Data Visualization Using Spreadsheets

CS102
Spring 2020
Data Visualization

“A picture is worth a thousand words”

- Data visualizations can be enlightening and powerful
- Creating good visualizations is a science and an art
Early Data Visualization

Napoleon's Army

Carte Figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812 - 1813.

Paris, le 20 Novembre 1869.

TABLEAU GRAPHIQUE de la température en degrés du thermomètre de Réaumur au dessous de zéro.

Les Casques portaient au galop la Plissée, galée.

— 26° le 7 X.
— 24° le 1er X.
— 22° le 22 a.
— 11°.
— 21° le 14 a.
— 18° le 10 a.
— 30° le 6 X.
— 16° le 3 a. et 10° le 22 a.
Fancy Data Visualization

Spreadsheets Data Visualization
Dynamic Data Visualization

https://www.youtube.com/watch?v=jbkSRLYSogo
Don’t underestimate the power of basic visualizations

- **Bar charts**
- **Pie charts**
- **Scatterplots**
- **Maps**
Bar Charts

When one axis is categories and the other is numeric
Your Turn

Ten countries with the highest population, bar chart showing populations
Pie Charts

To compare relative sizes of categories
Your Turn

Pie chart showing relative number of cities with negative longitude and positive longitude

Label the two slices “west” for west of the Prime Meridian (negative longitude), and “east” for east of the Prime Meridian (positive longitude)
Scatterplots

When both axes are numeric
Your Turn

Switch to CitiesExt.csv

Use a scatterplot to explore whether there is any relationship between the latitude of cities in a country (x-axis) and the population of that country (y-axis).

Why are there lines of dots?
Maps

Values by geographic region
Your Turn

Map of European countries colored by whether or not the country is in the European Union
Data Visualization with Spreadsheets

Convenient and useful

• Suggested charts are often good ones
• Google Sheets has fewer features than Microsoft Excel (for now)
  Though some people prefer the simplicity

For help while working with charts

• Web search, sometimes
• Or just keep fiddling 😊