JupyterLab: Building Blocks for Interactive Computing

SciPy 2016
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The larger Jupyter Team
20 Minutes Ago
5 Minutes Ago (rebase)
Where Are We Today?
~3M Jupyter Users

Over 500k Notebooks on GitHub

https://github.com/trending/jupyter-notebook?since=weekly
Enabling Reproducible Science

https://losc.ligo.org/about/
Enabling Open Data Journalism

Analysis of Jefferson County Arrests

The code below analyzes arrest data from Jefferson County.

Load the data

In [1]: import pandas as pd

In [2]: date_cols = ["ARREST DT", "RELEASE DT"]

In [3]: all_class_c_arrests = pd.read_csv("...
   ...parse_dates=date_cols, dtype={...

In [4]: all_class_c_arrests.head()

Out[4]:

<table>
<thead>
<tr>
<th>#</th>
<th>OFFENSE</th>
<th>BOND</th>
<th>WARRANT</th>
<th>FILED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>FAILURE TO APPEAR</td>
<td>0</td>
<td>8080676</td>
<td>PAPOD</td>
</tr>
</tbody>
</table>
More Than Just Notebooks
Building Blocks

- File Browser
- Notebooks
- Text Editor
- Widgets
- Output
- Terminal
What Are We Hearing From Users?
2015 User Experience Survey

- Mostly daily/weekly users
- Love the notebook workflow and user experience
- Top needs:
  - Integration with version control systems (git/GitHub)
  - Code/text editing
  - Layout/integration of building blocks
  - Debugger, profiler, variable inspector, etc.

Introducing JupyterLab (alpha)
JupyterLab

• JupyterLab is the natural evolution of the Jupyter Notebook user interface

• JupyterLab is an IDE: Interactive Development Environment

• Flexible user interface for assembling the fundamental building blocks of interactive computing

• Modernized JavaScript architecture based on npm/webpack, plugin system, model/view separation

• Built using PhosphorJS (http://phosphorjs.github.io/)

• Design-driven development process

https://github.com/jupyter/jupyterlab
Roadmap

• Today (July 2016) JupyterLab is an early preview only

• Not suggested for general usage:
  • Visual design, UI, UX, interactions, code all still changing rapidly!

• Phases:
  • 1) Series of alpha/beta releases of JupyterLab available as an alternative UI alongside the classic notebook
  • 2) JupyterLab 1.0 = Lab notebook component has feature parity with classic notebook
  • 3) JupyterLab becomes the default UI, but classic notebook is still available
  • 4) Classic notebook only available as a separate download
Live Demos
What next?

Alpha (rapid iteration, major changes, may break)

pip install jupyterlab
jupyter serverextension enable --sys-prefix jupyterlab

(or conda install -c condaforge jupyterlab)

jupyter lab
Contribute

• User testing downstairs
• Sprints on Saturday/Sunday
• Regular JupyterLab progress meetings on Fridays
• Follow repo on Github

https://github.com/jupyter/jupyterlab
Thanks!

- Bloomberg, Continuum, Jupyter team, especially Chris Colbert, Steve Silvester, Afshin Darian, Dave Willmer

- Moore, Sloan, and Helmsley Foundations

Thank You!