Tip of the Week: Let students interact with real data and code to analyze case studies.

Co-developed by UC Berkeley Professor Fernando Pérez, Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations, and narrative text.

Case Study: Capital Bike Share (review)

Bike-sharing systems have become increasingly popular worldwide as environmentally-friendly solutions to traffic congestion, inadequate public transit, and the "last-mile" problem. Capital Bikeshare runs one such system in the Washington, D.C. metropolitan area.

The Capital Bikeshare system comprises docks of bikes, strategically placed across the area, that can be unlocked by registered users who have signed up for a monthly or yearly plan or by casual users who pay by the hour or day. They collect data on the number of casual and registered users per hour and per day.

Let's say that Capital Bikeshare is interested in a prediction problem: predicting how many riders they can expect to have on a given day. UC Irvine's Machine Learning Repository has combined the bike sharing data with information about weather conditions and holidays to try to answer this question.

```python
# run this cell to load the data
bikes = pd.read_csv("data/day_renamed_dso.csv", index_col=0)

# show the first five rows
bikes.head()
```
• You can use Jupyter Notebooks to clean and transform data, simulate numerical evidence, visualize data, create machine learning routines, and much more.
• Jupyter Notebooks support over 40 programming languages, including Python, R, Julia, and Scala.
• Notebooks can be shared with your students using email, Dropbox, and GitHub.
• Code in Jupyter can produce rich, interactive output in many formats, including HTML, images, videos, LaTeX, and custom MIME types.

Visit the Berkeley Haas JupyterHub to check out which courses are already using Jupyter Notebooks, and contact Haas Digital to learn more about developing your own.

What topics should we cover next? Fill out this form to let us know what else you'd like to learn about or to share tips that you think your fellow faculty members could benefit from.

Want to review previous teaching tips? Check out the archive.

*The Online Teaching Tip of the Week is a series produced for Haas Faculty by the Associate Dean for Learning Strategies' Online Teaching Tips Team.*