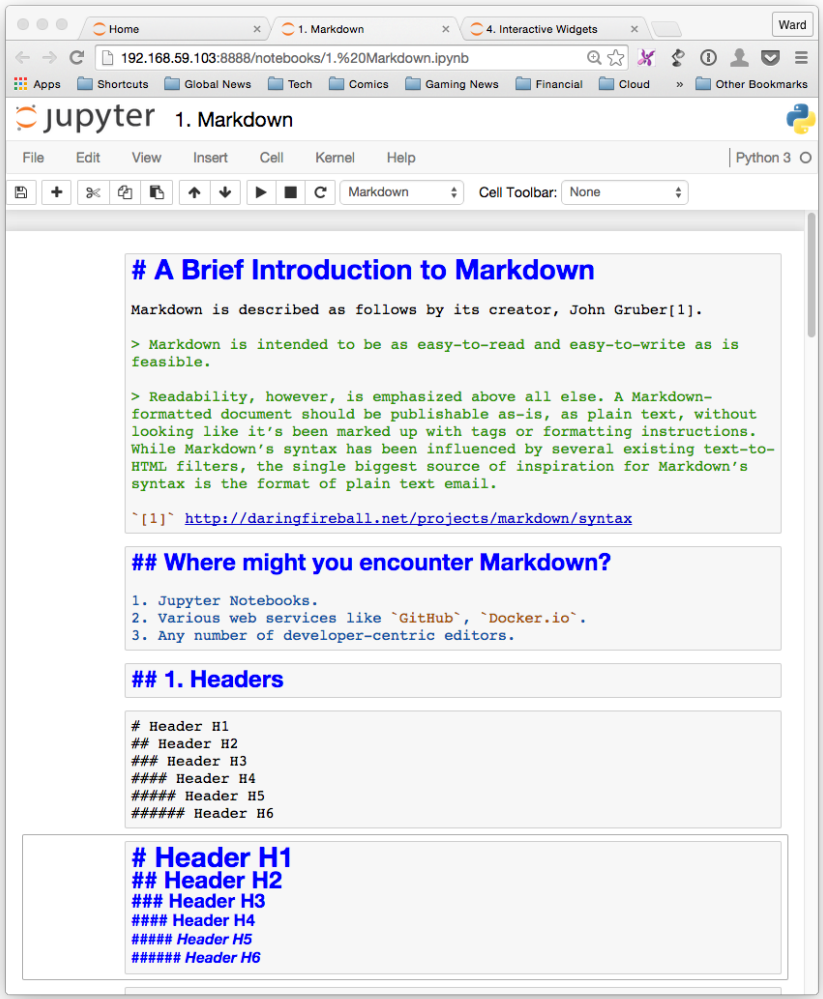
- Jupyter Notebooks has two components:
  - The Jupyter Notebook server
  - Individual Notebooks (.ipynb)

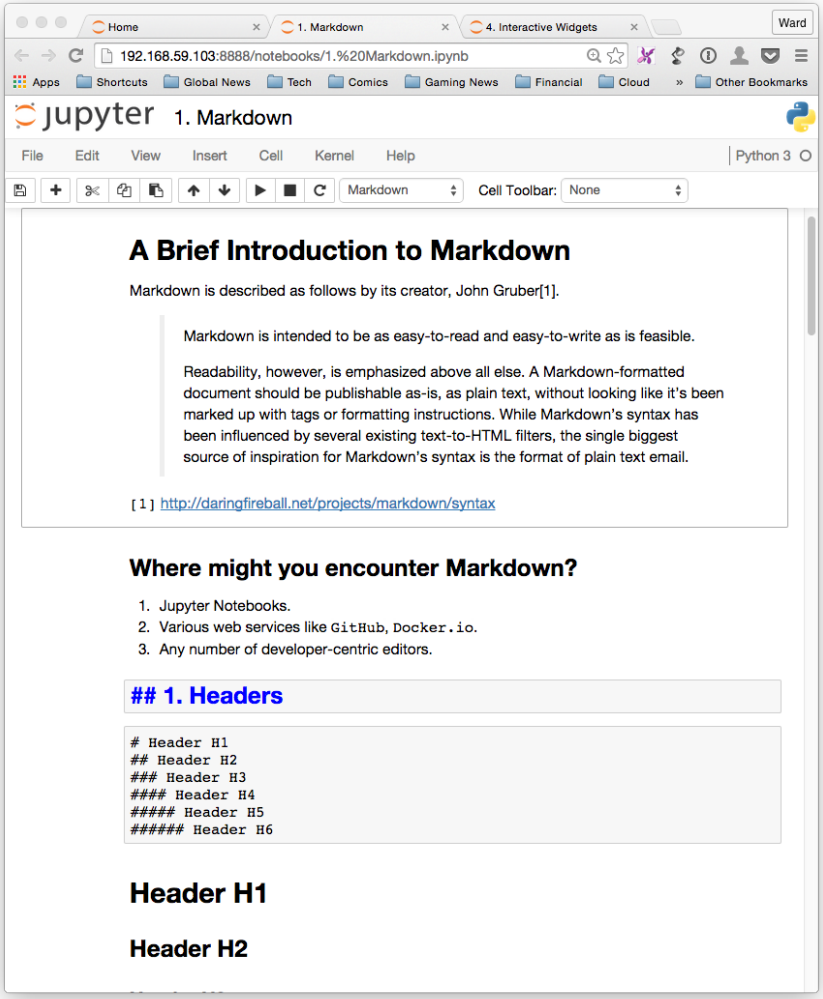
Jupyter Notebooks

- An Jupyter Notebook is a collection of *cells*.
  - Markdown
  - Code
  - “Raw” - Raw cells are left ‘as is’ and are not processed.

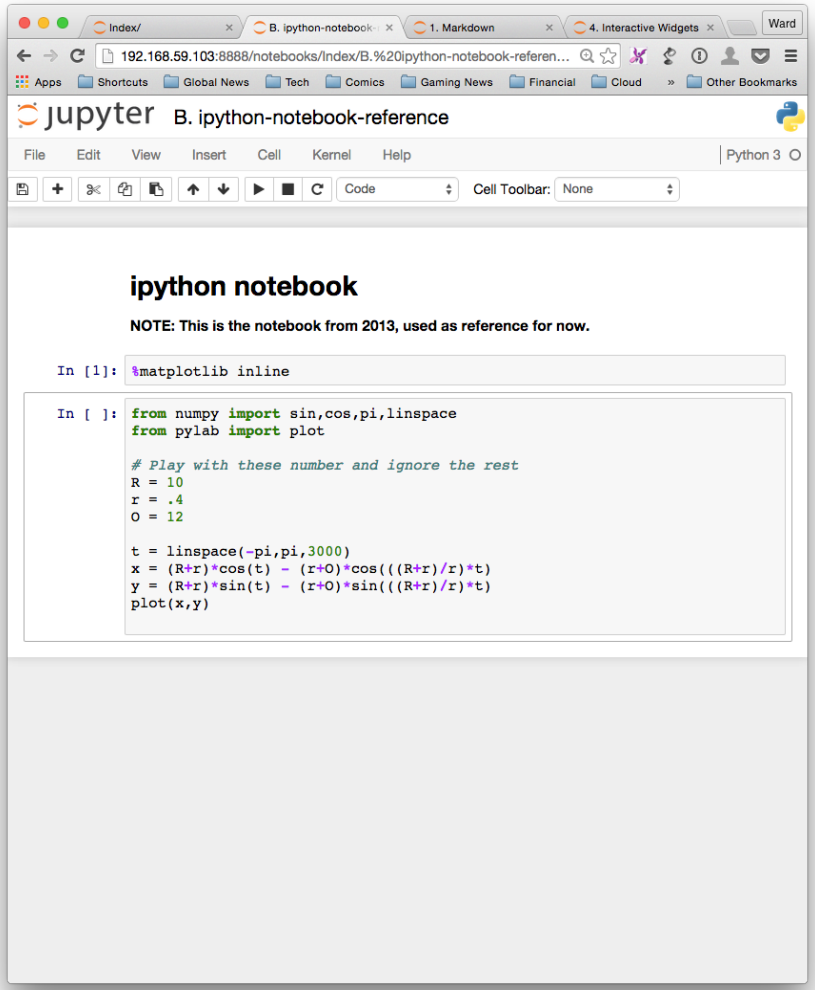


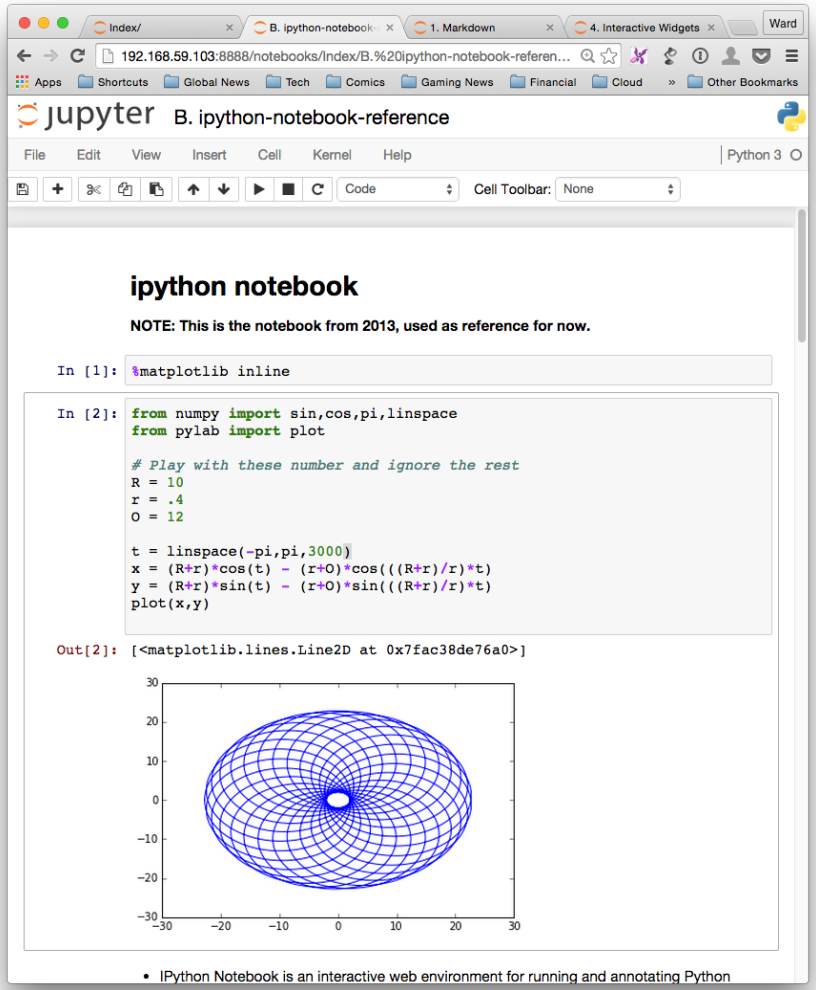
Markdown Cells





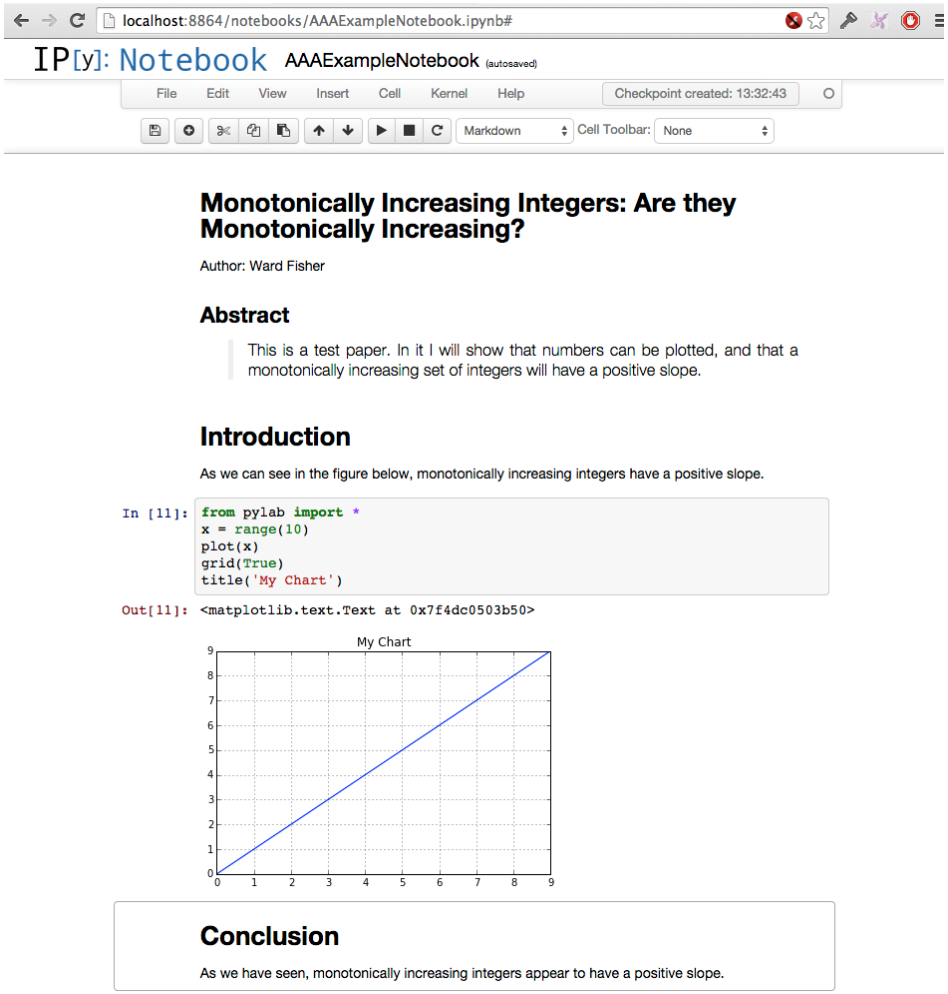
Python Cells





What does this get you?

- A sharable document with embedded, reproducible experimental data analysis.



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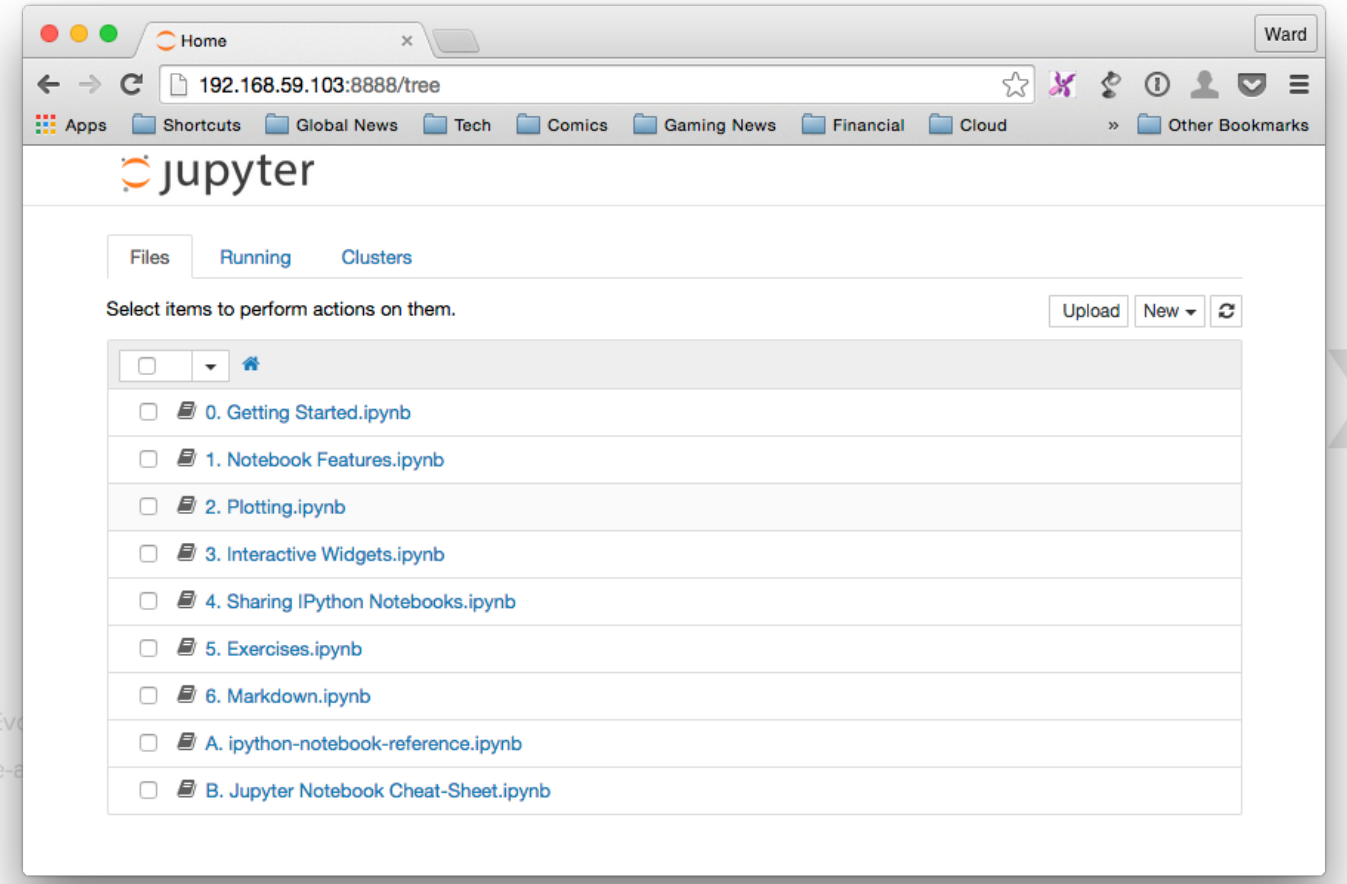
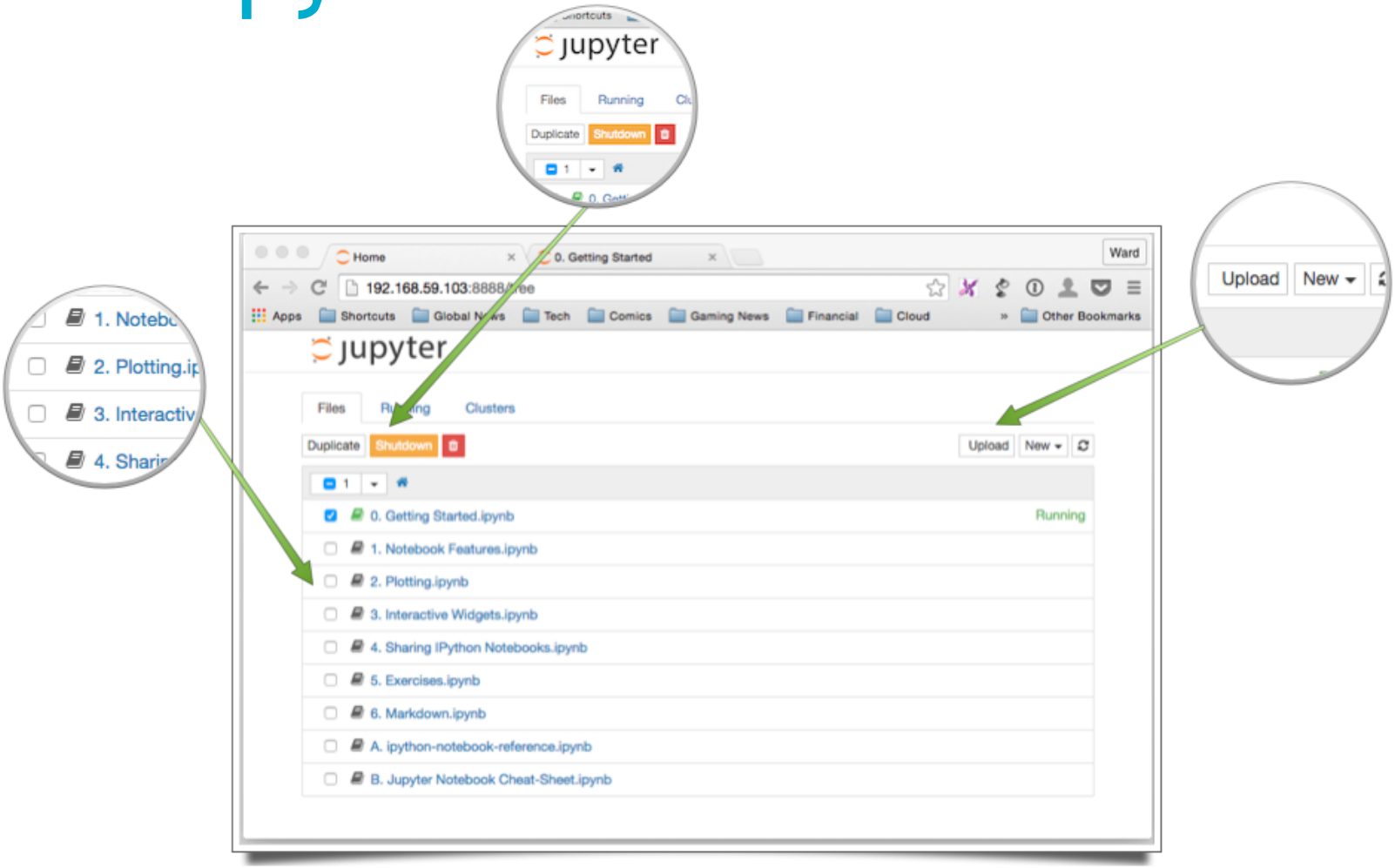
Jupyter Notebook Server



- The Jupyter Notebook Server acts as a dashboard for a collection of individual notebooks.

Jupyter Notebook Server



Installing Jupyter Notebook

- The easiest way to install Jupyter notebook is with a package manager like “Conda”
  - Maintained by Continuum Analytics
  - http://continuum.io/downloads

Installing Jupyter Notebook

- Once Anaconda is installed, you can use the 'conda' command to install jupyter notebook (and other packages).

```
$ conda install ipython ipython-notebook
```

Launching Jupyter Notebook

- Jupyter Notebook is launched via the command line.

```
$ ipython notebook
```

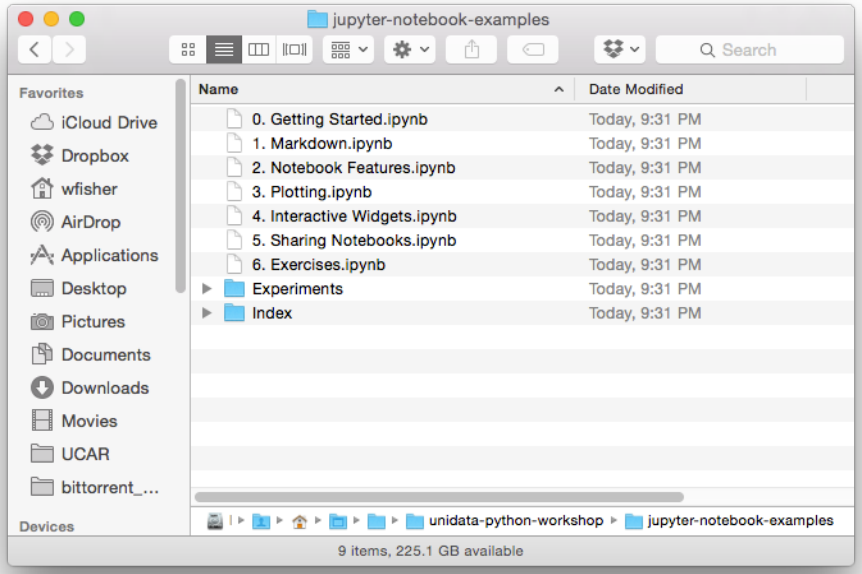
Launching Jupyter Notebook

- Jupyter Notebook is launched via the command line.

```
$ ipython notebook [options]
```

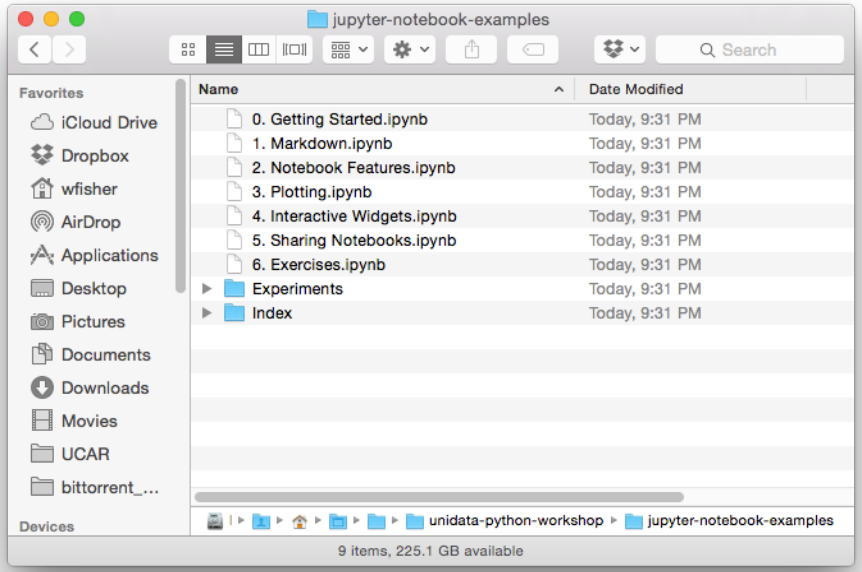
- There are a number of command line options for advanced usage.

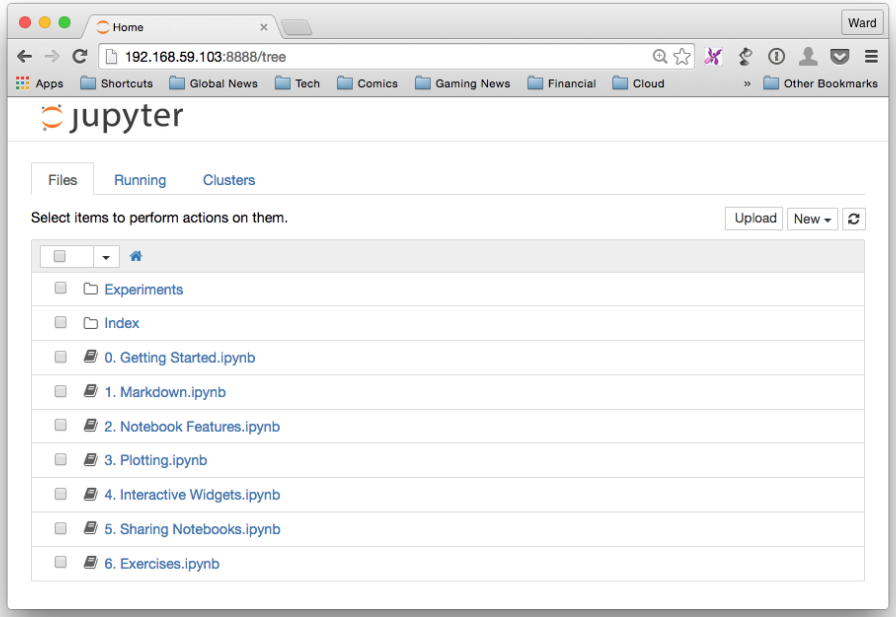
Running Jupyter Notebook Server



- Notebooks are arranged in a directory.
- You launch Jupyter Notebook from the root of this directory structure.

Running Jupyter Notebook Server





Working in Jupyter Notebook

Switching to the Browser.