Information Visualization

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Lecture 7

Interactive Data Visualization

- – ScrollyTelling

- – NYTimes Interactive Visual DataStories and ScrollyTelling

Tableau Demos

- – Bar Chart | Line Chart | Scatterplot | Treemap
- – Map: Size Coding and Area-Based
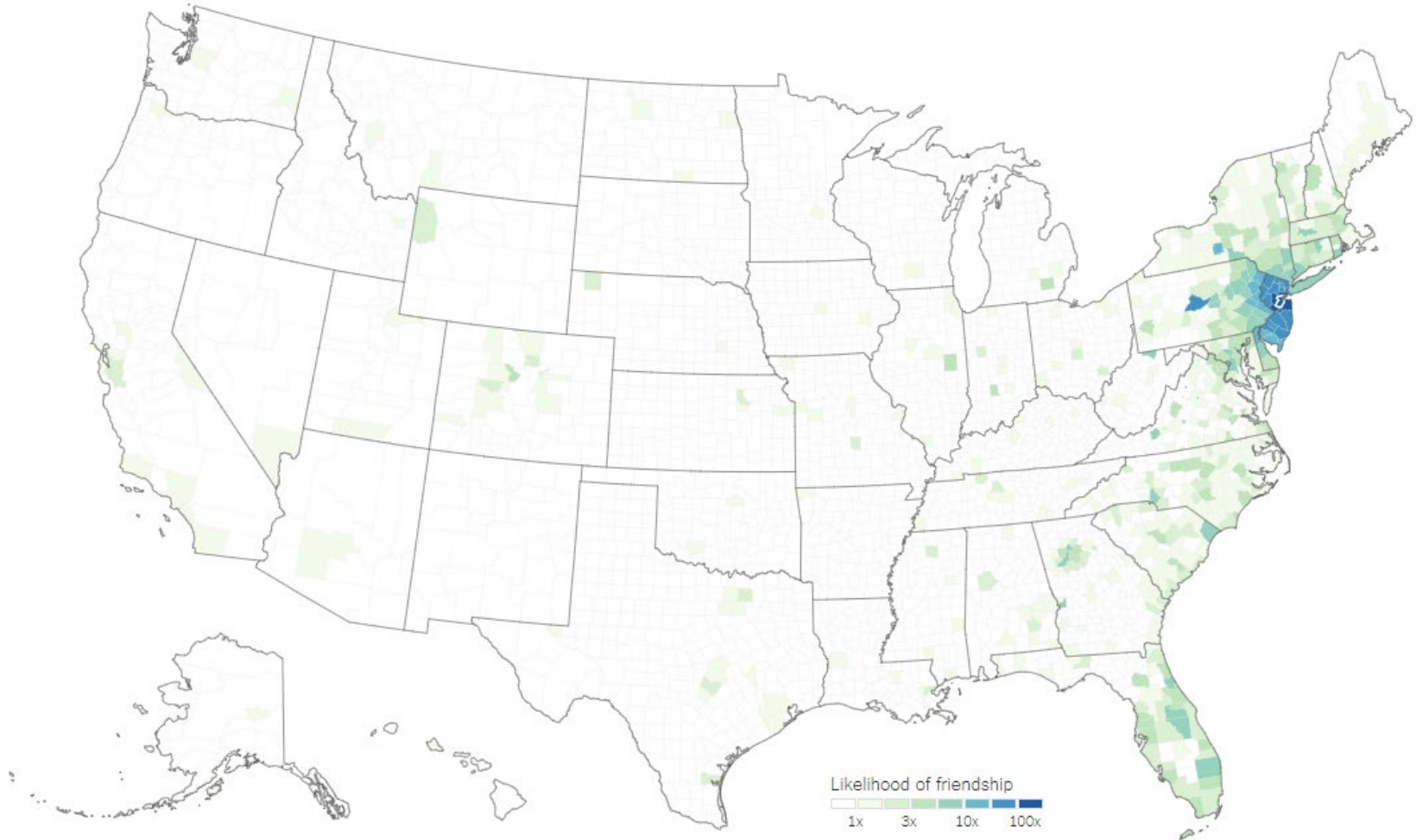- – 2nd Visualization Assignment

DataVis Programming (optional)

- – 2nd Visualization Assignment = OPTION DataVis prog. Using D3.js

NYTimes Visualizations – Interactive

•How Connected Is Your Community to Everywhere Else in America?

•https://www.nytimes.com/interactive/2018/09/19/upshot/facebook-county-friendships.html

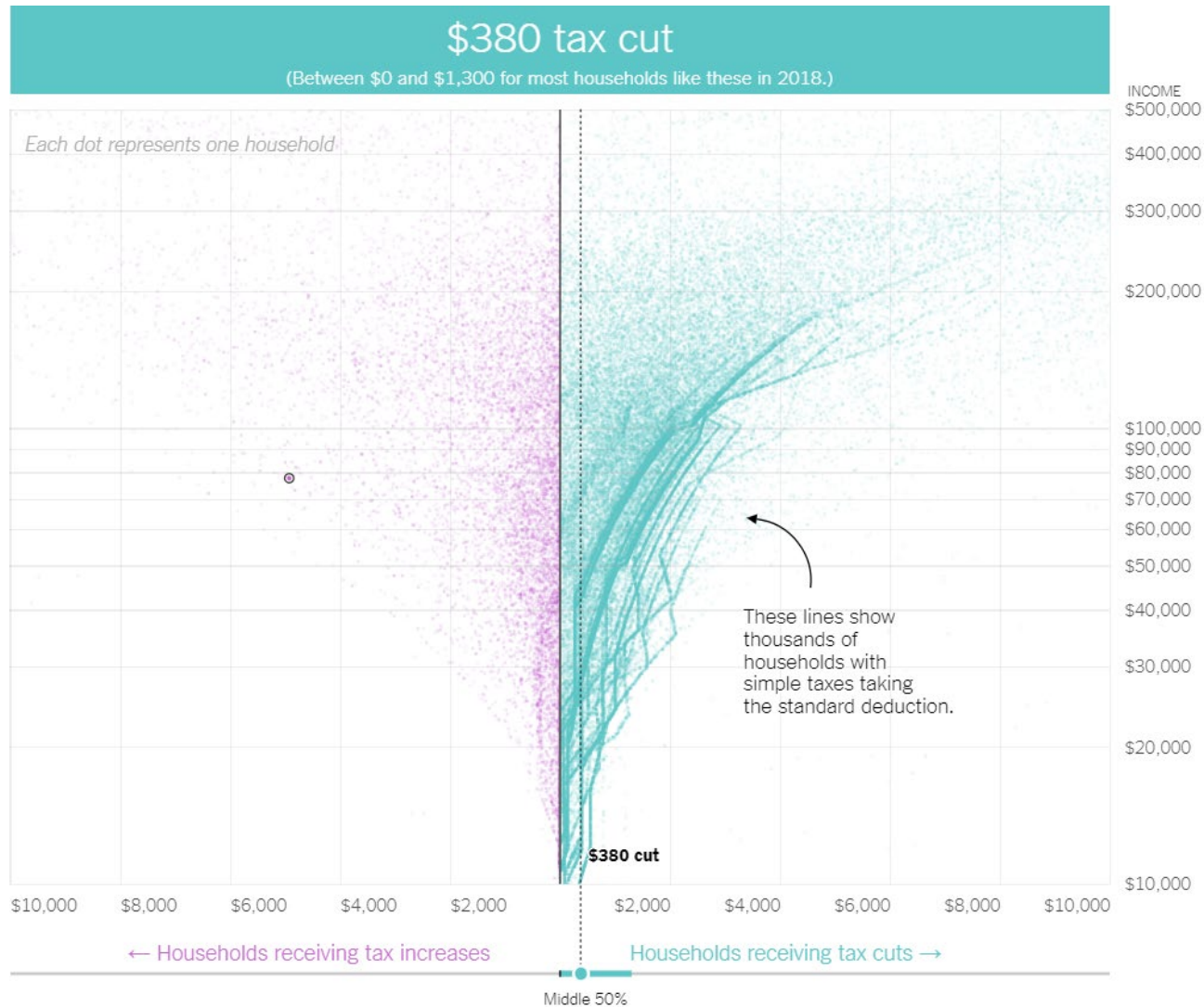Likelihood of friendship
1x   3x   10x   100x

Middlesex County, N.J.

Share of friends who live within ... 50 miles: **69%**, 100 miles: **75%**, 500 miles: **84%**

NYTimes Visualizations – Interactive

•Tax Bill Calculator: Will Your Taxes Go Up or Down?
•https://www.nytimes.com/interactive/2017/12/17/upshot/tax-calculator.html

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NYTimes Visualizations – ScrollyTelling

- **Snow Fall** The Avalanche at Tunnel Creek
- https://www.nytimes.com/projects/2012/snow-fall/

NYTimes Visualizations – ScrollyTelling

- **How Convention Speaking Times Reveal Democrats' Pecking Order**
- https://www.nytimes.com/interactive/2020/08/21/us/politics/dnc-speakers-run-time.html

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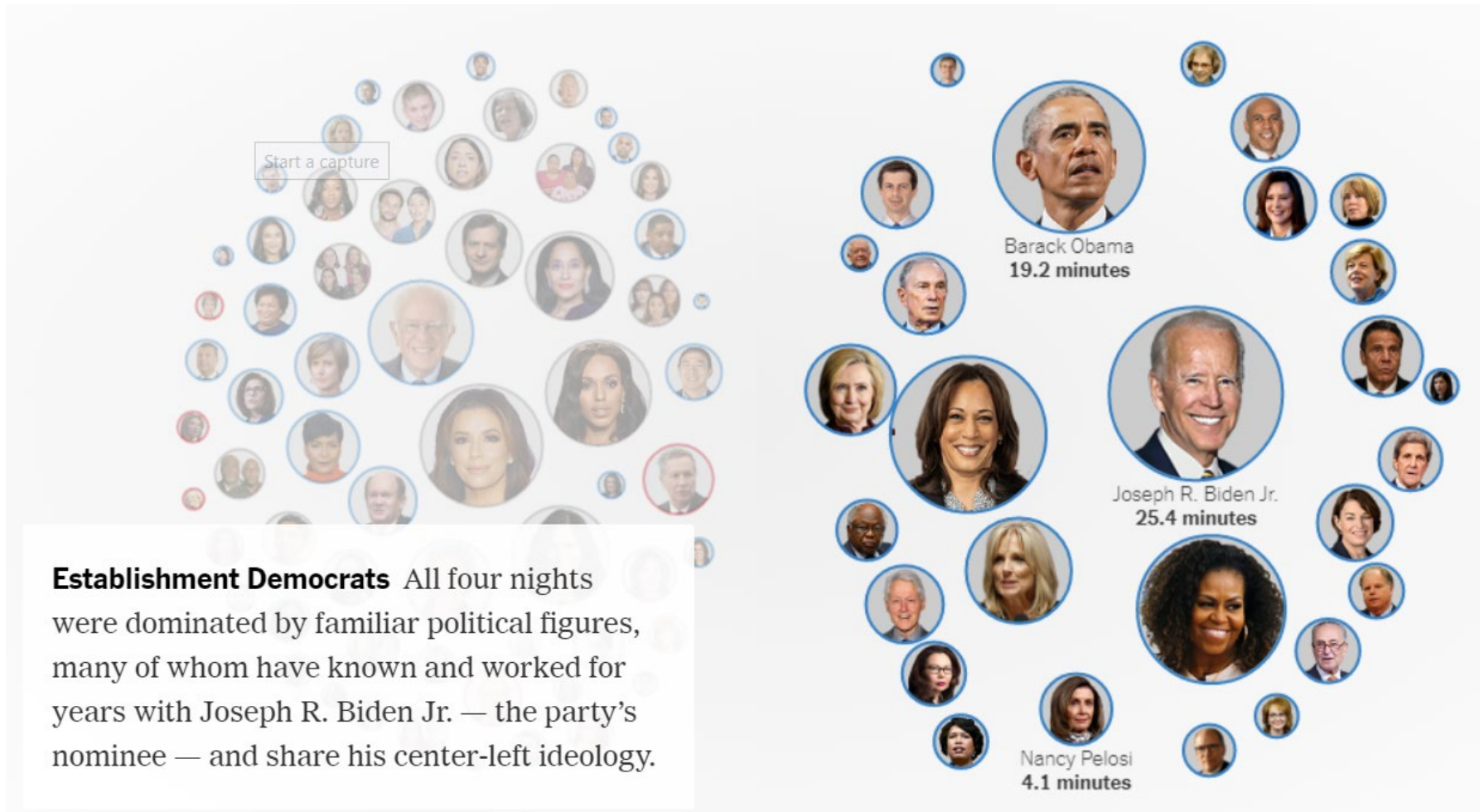
NYTimes Visualizations – ScrollyTelling

•**Charting An Empire: A Timeline Of Trump's Finances**
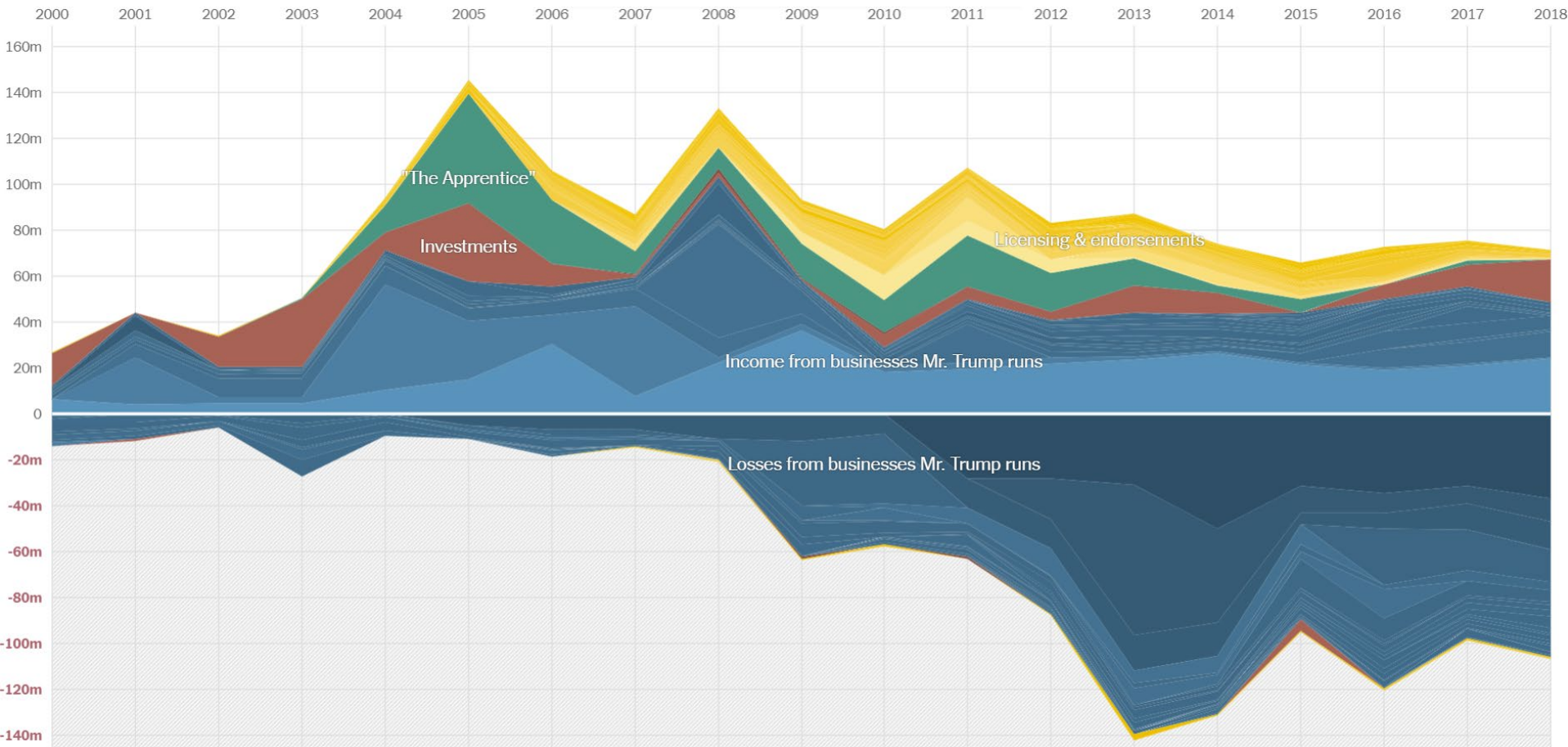•https://www.nytimes.com/interactive/2020/09/27/us/donald-trump-taxes-timeline.html

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Tableau – **Demo**

Connect to Sample - Superstore - English (Extract) data (Help: <u>Build-It-Yourself Exercises</u>)

Bar Chart
- Drag **Order Date** dimension to Columns
- Drag **Sales** measure to Rows
- Marks card: select **Bar** and Drag **Ship Mode** dimension to **Color**

Line Chart
- Drag **Order Date** dimension to Columns
- Drag **Sales** measure to Rows and Profit measure to its right
- Drag SUM(Profit) field from Rows to **Sales axis** to create **blended axis**

Scatterplot
- Drag **Profit** measure to Columns   and   **Sales** measure to Rows
- Drag **Product – (Sub) Category** dimension to **Color** on Marks card
- Drag **Region** dimension to **Detail** on Marks card.
- **Matrix**: drag **Region** and **Category** dimensions to Columns / Rows

Treemap
- Drag **Category** dimension to Columns and **Sales** measure to Rows
- **Show Me**: select Treemap
- Drag **Ship Mode** dimension to **Color** on Marks card / next: drag Profit dimension

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Tableau – **Demo**

Connect to Sample - Superstore - English (Extract) data (Help: <u>Build-It-Yourself Exercises</u>)

Map <u>http://onlinehelp.tableau.com/current/pro/desktop/en-us/help.htm#buildexamples_maps.html</u>

- Notice "globe" icon next to hierarchically organized **Location** dimension (globe icon = geographical role for data dimension)
- Double click Location > City and map is created
    - Columns field = **Longitude** | Rows field = **Latitude**
- From **Measures**, drag **Sales** to **Size** on the **Marks** card
- From **Measures**, drag **Profits** to **Color** on the **Marks** card
- To adjust **circle size**, click **Size** in **Marks** card and drag slider
- To add **circle border**, click **Color** in **Marks** card and click **Border** drop-down to select color
- ➔ Use Location, Size and Color to encode **4 data variables**.

Choropleth Map

- **Single data point** for area, such as country, state, county, precinct
- Use Area to encode data ➔ Marks = **Map** and **Location > State**
- Visualization tool needs **shape files** for area aggregate to be used

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Visualization 2 – Tableau Assignment

Resources
- <u>Beginner</u> | <u>On-Demand Videos</u> : <u>Intro</u> and **LinkedIn Teaching videos**
- <u>Preparing-Excel-Files-Analysis</u>

Tutorials
- **<u>Introduction to Tableau</u>** | <u>Calculations</u> | <u>Mapping</u>
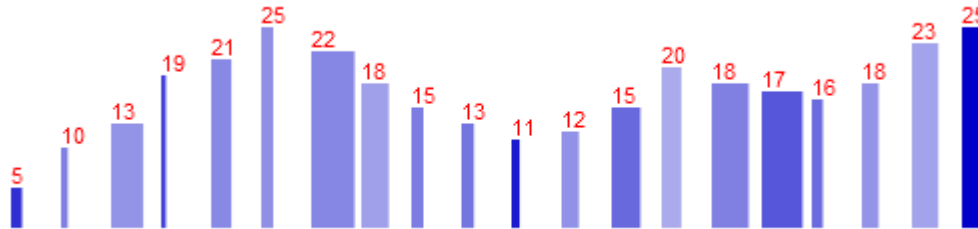- <u>10 Tips for Useful Visualizations</u>

Task
- **Create 6-8 visualizations** – select appropriate display types
- **Create 2 Dashboards** with the visualizations that you created: make sure **Highlighting > All Fields** is selected
- **Data Sets**: similar data sets as for Vis1 (need **5 indep variables**) or new data

Visualization 2: **D3 VisProg**

– Visualize **3 variables**: height, width and opacity

– How to **Trigger Event**?
  – .on("click", function() { … }
– How to **Cycle** through variables / heights?
  – Modulo operator = variable % max_value
– How to **Access Variables**?
  – Data is 2D array of 3-tuples | d[index]
– How to **Sort** Data?
  – d3.ascending(a[sortIndex], b[sortIndex])
– How to **Scale** Height?
  – Define scalarToUse and use yScale(d[0])