PART A

DSC 106 Group 43 Final Project

Project Topic: The Change of Energy Consumption of Three Developing Countries (China, Mexico, South Africa) and Three Developed Countries (The United States, Japan, England) From 1980 To 2019.

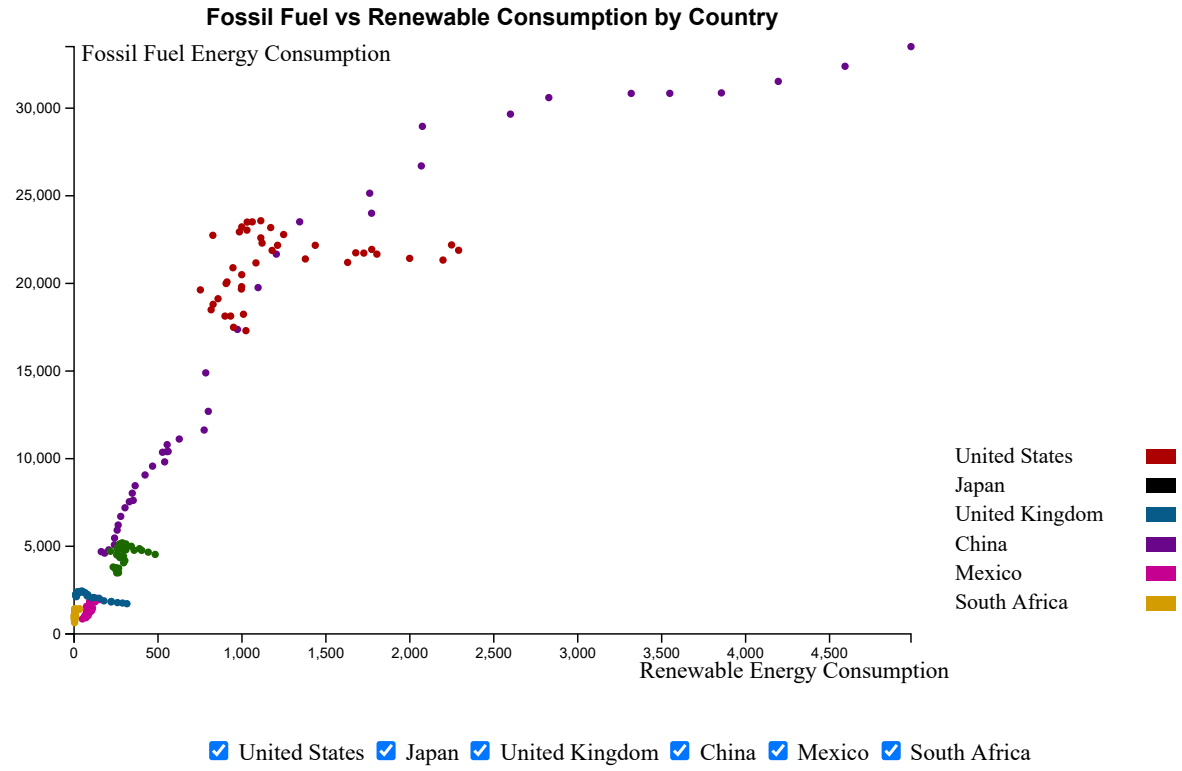
Plot 1:

Problem Statement:
Explore the relationship between fossil fuels energy and renewable energy consumption from 1980 to 2019 of the three developed and three developing countries. (scatterrplot) (tooltips & bottons)

Choice of color scheme:
This is a scatter plot that displays the relationship between renewable energy consumption and fossil fuel consumption, with each point being a recorded year. Instead of focusing how this relationship changes over time, I want to highlight the difference between countries. Each country has its own color with respect to the legend. There is no significance of the color or shade I chose for each country in relation to value, I chose them so the colors are very distinct and not too bright to easily distinguish the different countries.

Marks and channels:
Mark: dots
Channels: Colors, position

Plot:



☑ United States ☑ Japan ☑ United Kingdom ☑ China ☑ Mexico ☑ South Africa

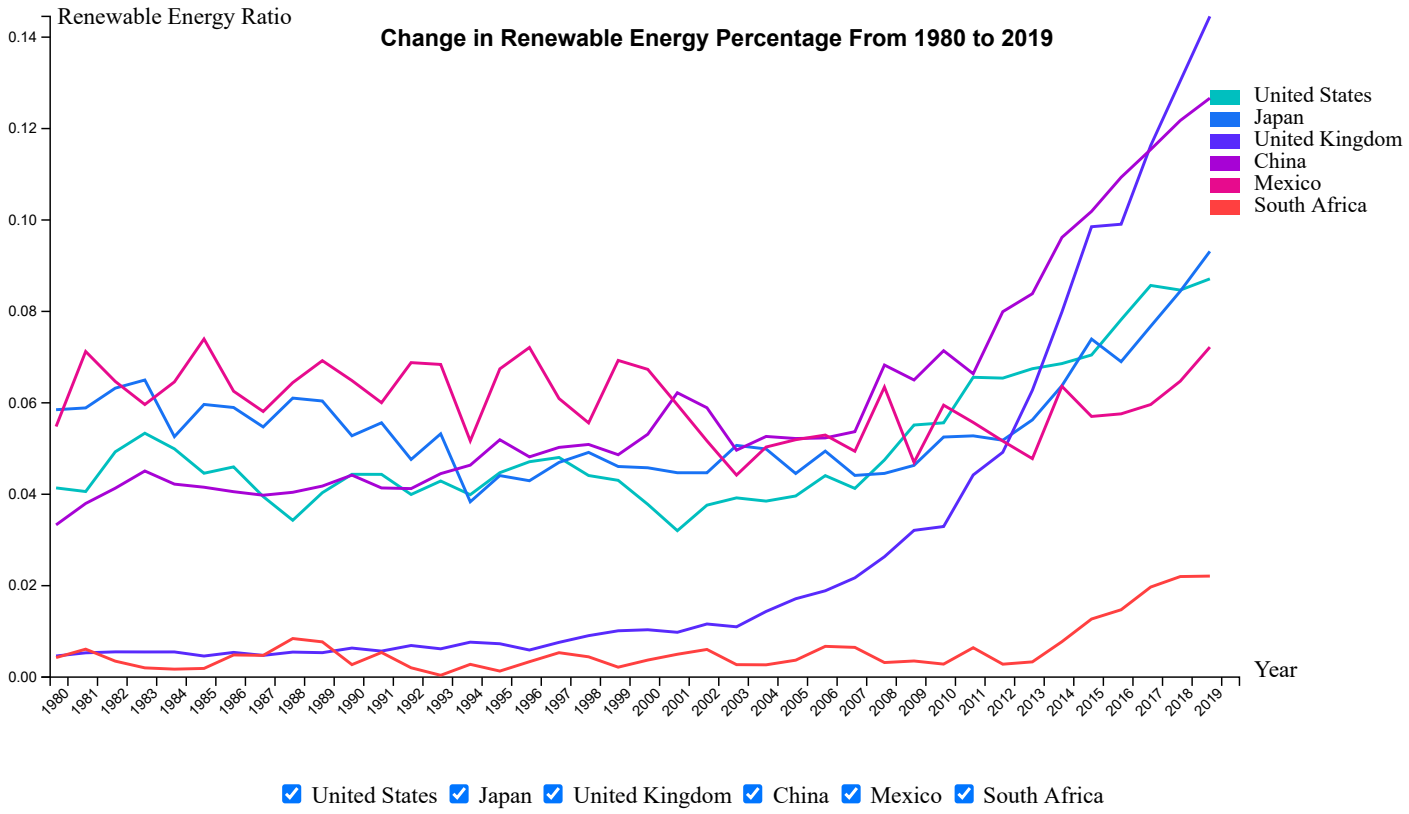
Question 2:

Problem Statement:
Explore the change of renewable energy percentage (renewable energy consumption / primary energy consumption) of the three developed and developing countries from 1980 to 2019. (lineplot) (tooltips & bottons)

Choice of color scheme:
Different colors are used to represent the array of countries. The selected color scheme is referred to as sinebow, and does well in distinguishing categorical variables. Additionally, the color scheme looks great and helps the user understand what is being visualized. The colors are not too bright, but also not too dark as well. However, there is no reasoning behind the specific hue chosen for each country, only the color scheme itself.

Marks and channels:
Mark: Line.
Channels: Color, Length.

Plot:



United States Japan United Kingdom China Mexico South Africa

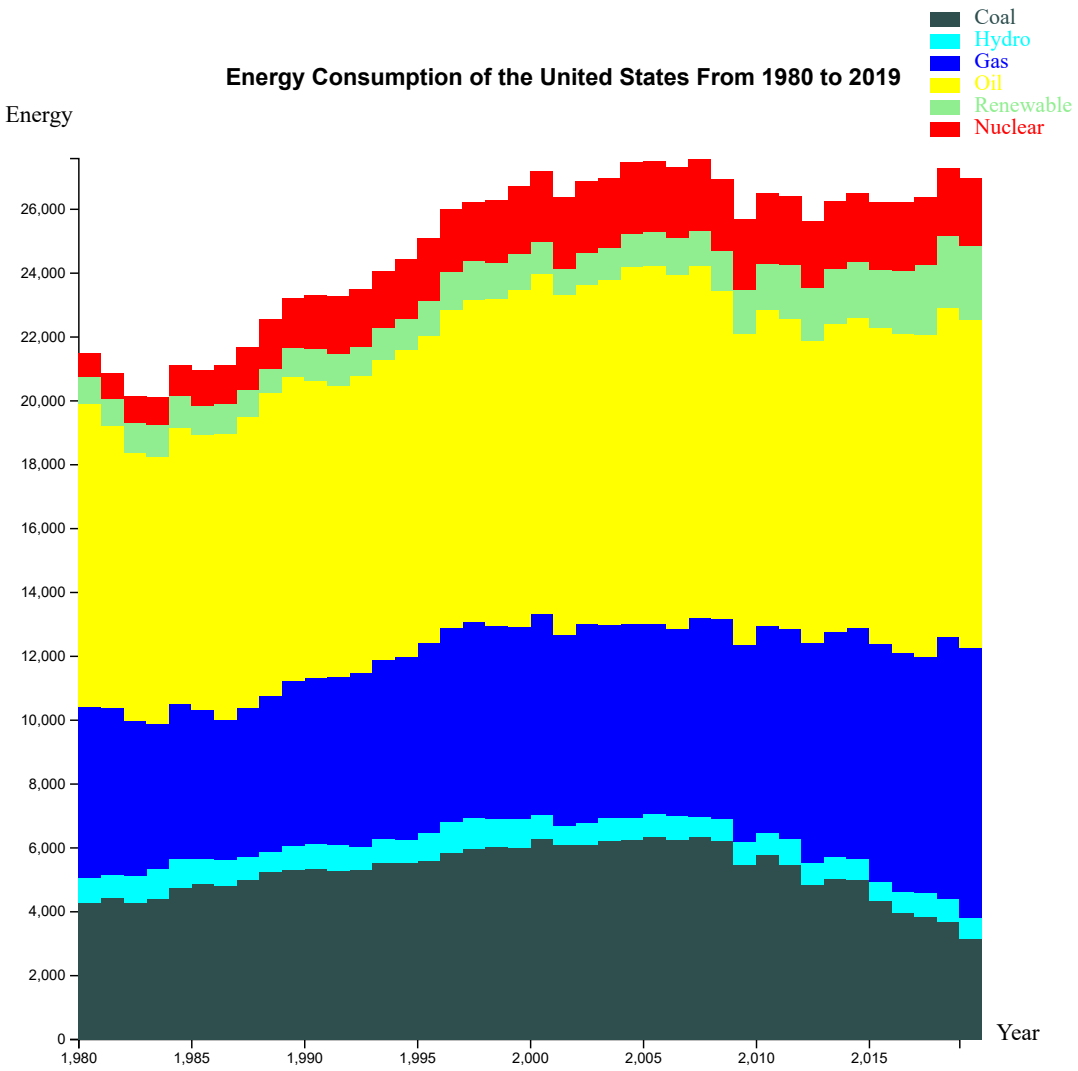
Question 3:

Problem Statement:
Explore how each type of energy consumption (coal, dydro, gas, oil, renewable, nuclear, electricity) of the three developed and three developing countries changes from 1980 to 2019. (Stackcolumn plot) (animation)

Choice of color scheme:
I use different colors to represent different types of energy. Each color is selected from the color of the material used to produce that energy, or people's perception on that energy. For example, I use the color green to represent renewable energy and the color aqua (lightgreen) to represent hydro energy.

Marks and channels:
Mark: Line.
Channels: Color, Length.

Plot:



◉ United States ○ Japan ○ United Kingdom ○ China ○ Mexico ○ South Africa

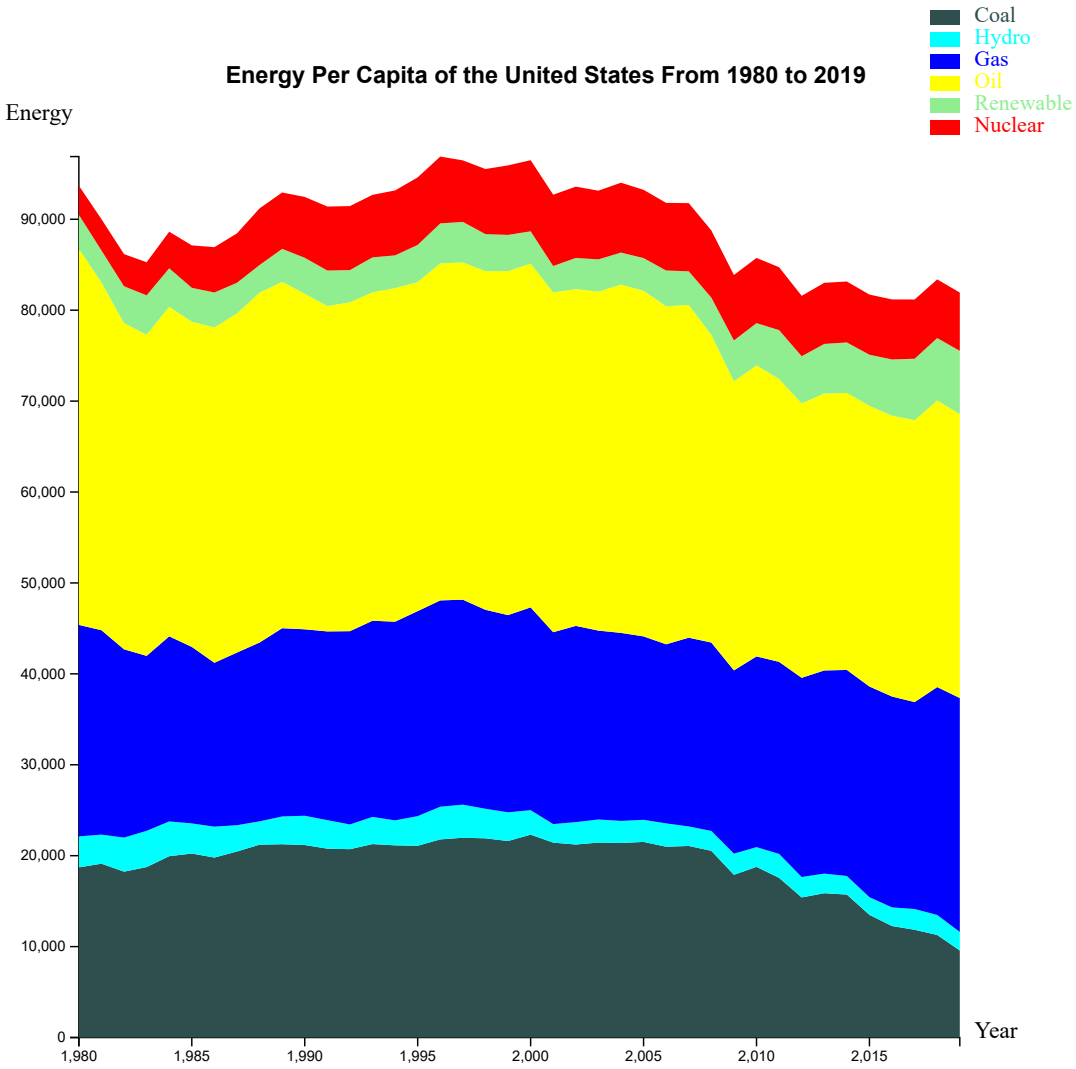
Question 4:

Problem Statement:
Explore how each type of energy consumption per captia (coal, dydro, gas, oil, renewable, nuclear, electricity) of the three developed and three developing countries changes from 1980 to 2019. (streamgraph) (buttons)

Choice of color scheme:
I use different colors to represent different types of energy. Each color is selected from the color of the material used to produce that energy, or people's perception on that energy. For example, I use the color green to represent renewable energy and the color aqua (lightgreen) to represent hydro energy.

Marks and channels:
Mark: Area.
Channels: Color, Size.

Plot:



◉ United States ○ Japan ○ United Kingdom ○ China ○ Mexico ○ South Africa

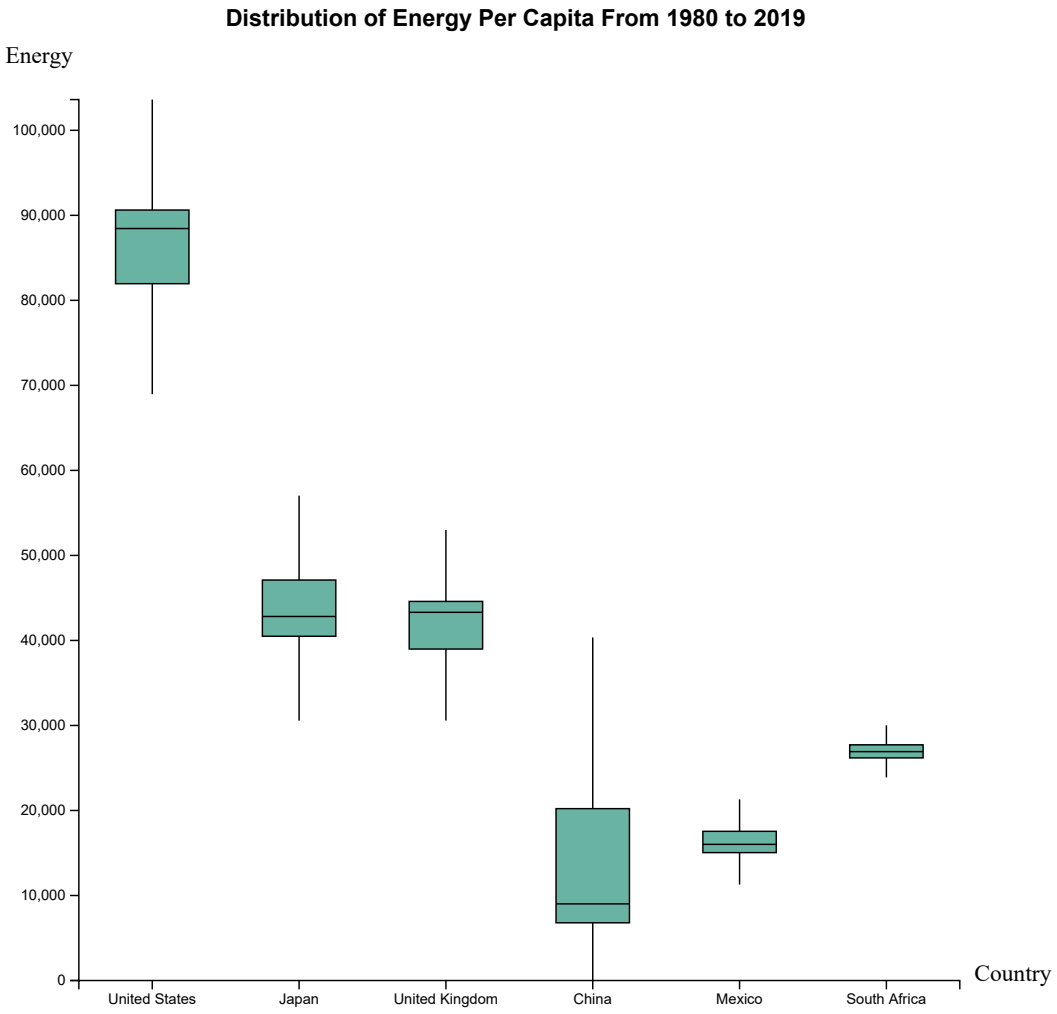
Question 5:

Problem Statement:
Visualize the average total energy consumption per capita from 1980 to 2019 between the three developed and three developing countries. (boxplot)

Choice of color scheme:
Only a single color is used here because the distinction between each boxplot is already sufficiently shown by the xAxis labels.

Marks and channels:
Mark: Lines
Channels: Length, Area, Position

Plot:


Distribution of Energy Per Capita From 1980 to 2019
Energy
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
United States
Japan
United Kingdom
China
Mexico
South Africa
Country