**Lab 2**

**Refining Graphs**

In this lab, you will learn how to:

\*Using advanced sort options

\* Combine categories and create hierarchies

\*Add context information such as reference lines and uncertainty bands

The lab can be completed independently, using the techniques depicted in the videos. Sections will provide guidance using Tableau which will aid completion of the lab.

**Videos**

*Aggregating data – grouping data, advanced sorting techniques.*

[http://www.tableausoftware.com/learn/tutorials/on-demand/analyzing-0](http://www.tableausoftware.com/learn/tutorials/on-demand/analyzing-0?signin=ee537133df4d5096e208329fb64023c1)

<http://www.tableausoftware.com/learn/tutorials/on-demand/sorting>

<http://www.tableausoftware.com/learn/tutorials/on-demand/grouping>

**Practice**

* Open Tableau and import data from Excel file (USstates.xlsx)
* Create two plots, and place each in a new dashboard called ‘Practice 1’. Create an annotation saying which plot you prefer.
  + Barplot of state GDP in 2013:
    - Group states according to region.
    - Sort states in decreasing order within each region by 2013 GDP.
    - Sort regions in decreasing order by 2013 GDP.
  + Dotplot of state GDP in 2013:
    - (Same as above plot) Group states according to region.
    - Sort states in decreasing order within each region by 2013 GDP.
    - Sort regions in decreasing order by 2013 GDP.
* Create a barplot of GDP in 2013.
  + Change bars to vertical orientation
  + Sort bars in decreasing order according to **GDP in 2010**.
  + Exclude all U.S. territories and the District of Colombia
  + Group the 40 states with the smallest GDPs and rename the group to ‘Rest of the Country’
  + Place in new dashboard called ‘Practice 2’
* Create a scatterplot of population in 2010 vs. GDP in 2010.
  + Change the population axis to have a logarithmic scale
  + Change range of the axis to minimize empty space
  + Add reference lines showing median population and median GDP.
  + Place in a new dashboard called ‘Practice 3’

**Assignment**

**Due Date: January 26, 2018, 6:00 pm. Value: 10 points**

1. Connect to the US state dataset (usstates.xlsx) in Tableau.
2. Create a barplot of states total area (**3 pts**.)
   1. Group states by region
   2. Sort states within each region according to their land area.
   3. Sort regions according to the total land area within each region.
   4. Change the graph to a dot plot.
   5. Place EITHER the dot plot or the barplot (the one you think looks better) in a new dashboard called “Exercise 1”. Annotate the dashboard with a text box describing which graph you prefer and why.
3. Create a barplot of state population in 2010. (**4 pts.**)
   1. Change bars to vertical orientation.
   2. Filter our all U.S. territories and the District of Colombia.
   3. Combine the 10 smaller states into a single category called “Other State”.
   4. Sort states according to their population in **2000.**
   5. Place the barplot in a new dashboard called “Exercise 2”.
4. Create a scatterplot of state population vs. total area in 2010. (**3 pts.)**
   1. Change both axis to have a logarithmic scale
   2. Change the minimum and maximum values of the axes to minimize empty space in the graph
   3. Add reference lines showing median state population and median total area of the states
   4. Place the scatterplot in a new dashboard called “Exercise 3”