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Experiment no.: 08
Aim: Experiment Design for Creating Visualizations using D3.js on Environment/Forest Dataset

Objective:
1. To understand how to use D3.js for data visualization.
2. To implement basic charts like Bar chart, Pie chart, Histogram, Timeline chart, Scatterplot, and Bubble plot.
3. To implement advanced charts like Word chart, Box and whisker plot, Violin plot,Regression plot (linear and nonlinear), 3D chart, and Jitter.
4. To draw observations and insights from each chart.
5. To create an interactive storytelling dashboard using the above visualizations.

Dataset:
First head() rows of dataset:

This dataset provides yearly data on various environmental and socio-economic factors for five countries: Brazil, India, United States, China, and Canada. The data spans several years from 2010 to 2015, although not all years are present for every country.

The dataset includes the following columns:

Country: The name of the country (Brazil, India, United States, China, Canada).Year: The year in which the data was recorded.
Forest_Cover: The percentage of the country covered by forests.
Deforestation_Rate: The annual rate of deforestation in percentage (%). This indicates how much forest area is being lost annually in each country.
Reforestation_Rate: The rate of reforestation in percentage (%). This reflects how much forest area is being restored or replanted annually.

Protected_Area: The total area (in square kilometers) designated as protected land, including national parks and conservation areas.

Carbon_Emissions: The amount of carbon emissions (in million metric tons) produced by eachcountry in a given year. This is a key indicator of a country's contribution to global warming and climate change.

Population: The population (in millions) of the country during the specified year.

GDP: The country's gross domestic product (GDP) in billions of US dollars, which indicates the economic output of the country.

Temperature_Change: The change in average temperature (in degrees Celsius) compared to a baseline year, indicating the impact of global warming over time.
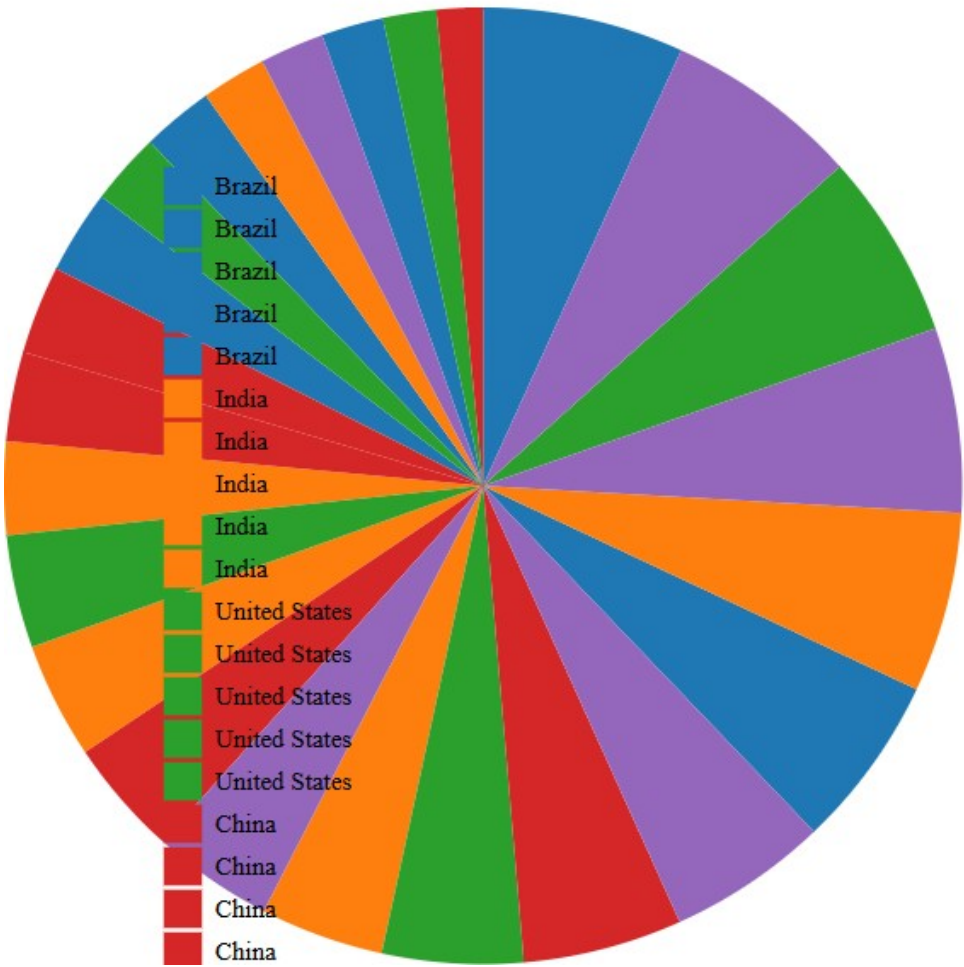
Illustrations:

Environment/Forest Cover Data Visualization

## Bar Chart: Forest Cover by Country
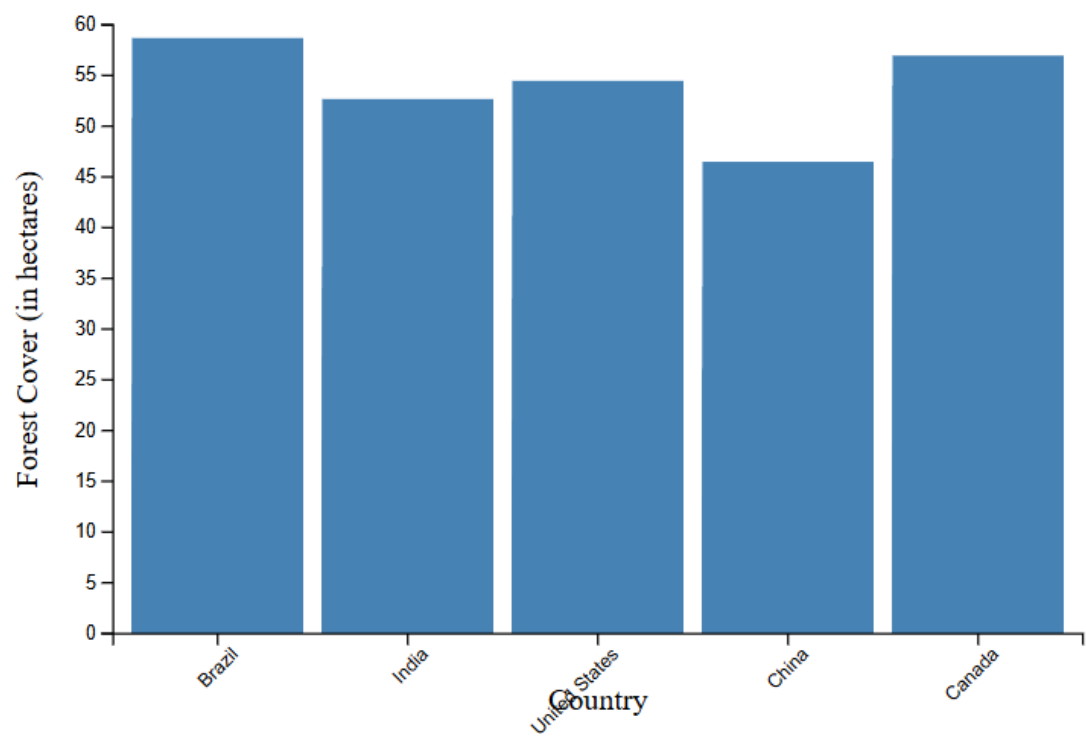
Brazil, United States, canada have largest forest country in terms of M hectares.

Pie Chart: Proportion of Forest Cover by Country

Brazil
Brazil
Brazil
Brazil
Brazil
India
India
India
India
India
United States
United States
United States
United States
United States
China
China
China
China

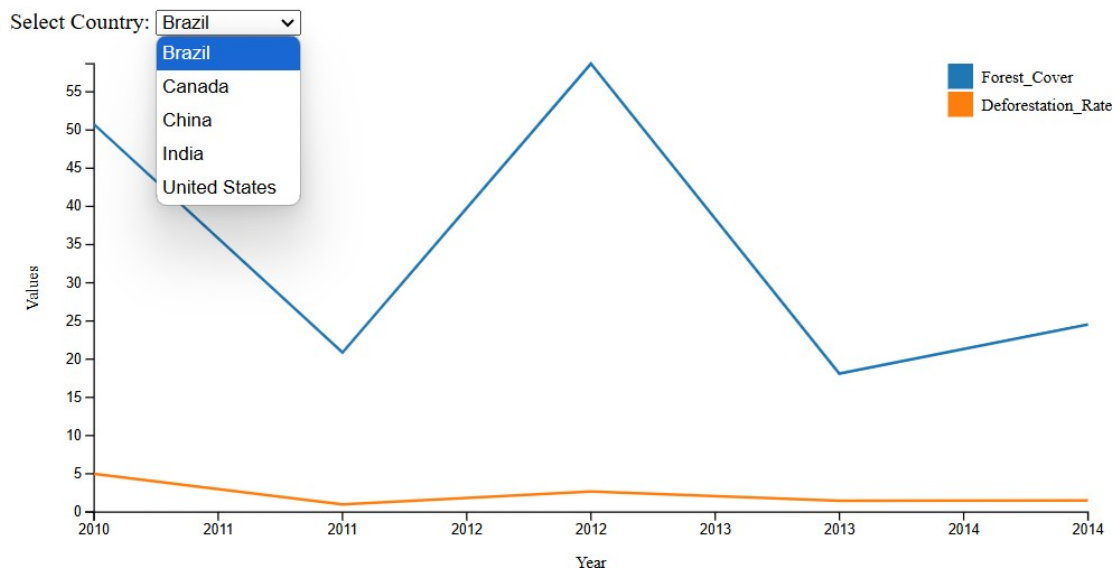This is showing year wise forest cover from 2010 to 2015 for each country

Scatter Plot: GDP vs. Carbon Emissions
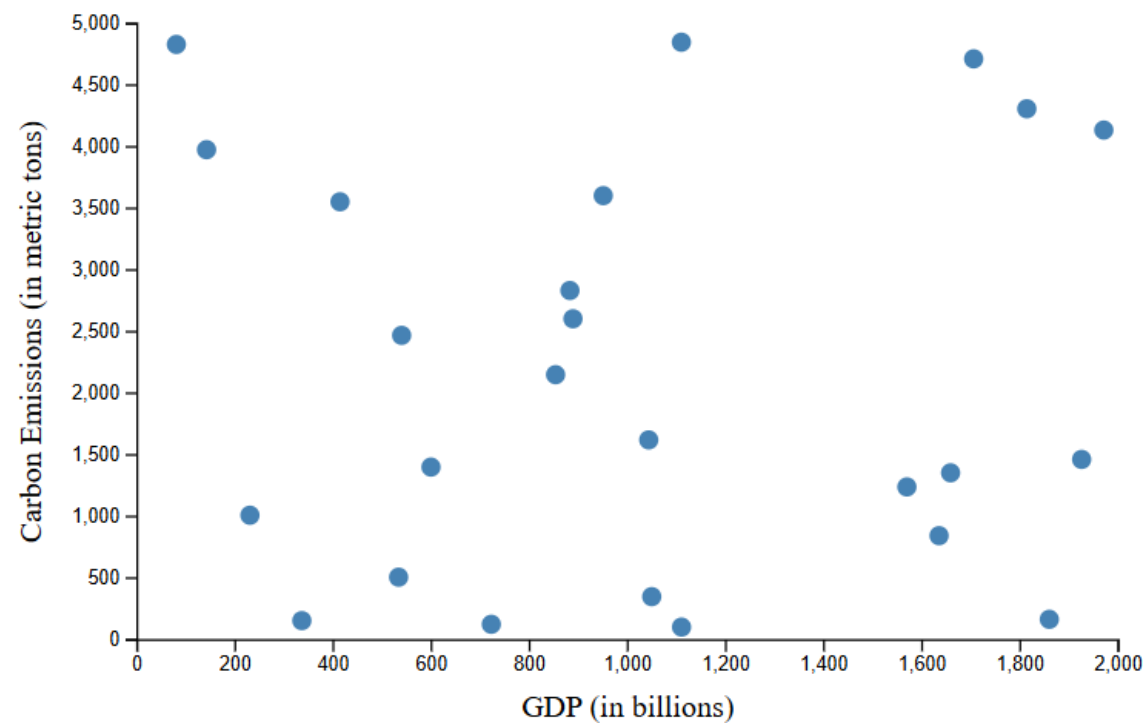
This is showing Carbon Emission and GDP scatter plot, this shows co-relation between them.
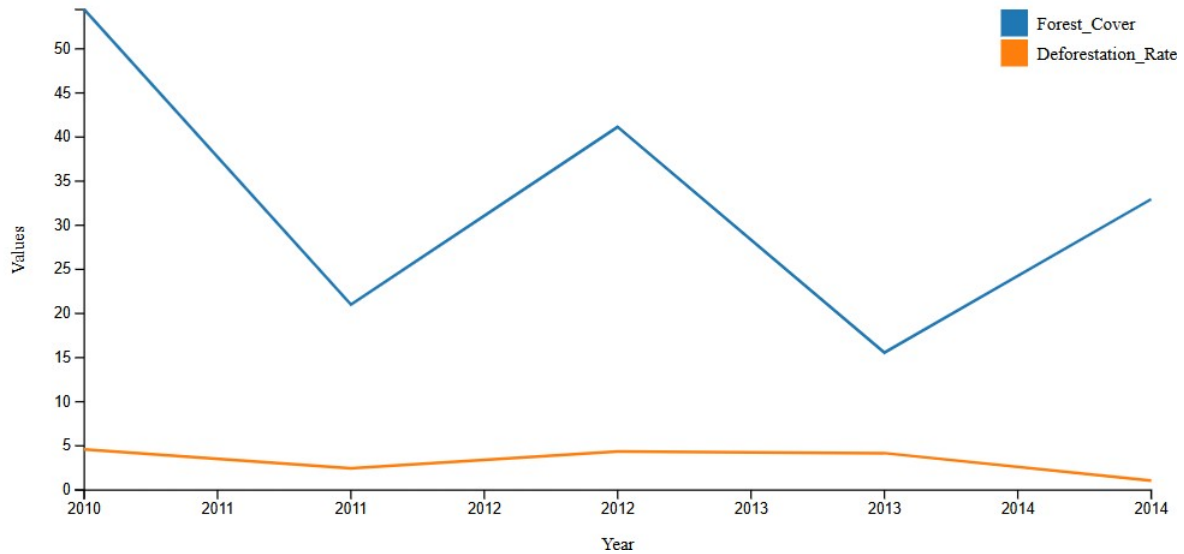
Timeline of Environmental Factors by Country

Timeline Chart: Environmental Factors Over the Years

Timeline of Environmental Factors by Country

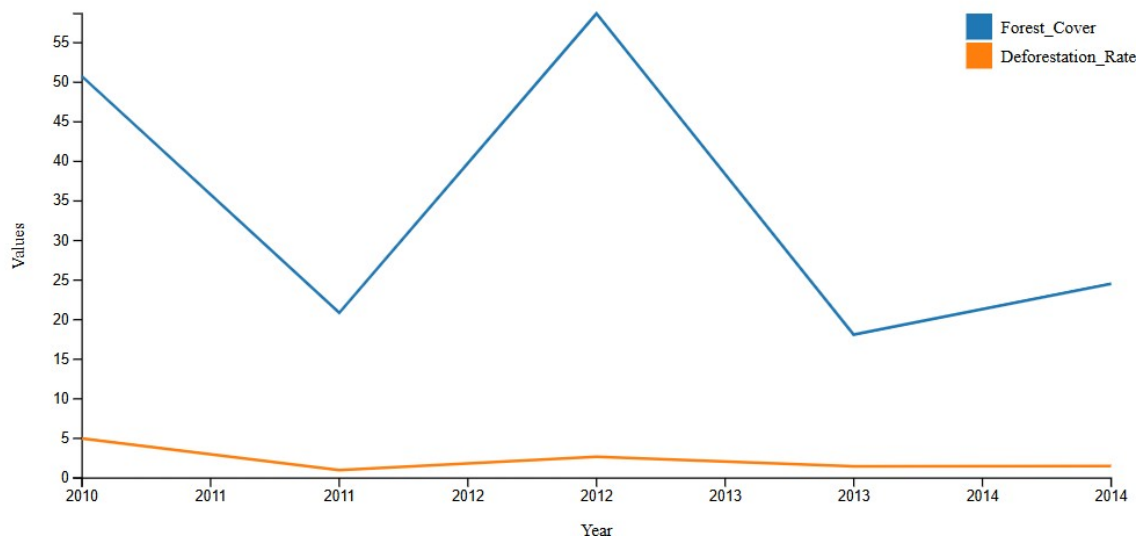## Timeline Chart: Environmental Factors Over the Years

Select Country: [United States ▼]

Timeline of Environmental Factors by Country

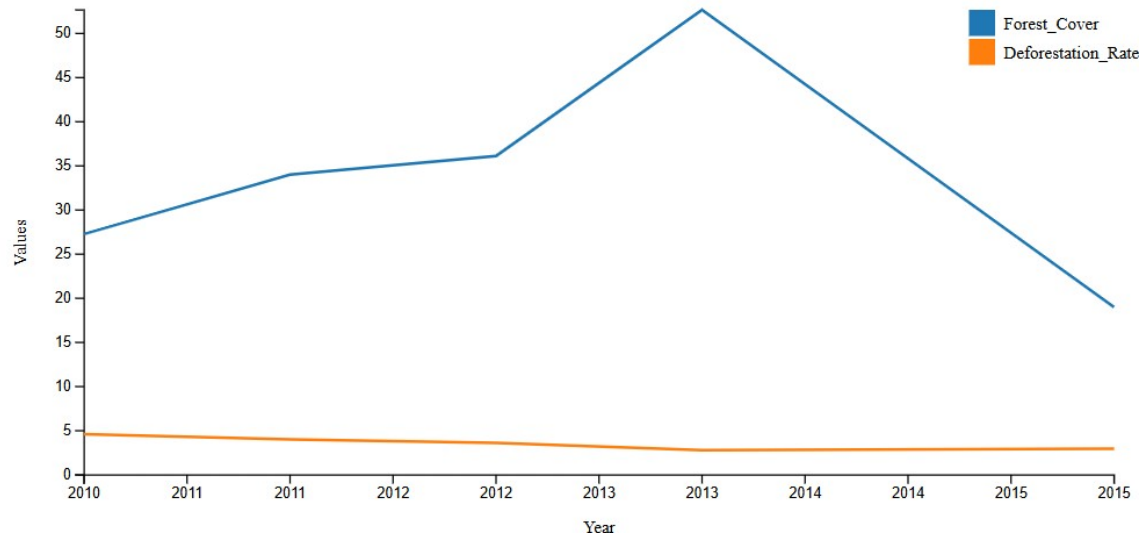## Timeline Chart: Environmental Factors Over the Years

Select Country: [Brazil ▼]

Timeline of Environmental Factors by Country

Timeline Chart: Environmental Factors Over the Years

Select Country: [India ▾]

Above timeline shows country wise forest cover and deforestation rate yearwise.