**CPSC 583 – Assignment 3**

**Cereal Obesity Poverty Report**

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**Links**

Map: <http://pages.cpsc.ucalgary.ca/~nguc/A3/us-map.html>

Parallel coordinate: <http://pages.cpsc.ucalgary.ca/~nguc/A3/nutritional-values.html>

Line charts: <http://pages.cpsc.ucalgary.ca/~nguc/A3/category-graphs.html>

**Description**

Data was collected to see if there were any relations between a states’ favourite cereal and obesity rates. The obesity rates of each state were also collected for 5 different groups; gender, income, age, education, race. This data set also included nutritional information about many different cereals that are available in the United states.

This was a very large data set and if we were to read the raw data it would be very difficult to make any sense of the data and see any relation between different cereals and their effect on obesity rates. By visualizing this data, we would be able to organize the data in such a way that would allow use to see if any trends arise from the data and if there is any correlation between obesity rates in a state and their favourite cereal.

**Directions and change**

Initially I wanted to display all the data that was collected and show them all on the same graphic. But then I decided to reduce the amount of data shown because I wanted to focus more on the obesity rates of the different classes and focus less on the cereal and the amount of exercise and different levels of obesity there are in each state. I decided to go this route because as I was working with the data I noticed that there was not a strong correlation between a states’ favourite cereal the obesity rates in that state and that obesity rates mostly varied within different social classes.

I also decided to split my visualizations up into three different visuals because they each represent a different part of the data and putting all three on the same page may have been too cluttered. Although the map visual and the parallel lines visual could have been combined to show what the nutritional information of each states’ favourite cereal is.

**Representation**

For the obesity rates I decided to use a map representation because I think that this representation easily shows where in the United states there is the highest rates of obesity and that the uses of a colour gradient that moves from green to read allows the user to understand the severity of the obesity rate. I like using the green to red gradient because people instinctively know that green means good and that red mean bad and as the map becomes darker, the worse an area becomes.

I decided to use a table to show the favourite cereal of each state because it is an easy was to look up that information. Organizing the table by state in alphabetical order further simplifies the look up process.

For the nutritional information I decided to go with the parallel coordinate because all cereals have the same information on them. This representation allows you to follow the line and see, as well as compare, nutritional information with other cereals. I chose to make the lines different colours so that you could differentiate each line as belonging to a different cereal. I also added in the feature to highlight a single cereal so that you could focus on the information of that specific one. I removed the manufacturer, serve, and type columns from the data as I didn’t think it was very relevant to the data that I was trying to show, which was the nutritional information.

The obesity survey multiyear data set had a lot of information and I though it would be helpful to visualize all the data at the same time to show how different obesity rates were different in each classification. I decided to use simple line charts because it is easy to read the data points as well as show how the obesity rates change over time. I also decided to use different coloured lines to show the different groups within each of the categories. The x-axis (time) of each graph stayed the same but I varied the y axis because I wanted to keep the size of each graph consistent. So, the y axis of each graph starts at the lowest value in that data set and goes up to about the max value in the data set. I chose to label each line individually instead of creating a legend because I think it is easier to see the how each line is impacted by its category. Also, because this data set was so big I only showed the data for one state at a time so, I added in a drop-down menu that allows the user to switch between different states.

**Presentation**

For the map I wanted the map to be the first thing that a user sees because it sets the precedence for the following information. I then had the table of favourite cereals below the map because it is not as important, and the user can scroll through it if they wanted to find that information. The map could have been more condensed or maybe I could have made it so the map showed the favourite cereal when you hovered over each state to make the visual more condensed.

For the cereal nutritional information, I wanted to use an entire screen because there is a lot of data to be shown. I made it so that graph would fit onto a single screen but the visual has to be fairly large so that the labels will be readable.

For the line graphs of the different stratifications I made it so the graphs would all be on the same page and arrange in some kind of side-by-side way so that you can see how obesity rates are different for each group. I would prefer if the dropdown menu near the top of the page but if a monitor is big enough, the menu at the bottom is not a big problem. The menu is the only indicator of which state you are looking at, so having it at the top would allow the menu to act as a title as well.

**Interaction**

For the map there is not any interaction that the use can do, it is more just a quick visual of the overall obesity rates in the united states and a static table to look up a states favourite cereal.

For the parallel coordinates for the cereal information, you can hover over a line and that will cause it to be highlighted while the rest of the lines will fade slightly. This will allow the user to have more focus on the line they want to follow and make it easier to read the information.

For the line graphs the user is able to choose which state they would like information on by selectin on a state through a drop-down menu.

**Positive features**

There are three unique was of looking at the data in the data set. I think that the interactions that were added aids the user in being able to focus on the smaller sets of the data so that they are not overwhelmed. I think that the data is easy to read and gives a general idea of the trends that are present in the original data set that was given.