H590 Interactive Visual Analytics

Project 2 Documentation

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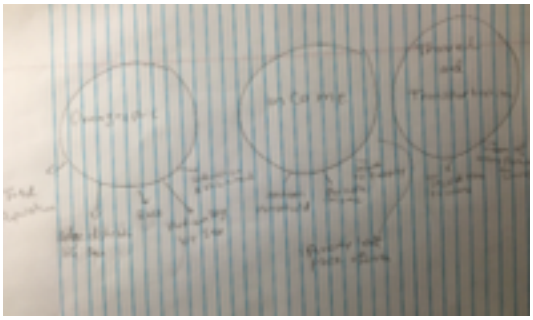
Preview:

Data Sources:

*We will be analyzing the **2015 American Community Survey (ACS)**. The ACS dataset is annually compiled by the US Census, and designed to provide broad demographic and socio-economic characteristics of the US population.*

Design Process:

At the beginning of the project, we defined the requirements, and tried to see some observations inside them to think how the visualization is going to be. Then we defined the data to be presented before start designing, and discussed about the dimension required to represent the data. In addition, we focused into any specific factors that are unique to show the visualization. For example the ability with data handling.



After walking through the all the data sets, we decided to categorized them into 4 sections which are ***Demographic, Income, Time to Travel***, and ***Means of Transportation.*** The followings are initial pencil sketches.

Figure 1: pencil sketch 1

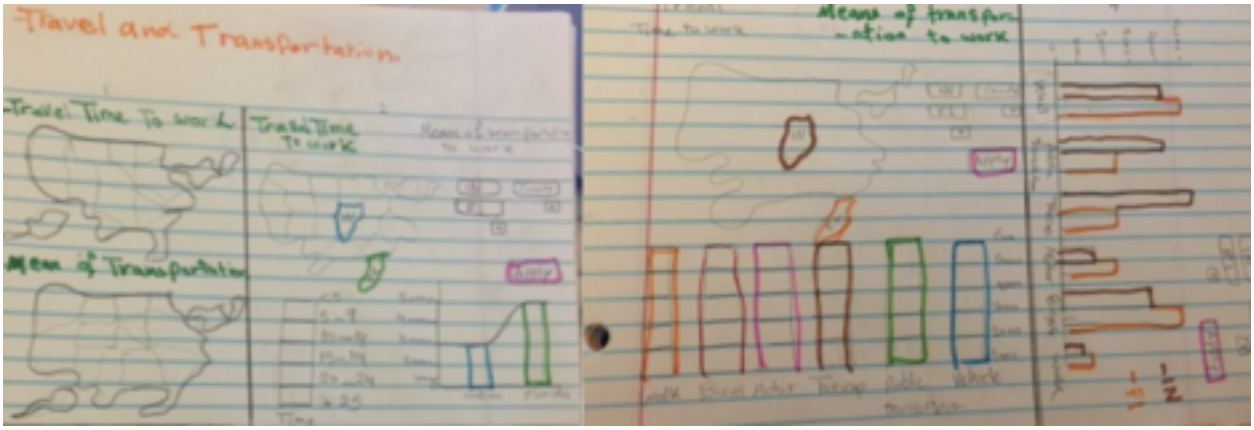


Figure 2: pencil sketch 2

Then we started prototyping by using the tool ***Sketch*** to make detailed design and flow of interaction. We also designed logo and icons of this data visualization website. The followings are the design assets and prototyping images.

Figure 3: logo and icons

This is the home page of the website, users can view the visualized data of each categories by clicking the icons, also they can view eight maps at the first sight to see the comparisons between related variables.

Figure 4: Home page design

Figure 5: 2nd level page design

Figure 5: Comparison page design

We also decided to make an infographic poster to illustrate the data of top 10 population ration by different means of transportation.

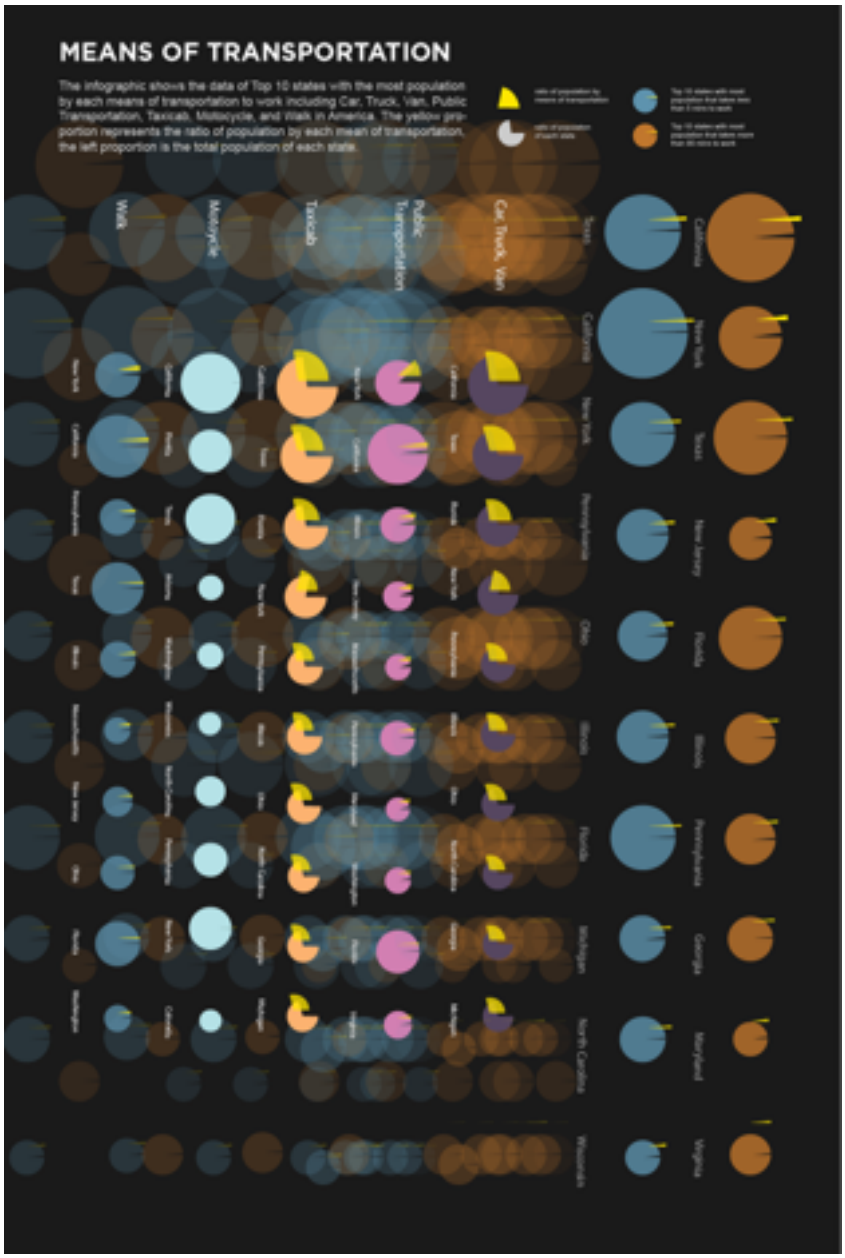


Figure 6: Infographic of Top 10 states with most population by means of transportation

Rationale of design choices:

Our aim is to is to compare between related variables by showing multiple geographical variables as separate choropleth maps. Introduction page is the first page that we designed as portal leads to the visualization.

Titles:
we put the titles at the top to make it easier for users to recognize what the maps are displaying. We also thought having a categories and subcategories at the top would be also helpful when the users print out the page.

Maps and Charts:
Firstly, we collect all the maps in one page to make it clear of what geographical variable we visualized, and each map show its own variable.
Selecting one map will show new page that includes information details by clicking in any state or county. In addition, there are charts with each maps that aims to facilitate comparison between related variables. And the legend part in the corner of the map, and it indicates to the information needed for the map such as showing data by color. Also we created two buttons that for choosing between states and counties, and each button has plus icon in case the users want to compare two or more states and counties. The colors we used are based on legend map and it shows different variables in many different area.

Findings with visualization：

At first stage and before the visualization becomes functional, we made data test by using Excel to see any interesting facts. For example, this graph comparing Total population with Public transportation in some high population states.
We noticed that California has highest rate of 40,000,000 comparing with other states, while Massachusetts, Maryland, and Virginia drop down to 5,000,000 (Figure 7).

On the other hand, by comparing Total population with people who use Ferryboat in highest population state, it is clear that people who live in Washington have largest percentage in this graph (Figure 8).

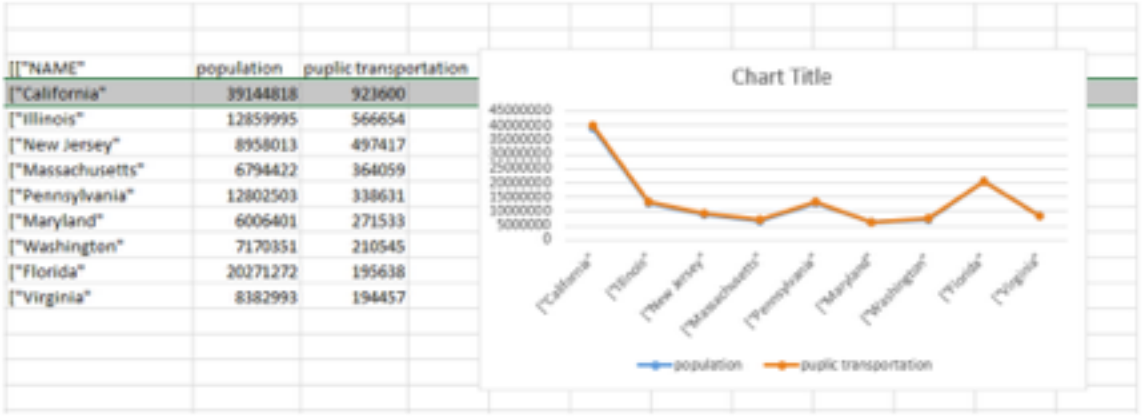


Figure 7: Chart 1

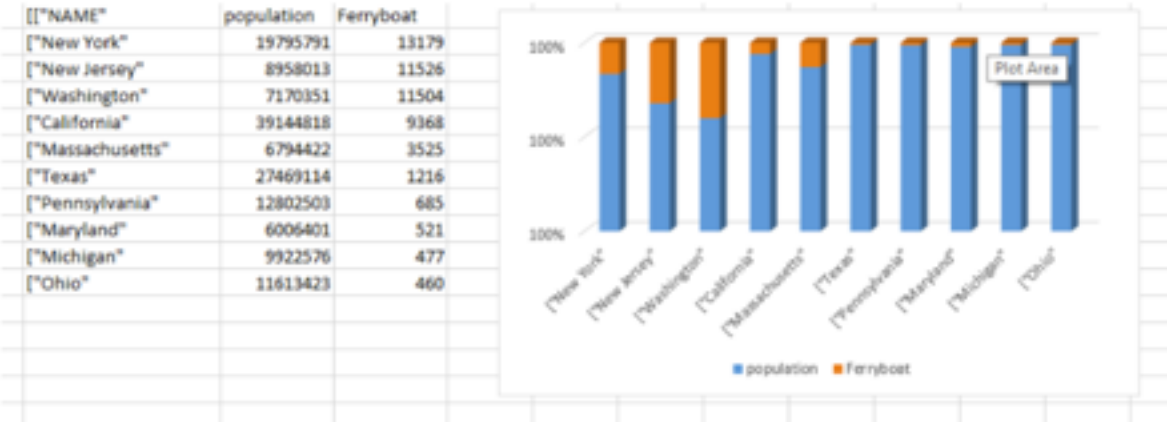


Figure 8: Chart 2

References

· Utilized codes from ***Choropleth,*** U.S. States ***TopoJSON***, U.S. Counties ***TopoJSON*** from bl.ocks.org as resources in studying and building a ***Choropleth*** map of the United States.

· Utilized codes from “Interactive Data Visualization for the Web” by Scott Murray in creating ordinal scales, bar charts, and tooltips

· Throughout the project, mostly referred to W3schools, MDN network, and GitHub D3 documents when searching for a way to implement a function, as well as ***Stackoverflow.***