**Lab 3**

**Advanced Topics**

In this lab, you will learn how to:

\*Create new variables using your data set

\* Sort and color visualizations based on calculated fields

\*Implement statistical plots and metrics in Tableau

**Videos**

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

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

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

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

**Practice**

* Connect to the US state dataset in Tableau
* Create and put the following graph in a dashboard called ‘Practice 1’:
  + **Side by side dot plot of GDP in 2010 and 2013 by state**:
    - Select ‘GDP 2010’, ‘GDP 2013’, and ‘State’ and make a bar plot
    - Use the dropdown menu under ‘Marks’ to change from ‘Automatic’ to Circle
    - Sort the states in decreasing order by GDP in either 2010 or 2013
* Create and put the following two graphs in a dashboard called ‘Practice 2’:
  + First create a calculated field called ‘GDP Percent Growth’ corresponding to percentage growth in GDP from 2010 to 2013. (Hint: percent growth = (new - old) / old )
    - **Make a copy of the side by side dot plot of GDP in 2010 and 2013 (described above.**
    - Sort the states in decreasing order by ‘GDP Percent Growth’.
  + **Create a bar plot of ‘GDP Percent Growth’.**
* Create and put the following plots and table in a new dashboard called ‘Practice 3’:
  + **Create a histogram of GDP in 2010**
  + **Create a boxplot of GDP in 2010**
  + **Create a barplot of GDP in 2010 by state.**
    - Sort the barplot in decreasing order.
    - Display the following summary statistics (Worksheet > Show Summary):
      * Average, minimum, maximum, median, standard deviation.
  + **Create a scatterplot of population in 2010 vs GDP in 2010**
    - Add a trend line
    - Compute the correlation coefficient r between population in 2010 and GDP in 2010. Write the correlation in an annotation on the plot.

**Assignment**

**Due Date: February 2, 2018, 6:00 pm. Value: 10 points**

* Connect to the US state dataset in Tableau
* Create and put the following graph in a dashboard called ‘Exercise 1’:
  + **Side by side dot plot of Population in 2000 and 2010 by state**:
    - Sort the states in decreasing order by **population** **in** **2010.**
  + What insights does this visualization give you? Can it be improved? Add comments to the dashboard

(2.5 pts)

* Create and put the following two graphs in a dashboard called ‘Exercise 2’:
  + First create a calculated field called ‘Population Percent Growth’ corresponding to percentage growth in state population from 2000 to 2010.
  + **Make a copy of the side by side dot plot above.**
    - Sort the states in decreasing order by ‘Population Percent Growth’.
  + **Create a bar plot of ‘Population Percent Growth’.**
  + Which chart shows more information? Which is more useful? Add your comments to the dashboard.

(2.5 pts)

* Create and put the following plots and table in a new dashboard called ‘Exercise 3’:
  + **Create a boxplot of population in 2010**
  + **Create a histogram of population in 2010**
  + **Create a barplot of population in 2010 by state.**
    - Sort the barplot in decreasing order.
    - Display the following summary statistics next to the plot:
      * Average, minimum, maximum, median, standard deviation.
  + **Create a scatterplot of population in 2010 vs GDP in 2010**
    - Add a trend line
    - Compute the correlation coefficient r between population in 2010 and GDP in 2010. Write the correlation in an annotation on the plot.
  + What do these plots indicate about the distribution of population in 2010? Answer in a comment. (5 pts)