

Spring 2020 Assignment Visualization

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Cloud Computing

- Visualization
- Get the earthquake data set
- <https://earthquake.usgs.gov/earthquakes/feed/v1.0/csv.php>
- Choose past 30 days, all earthquakes
- Download, copy to MicroSoft Azure Cloud
- Put into a SQL table, index appropriately

Cloud Computing

- Visualization
- On the cloud provider, create a web interface that will be available to an external user (a **local** user) who will be given a “form” (your choice how) where there are a group of inputs, the first being the operation to be done, this may be (any one of the following):
 - 1. show results numerically in a table,
 - 2. show results in a pie chart, where the labels will be outside each pie slice, and the color of each pie slice will be different, the pie will occupy between 70 to 80% the width of the screen on the device used to display

Cloud Computing

- Visualization
- 3. show results in a vertical bar chart, where the labels will be inside each bar, and the color of each bar will be different, the chart will occupy between 80 to 95% the width of the screen on the device used to display
- 4. show the results in a point (or scatter) chart, where the labels will be on each axis (x,y) inside each bar, the chart will occupy between 80 to 95% the width of the screen on the device used to display

Cloud Computing

- Visualization
- The second part of the form will select data operations, and ranges
- Ranges may be:
 - from Min to Max, in N groups, for example if Min is 2, and Max is 6, and N is 4, there are 4 ranges 2 to 3, 3 to 4, 4 to 5, and 5 to 6
 - N will be greater than 0, but may be less than 1 (for example 0.5)
 - Min will be less than Max

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- Visualization
- The second part of the form will also select data operations
- These data operations may be
 - 1. count number of events or data in range (for example Richter scale or latitude)
 - 2. or for a magnitude range (for example 3.2 to 3.4) use “gap” and “depth” as (x,y) pairs

Cloud Computing

- Visualization
- So, for example, a user can select:
- Operation = 1 (show table), Range = {Min=2,Max=10,N=2}, Data operation = magnitude (Richter)
- And you show a table counting the total of all of the earthquakes within magnitude groups 2 to 4, 4 to 6, 6 to 8, and 8 to 10, that is 4 entries in the table with a count for each group

Cloud Computing

- Visualization
- Changing the operation to 2, pie chart:
- Operation = 2 (pie chart), Range = {Min=2,Max=10,N=2}, Data operation = magnitude (Richter)
- And you show a pie chart counting the total of all of the earthquakes within magnitude groups 2 to 4, 4 to 6, 6 to 8, and 8 to 10, that is 4 pie slices

Cloud Computing

- Visualization
- Changing the operation to 4, scatter plot:
- Operation = 4 (plot), Range = {Min=5,Max=5.5,N=Doesn't matter},
Data operation = Doesn't matter
- And you show a scatter (or point) chart for the (X,Y) range of magnitude between 5 to 5.5, for ***all*** points in that range where “gap” and “depth” are (x,y) pairs

Cloud Computing

- Visualization
- All of these should be done with Javascript (packages)

Cloud Computing

- On: March 30, we will try quiz 0a, just to try out the new quiz method
- It won't count, it is an experiment
- It, the quiz, will be most likely on Teams rather than Canvas

Cloud Computing, Reminder

- The goal of this type of visualization is a “zero install” on the client, that is that the client does not need some local software installed
- Javascript is the “traditional” (easy) way to do so
- D3.js or one of the (many) derivatives work well, and are easy to use
- Javascript allows anyone with a connection and js on a browser to see the pretty pictures (tablets, phones, smart watches, glasses)

Cloud Computing

- Questions?