

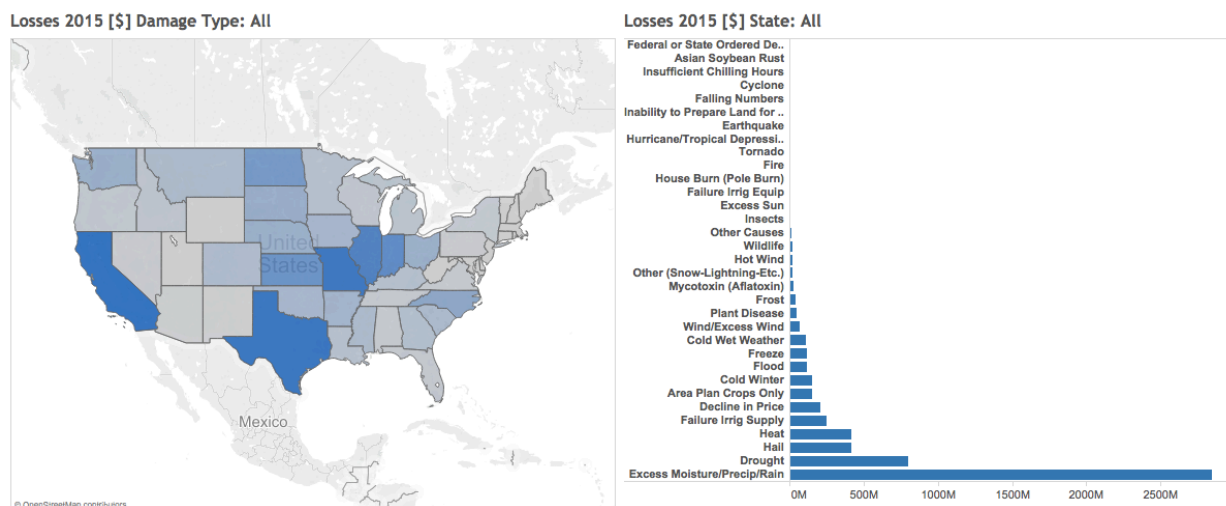
Homework #3

due Sunday, Apr 9th

Create an interactive visualization system to explore the cause of loss indemnities dataset for 2015 available at <http://www.rma.usda.gov/data/cause.html>. A corresponding cleaned data file is provided in Blackboard – “*losses2015_transformed.csv*”. You are asked to create an interactive multiform visualization system in Tableau, D3 and separate single forms in Vega. For your reference, a working system developed in Tableau can be accessed at the following URL

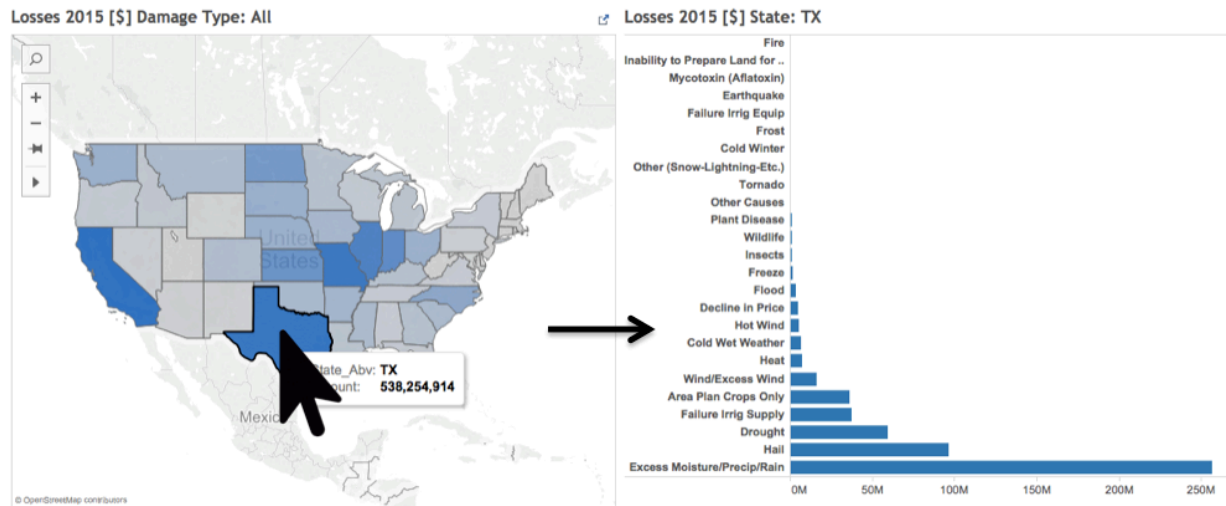
<https://public.tableau.com/profile/gabriel.terejanu#!/vizhome/USDALosses2015/Dashboard>.

The visualization system should contain two views: (1) a choropleth map on the left that shows state boundaries and uses a sequential segmented colormap to encode the total amount of losses, and (2) a bar chart on the right that expresses the amount of loss with aligned horizontal position and separates the damage type with vertical position. The marks are ordered by the loss amount attribute that encodes the size of the bar. When no interaction is available the entire data set is used to generate the two views. Namely the colormap encodes the sum aggregated losses of all types of damage and the bar chart encodes the sum aggregated losses for all the states, see below.



The following two data files are provided: **us-10m.json** – containing state boundaries, and **losses2015_transformed.csv** – containing the 2015 indemnities per state.

Interaction and linked views: When the user hovers over a state on the left view then the bar chart will show only the data related to that state. Aggregation of losses is no longer over the entire US, rather it is only over the highlighted state (e.g. TX) – see below.

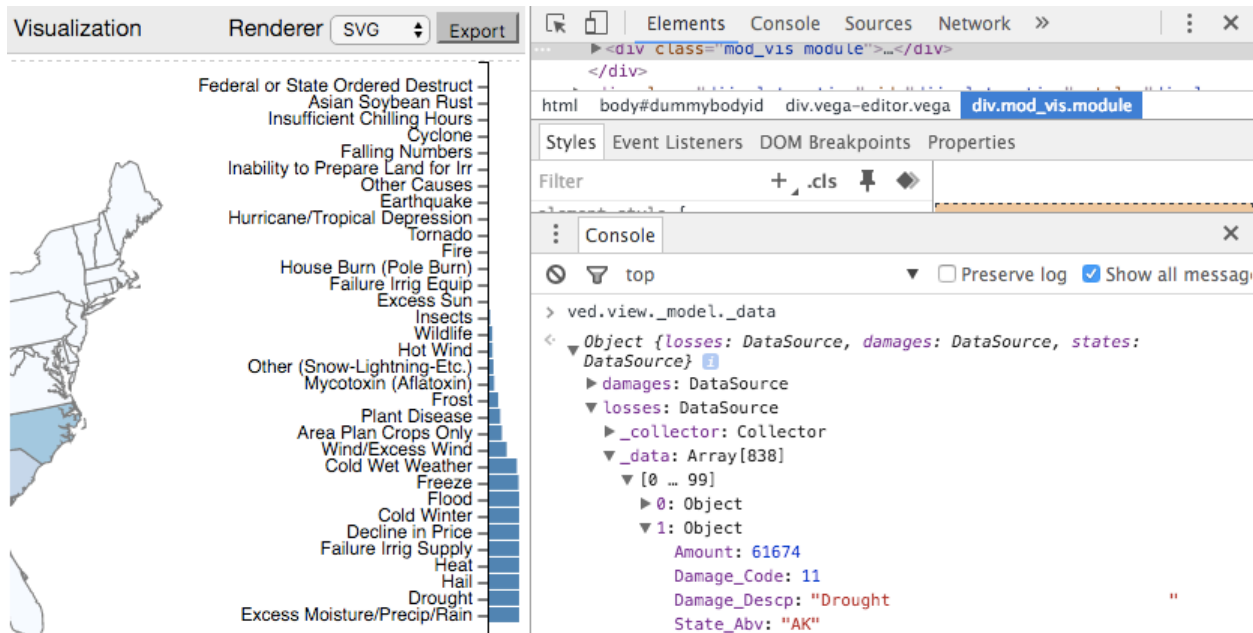


What to submit:

1. [20pts] For Tableau – just the link to your Tableau visualization system.
2. [50pts] For D3 - a zip file containing the following files:
 - a. *index.html* – the web page used to access your visualization
 - b. Any data files that you have generated in addition to two data files provided.
3. [30pts] For Vega – a zip file containing the following files:
 - a. *choropleth.json* & *barchart.json* – the Vega specification file
 - b. *index.html* – the web page used to access your visualization
 - c. Any data files that you have generated in addition to two data files provided.
 - d. **NOTE:** you are not required to create the entire interactive visualization in Vega. You are only required to generate 2 separate visualizations. (1) choropleth map that encodes the sum aggregated losses of all types of damage and (2) bar chart that encodes the sum aggregated losses for all the states.
4. [BONUS 10pts] Add interaction and link the two views in Vega. Submit in addition the full specification *visualization.json* along with the other files as listed above.

Please submit all your code via BlackBoard.

Note – to make the debugging of the Vega visualization system easier I recommend installing a local HTTP server such as **Apache HTTP** (<https://httpd.apache.org>) and the **Vega Editor** (<https://github.com/vega/vega-editor>) to be able to work offline. To make the debugging of your visualization easier, use **Inspect Console** in your browser and inquire about **ved.view** object. To inspect whether your dataset has been loaded - just type in **ved.view._model._data** – see below.



Graduate & Honors Students

You are required to create an additional interaction. Namely when the user hovers over a bar corresponding to a specific type of damage then the map encodes only the data related to that damage. Aggregation of losses is no longer over all damage types, rather it is only over the highlighted damage (e.g. Drought) – see below.

