TEXAS A&M UNIVERSITY

Response Template

GEOG 390 / GEOG 660
Lab 3 – Mapping GIS Data

Name:
Date:
Section:

Ch. 2 Tutorial Questions

All screenshots should have the Map Scene window and Contents Pane (with symbology for all visible layers shown). Refer to Figure 3 in Lab 1's instruction document.

Begin tutorial on page 60

1. **Question 1 (after step 15.6):** After step 15 on pg. 64: If you uncheck a layer in Contents while in List By Labeling view, does it remain unchecked if you switch to List By Drawing Order view? (True/False)

   true/false: False

2. **Question 2 (after step 21.1):** What is the data type of the NAME and KNOWN_ERUP (-999 means no data for that field for that specific row) fields in the volcanoes data set? Use pg. 48 for reference.

   NAME data type: nominal

   KNOWN_ERUP data type: ratio

3. **Question 3 (after step 29.3):** Highlight Volcano Type in the Contents pane. Open the Symbology Pane (if it isn't open already). In the Symbology Pane click More > Symbols > Reverse Order. Does this feature only reverse the symbols? (true/false)

   true/false: true

4. **Question 4 (after step 30.1):** Use the Select by Attributes tool to build a clause to find how many rows in the table have 'I' (Interstate) as their HWY_TYPE field value. Edit the clause to find the number or rows for 'U' (US highway) and 'S' (state highway) separately. Write the number for each.

   # Interstates: 95

 # US highways: 653

 # State highways: 1151

5. **Question 5 (after step 32.5):** Why wouldn't a graduated symbol or proportional symbol map be good choices to display COUNTY population data (3-4 sentences)? Use pgs. 48-49 and class notes to support you answer.

   Explanation (3-4 sentences): Counties have defined polygons and are placed immediately next to one another. Changing the symbol or using proportional representation would be less helpful as that would hide the boundaries of each county. For example, the proportional representation could allow the counties to overlap and hide small counties, or if a circle is used, then it is entirely unclear what county each symbol represents. This also applies to graduated symbols, since setting the symbol according to a formula rather than the polygon boundaries would hide the true county limits.

6. **Question 6 (after step 46.3):** Is *gtopo1km* a thematic or image raster? Discrete or continuous? Use pgs. 51-53 for reference.

   Thematic/Raster: Thematic

   Discrete/Continuous: Continuous

7. **Question 7 (after step 53.2):** What is a monochromatic map? Explain why would it be appropriate be acceptable to display *slopeclass* (2-3 sentences)? (hint look at pgs. 48 & 52).

   Monochromatic map definition: Map that uses a single color (from light to dark) to represent some data set. An example could be showing elevation from light orange to dark orange.

   Explanation (2-3 sentences): Using a monochromatic map is appropriate to display "slopeclass" because that dataset goes from low values to high values. A monochromatic map is used to show increases, so it makes sense to apply that map type to this dataset.

Ch. 2 Practice Exercise

Choose ONE of the following Map Scenes to complete:

1. **Volcanic Hazards in Oregon**

   a. Show the population density per county, also display hospitals.

b. Create a proportional symbol Map Scene of the volcanoes based on the KNOWN_ERUP field. Display the county and volcano labels.

2. Agriculture in Oregon

a. Show the density of farms per county in Oregon.

b. Create a Map Scene showing the transportation routes, symbolized by type (road type, rail, and air).

3. Housing in Oregon

a. Create a map scene showing the vacancy rate of the counties. Choose which field is most appropriate to "normalize" this data. Label the county names.

b. Show the major cities data set (*majcities*) symbolized by population.

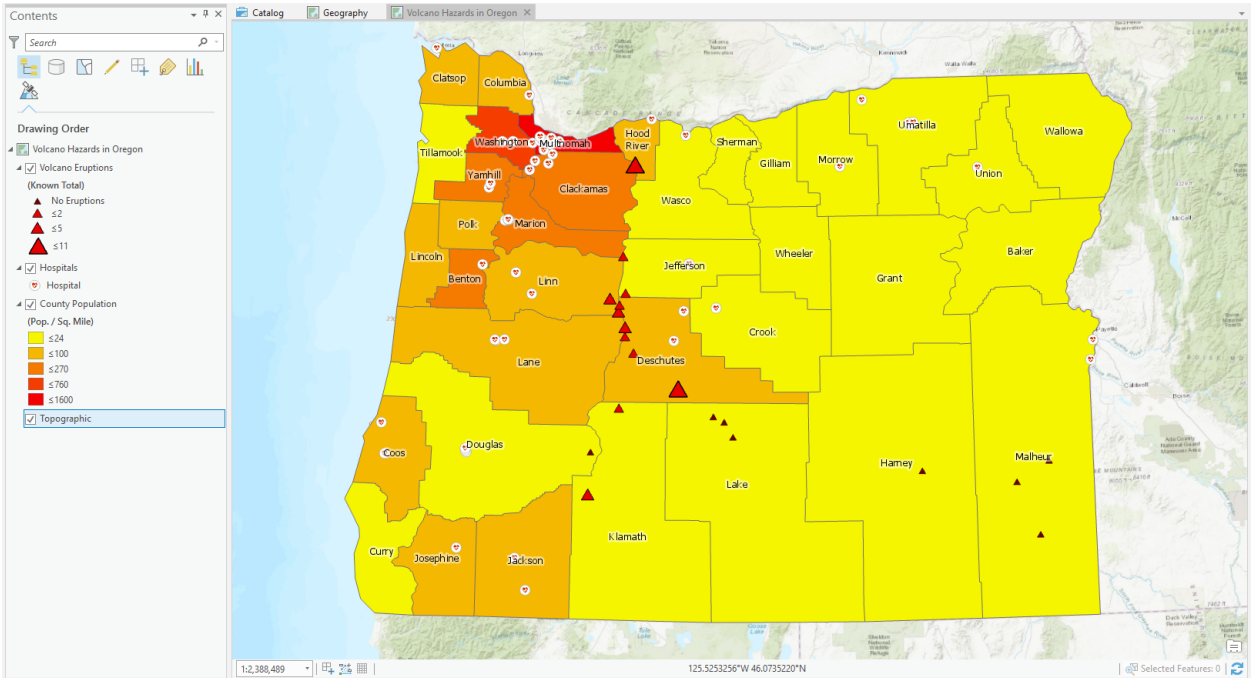
***Be sure to use good classification schemes, rounded label values, and appropriate significant digits or decimal places. Be sure each layer has an informative, legible name.**
Once you complete your Map Scene:

a. Take ONE screenshot of it (include the Contents pane with each layer expanded).

b. Put an appropriate caption underneath it.

c. Write a 250-500 word (single-spaced) response discussing anything noticeable/interesting observations you see from the data you displayed.

Insert captioned screenshot of Map Scene below:



Map of Volcano Hazards in Oregon with Population, Volcanoes, and Hospitals

Write 250-500 word response below:

The first thing I noticed about the above map is that hospitals are a pretty good indicator of population. The counties marked in red and dark orange by far have the highest concentration of hospitals. Which makes sense as those are the most densely populated areas. On the other hand, some counties have no hospital at all, and those are the least densely populated areas.

Related to this, the most active hurricanes are in Hood River county to the north and Deschutes county in the middle of the state. For the one in Hood River there is a higher risk of damage and casualties, but this is at least mitigated by the high concentration of hospitals to match the population. On the other hand, the volcano in Deschutes county has a decent population density in the county but there are only 2 hospitals. In the event of an eruption this county is less well off.

Additionally, in Deschutes county and the counties on its eastern border -- Linn and Lane – there is a dense pod of smaller volcanoes. This could pose a risk since there are hospitals in the counties listed, but the hospitals are far away from the volcano zones, which would post problems when injured people need to be evacuated so far; the hospitals might be too far away.

Unrelated to safety, it's interesting that the active volcanoes are concentrated into an almost straight north-south line. This presents good evidence that these volcanoes are present due to the sublimating pacific ocean plate beneath the north American plate, if I remember my geology 101 class correctly. Also, it is notable that the population is almost exclusively concentrated to regions that are next to a body of water: there is the obvious connection to the ocean, but most of the concentration is along the inlet near Portland.

When finished, save the Response Template as a PDF and upload it to Lab 3's Assignment Dropbox on eCampus.