

Assignment 3

The purpose of this assignment is two-fold: (a) to have you engaged in independent learning with respect to dashboard creation and interactive visualization methods, and (b) to enhance our knowledge overall in the class (including mine!) by engaging in peer instruction. More specifically, I want you to create an interactive dashboard and write a tutorial demonstration which shows multiple visualization techniques working together (e.g. combining line charts, bar charts, and scatter plots in an interactive interface).

The purpose of using data visualization is to tell a story, and the purpose of writing up a demonstration is to teach someone else about what you have learned so that they can use it, too. Think of this as a worked example, something like a medium blog post that you have written up and are posting so that other data scientists can learn about the potential uses of this style of data exploration and visualization. You should be concise in your wording and clear in your demonstration.

You will need to include the write up and demonstrate in a new notebook which you will be submitting to the staff. Your notebook should be primarily narrative in nature, broken up by code cells that demonstrate the work that you're demonstrating. You should have the following main sections in your notebook (but feel free to use other subheadings as appropriate):

- ☐ **Visualization Technique (25%)**
 - ☐ A narrative description of each visualization type in your dashboard
 - ☐ A discussion of how these visualizations complement each other and when each should be used
 - ☐ Dashboard-specific considerations like interactivity options
- ☐ **Visualization Library (25%)**
 - ☐ The dashboard framework and libraries you're using, and why they're suitable for this visualization. For instance, who created it? Is it open source? How do you install it?
 - ☐ A discussion of the general approach and limitations of this framework. For instance, Is it declarative or procedural? Does it integrate with Jupyter? Why did you decide to use this framework (especially if there are other options)?
- ☐ **Demonstration (50%)**
 - ☐ The dataset you picked and instructions for cleaning the dataset. You should pick a suitable dataset to demonstrate multiple visualization types and interactive features working together.
 - ☐ The quality of your demonstration. First demonstrate building basic dashboard components, then show how to implement interactivity and advanced features. This is the "meat" of the assignment. For reference you should have at least 4 graph types in your dashboard that work together to tell a cohesive story.

Deliverables

- ☐ **Code Repository (git repo or zip file)**
 - ☐ Complete dashboard source code
 - ☐ Development setup instructions
 - ☐ All necessary dependencies and assets/datafiles
- ☐ **Tutorial Document (pdf)**
 - ☐ Written tutorial covering all visualization implementations. Include screenshots and code snippets
 - ☐ Troubleshooting of any common errors you encountered
- ☐ **Final Dashboard**
 - ☐ Deployed version of your dashboard, with interactivity
 - ☐ Example dataset included