

Building Interactive Data Visualizations

Using Plotly and Dash

Structure

- Overview of Python data visualization libraries (10 mins)
- Creating interactive visualizations with Plotly (30 mins)
- Building interactive dashboards with Dash
 - Main elements of Dash (HTML and core components) (15 mins)
 - Adding interactions to Dash (callbacks) (15 mins)
 - Practice: build an interactive dashboard (20 mins)

Hello, PyDay world!

Studied Business
Administration

Worked as Sales,
Account Manager,
Product Manager
(mainly in ad tech)

Now: Data Analyst at
TravelPerk



2009-2014

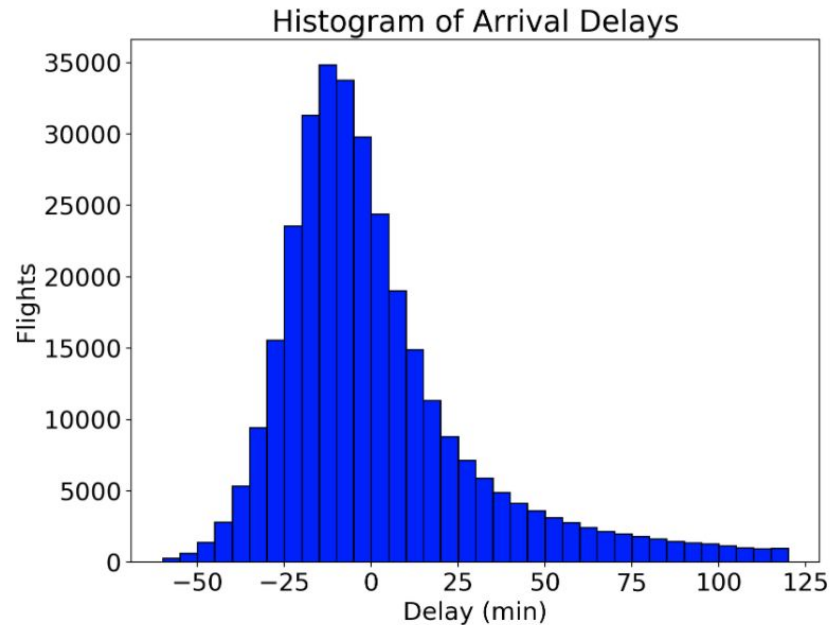
2014-2019

2019

Python Data Visualization Libraries

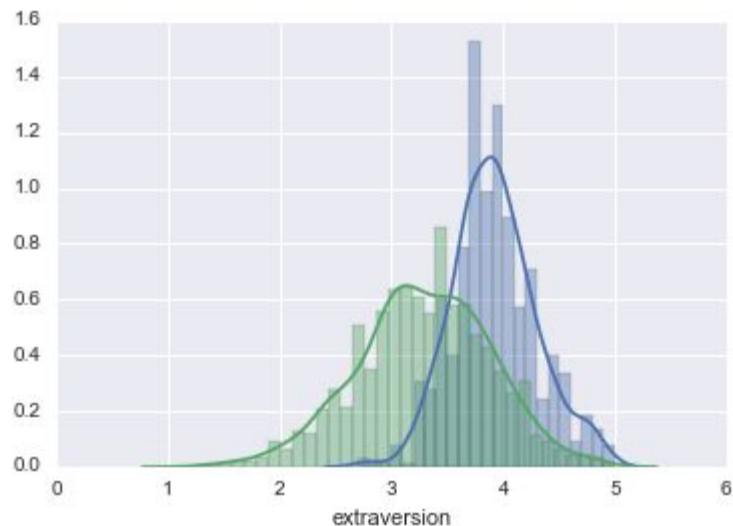


- The oldest one
- Visually takes you back to 90s (improved since version 2.0)
- Verbose, making an appealing graph requires a lot of tweaks and many lines of code



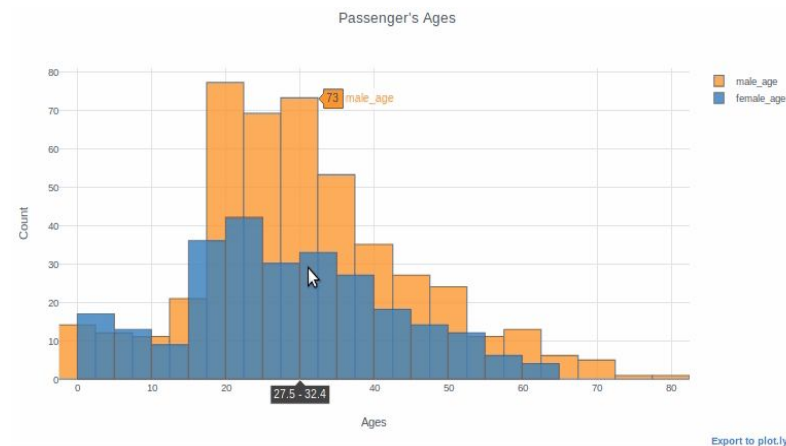
Seaborn

- Built on top of Matplotlib
- Higher level than Matplotlib
- Visually more appealing
- Some nifty features
 - Kernel density estimation
 - Heatmap correlation matrix
 - Inbuilt regression line on scatter plots





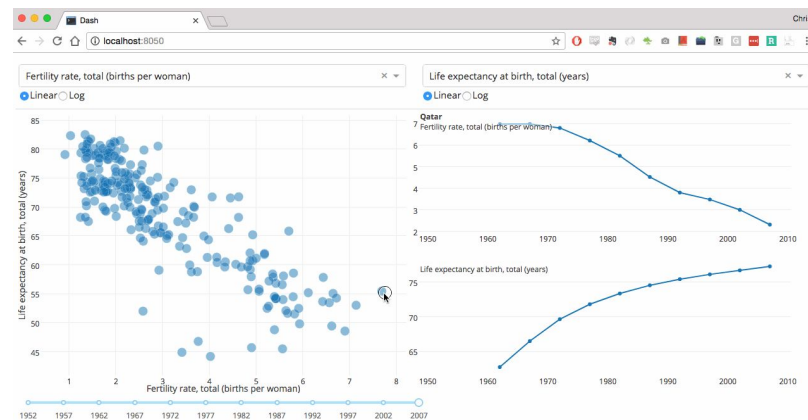
- Built on top of D3.js
- Interactive
- Original syntax is verbose, but can be simplified with other libraries (cufflinks, plotly express)



Dash overview



- Built on top of Flask, React.js and Plotly
- Pure Python, no need to write Javascript and HTML
- Plotly is used to create separate visualizations
- Dash permits creating an interactive dashboard with multiple visualizations
- Dash web apps can be hosted and shared with your colleagues or with the world



Alternatives to Dash

BI tools (Tableau, Looker, etc.)

- Easy to learn, no need to code
- Not as customizable as other options
- Dashboard as a standalone website can be hard to achieve depending on the tool

Javascript, HTML, CSS

- The most flexible
- The steepest learning curve

Bokeh, Shiny (R)

- The most similar to Dash

Let's practice

Locally:

1. Clone / download git repository: **<https://github.com/annafedotova/dash>**
2. Open Jupyter Notebook: run “jupyter notebook” in your terminal
3. In your browser from <http://localhost:8888/tree> navigate to file “plotly_exercises.ipynb” and open it

Online:

1. Go to **<https://github.com/annafedotova/dash>**
2. Open the link to Binder, wait for repository to start and open “plotly_exercises.ipynb”