

Visualization (Vis)

Storytelling with
Interactive Data Visualizations



Homework 5 — Visual Encoding





Charts (1)

In the upcoming class we will start discussing how to encode your data into a visual representation, i.e., a chart. We will be covering the conceptual approach and cover do's and don'ts. There are huge number of possible charts that have been proposed – picking the right / a good one for your visualization tasks clearly is easier if you know more charts. In this homework, you will familiarize yourself with a couple of very popular charts – you probably know most of them but will discover many aspects that you may not have consciously been aware of.

♦ **Exercises Part 1: “80 types of charts & graphs for data visualization (with examples)” by Kosma Hess**

- (1) **Overview:** Start by reading the introduction of the Blog-Post by Kosma Hess up to the table of content.
<https://www.datylon.com/blog/types-of-charts-graphs-examples-data-visualization>
- (2) **Bar Chart and Friends:** Read the sections on the Bar Chart, Column Chart, Grouped bar/column Chart, Lollipop and Bullet Chart
- (3) **Pro Tips for Bar Charts:** Read the Article on Bar Charts and put particular focus on the section “Pro Tips for Designing Bar Charts” – it contains many very helpful aspects. The Article is linked from the Blog Post under Bar Charts as well.
<https://www.datylon.com/resources/chart-library/bar-chart>
- (4) **Line Chart and Friends:** Read the sections on the Line Chart.
- (5) **Pro Tips for Line Charts:** Read the article on Line Charts, again focusing on the “Pro Tips”.
<https://www.datylon.com/resources/chart-library/line-chart>
- (6) (Optional) read further parts of the Blog Post, if you interested!



Charts (2)

There are several great websites for discovering and understanding different charts. Two worth looking at are:

- 1) The DataViz Project at <https://datavizproject.com/>
- 2) The DataVizCatalogue at <https://datavizcatalogue.com/>

Both group charts using multiple dimensions and are very helpful for idea generation for a specific need. They do not have as deep discussions on “do's and don'ts” as deeply as datylon – so they augment each other quite nicely. The DataVizCatalogue also contains direct links to many popular libraries, so it makes it easy to find code for the charts.

♦ Exercises Part 2: DataViz Project

- (1) **Browsing Charts:** Use the Family, Input, Function and Shape Drop Down menus to browse the available charts at the DataViz Project.
- (2) **Pie Chart:** Find and read the description for the Pie Chart. Use the “Input” link – which other chart types are suitable for the same input data?
- (3) **Deep Dive:** Jump over to datylon and read deep dive into <https://www.datylon.com/resources/chart-library/pie-chart>

♦ Exercises Part 3: DataVizCatalogue

- (1) **Browsing Charts:** Use the “search by function” to browse the available charts at the DataVizCatalogue.
- (2) **Scatter Plot:** Find the scatter plot and read the Description. Use the link to the Python Graph Gallery to look at the Python code for scatterplots and use the link to Vega-Lite.

