Communicating with Maps
Spring 2015 Workshops – Spatial Analysis Lab

Overview:

1. Create Choropleth Map: Total Alums by State
2. Create Choropleth Map: Total Alums by Zip Code in New England
3. Saving and Exporting Map
4. Optional Map Challenges

**In windows explorer locate the following map and double-click to open:
Q:\Classes\Workshops\Spring2015\Alumnae\Smith_Alumnae_Atlas.mxd

Map 1: Total Alums by State
Use *quantitative* symbols to show the number of Smith alums living in each state:

1. To activate the a specific data frame (one of the two map frames), right-click on **Total Alums by State** in the Tables of Contents, and choose **Activate** in the drop-down list
2. Right-click on the name of the Alums_State layer, from the list choose **Properties**
3. In the properties window select the **Symbology** tab
4. Change from **Features** – **Single symbol** to **Quantities** – **Graduated colors** – this will display feature symbology based on a quantitative data field
5. For Value choose **Total_alum** from the drop-down, click apply to see changes on the map
6. Spend some time choosing a preferable color scheme using the color ramp, click **OK**

7. Add map elements: title, legend, north arrow
    a. Go to **Insert** and drop-down to locate all three elements
    b. See one-pager for additional instruction

Map 2: Total Alums by Zip Code in New England
Same idea as before, this time using data gathered at the zip code level:

1. Remember to activate the current data frame (Alums by Zip Code New England)
2. In the properties window of the layer Alums_Zip select **Quantities – Graduated colors** to show the number of Smith alums living in each New England zip code. Use the **total_alum** field as the Value
3. Think carefully about color scheme, and add map elements: legend, scale bar, and title.

Saving and Exporting Map
Now that the symbology for both maps is finalized and the map elements have been added, take some time to make any final touches to the map – consider extent and zoom of the map, placement of legend, legend title and labels – reference the one pager for symbology and layout view support

Save your map to the local C: drive by going to **File – Save As** and choosing a location for the mxd (map document)
To save the map as a pdf: Go to **File – Export**, choose pdf. Save this on the C: drive as well. You can email the pdf to yourself as a way to make it accessible outside the lab.

Additional Map Challenges
Now that you've saved a static copy of your map, explore other symbology options for the maps:

Alums by Decade:
Explore other data fields in the attribute table – display number of alums by decade of graduation:
1. Right-click on the layer name Alums_State, choose **Open Attribute Table** from the drop-down list
2. Scroll to the right and scroll down in the table to see all of the fields (columns) of data displaying specific attributes of the features (rows) – notice the total alum data is divided into the decade of graduation in the fields to the right, decide on a decade to map
3. In the properties window for the layer Alums_State, use *quantitative* symbols again, this time choose your specific decade from the drop-down list for Value
4. Choose a color scheme and click **OK** to finish

Normalizing Data – Alums by State per Capita:
Integrate population data into the equation to display alums as a percent of state population:
1. In the properties window use *quantitative* symbols, choose **Total_alum** as the Value field, and this time use **POP2010** as the Normalization field
2. Notice the resulting numbers are presented as decimals, change the labels in the window by selecting the text. Remove two zeros and add percent signs to change the labels to display percentage, click apply and notice how the map legend changes. Normalizing is important because it allows us to minimize differences in values based on the size of areas or the number of features in each area – in this case population.

Label
0.001348% - 0.009879%
0.009880% - 0.02375%
0.02376% - 0.04893%
0.04894% - 0.08511%
0.08512% - 0.2097%