

CDS 301/501 - Homework 3

Due Date

4:30pm, Monday February 17th, 2020

Please submit one pdf file to blackboard - it should have 3 visualizations from problem 1 in it as described below.

Problem 1

Use the dataset in the excel file “va-counties-0.xlsx” to build two statistical maps of population density of the counties/cities of Virginia as described below. (Note that the Excel file has two tables - you will join these together in step 1.)

Basic outline of the steps to complete:

1. Use an inner join to join the two tables in the dataset - make sure to use the appropriate field names to join the tables on.
2. Pivot the dataset - There are multiple years per row, as we demonstrated in class you can correct this by pivoting the data. Steps: Select all of the year columns together, right click and select “Pivot”, then rename the resulting columns to [Year] and [Population].
3. Define two calculated fields (I’m using the Tableau square bracket notation style here...). The first is [Density] which is just [Population] / [Area Sq Mi]. This gives us the number of people per square mile for the county or city. The next calculated field [Density Category] is a categorical variable you will define based on [Density]. Use these ranges: [Density] > 7000 is “Urban”, [Density] between 1000 and 7000 is “Mixed Urban”, [Density] between 200 and 1000 is “Mixed Rural” and [Density] below 200 is “Rural”.
4. Build the visualizations as follows:

Create a filter on [Year]. For the visualizations below, filter out all years except 2018.

Choropleth 1 - Use [Density Category] to color the counties/cities. Select colors that highlight Urban, Mixed Urban, and Mixed Rural by selecting a more subdued color for the 'Rural' counties. Use Tableau’s Color Blind Palette to select from. Include visualization in your report.

Choropleth 2 - Use [Density] to color the map using a diverging color scale, selecting midpoint (Center) of the scale to be 1000 people per square mile. Include visualization in your report.

Make sure both visualizations have appropriate titles, legends color schemes as described and export both visualizations from Tableau.

Finally, using the first Choropleth - test it against a color blindness simulator. Drag and drop the image to the color blindness simulator at:

<https://www.color-blindness.com/coblis-color-blindness-simulator/>. Test it against Deuteranomaly and take a screen shot of this last step and include it in your report.