Interactive Visual Analytics
Project 1
Studying the Energy Production and Consumption across countries for different sources or energies.

For designing the visualization, I started with analyzing the CSV files and understanding the attributes and values available. With the large amount of data available I thought of merging the CSV's for the production and consumption parameters as my initial approach for design. Merging of the CSV's was resulting in addition of extra parameter of production or consumption of the energy types for different years making the data set complex. Also with the data analysis, I also carried out the user interface design analysis for displaying the visualizations.

With multiple selectors available for the users in the form of country selection, energy type selection, and generation and consumption parameters, I decided to provide buttons and tabs for selection of parameters in a hierarchical manner to increase the intuitiveness of the interface. Also I considered showing the values on the bar charts for enhancing the understanding of the graph.

On a bar graph, I am displaying the Production data for different energy types. Also the country selection allows you to choose two countries and compare their production and consumption values. The bar charts show respective values on tooltips and also the consumption data can be seen by clicking on the consumption button and selecting the energy type. Once the energy type is selected you can select multiple countries to compare data for a particular energy type.

With the visualization, I could understand how the developed countries as compared to the developing and the under-developed countries vary in their energy production and consumption values. Developed countries despite of having very low production of energy of all types and which decreases over years, have consumption of energy increasing. There were also instances showing negligible production of renewable electricity and energy in some countries. The Analysis through visualization provided a deep insight and understanding of such a huge amount of data and helped me categorize the same data into an easily understandable format.

I have used different color coding for two countries to show the difference as well as different colors for production and consumption values as well. The Emission parameter had sharp peaks as discovered from the line graph which was very intense over years. As compared to the consumption and emission not much data was available for analysis for production with most countries having zero values.