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Batch: D

Class: CSE(AI & ML)

EXPERIMENT NO: 9

Design Big Data Dashboards using Tableau on Women Empowerment/Gender Participation Dataset

1. Aim:

To design and develop interactive Big Data dashboards in Tableau using the dataset on Women Empowerment and Gender Participation. This project focuses on creating visualizations that represent various facets of gender participation, using basic and advanced charts to derive insights.

2. Objectives:

1. Develop a Tableau dashboard that visualizes different aspects of women empowerment and gender participation.
2. Create basic charts (Bar chart, Pie chart, Histogram, Timeline chart, Scatter plot, Bubble plot) to represent fundamental data distributions and relationships.
3. Design advanced charts (Word chart, Box and Whisker plot, Violin plot, Regression plot, 3D chart, Jitter) to analyze complex relationships and distributions.
4. Derive insights and observations from each visualization to better understand patterns and trends within the dataset.
5. Document a comprehensive analysis with observations for each chart and suggest potential areas for further research or application.

3. Theory:

Big Data visualization using Tableau provides a powerful way to gain insights into extensive datasets. In this lab, we explore how to use Tableau to visualize gender-based data effectively.

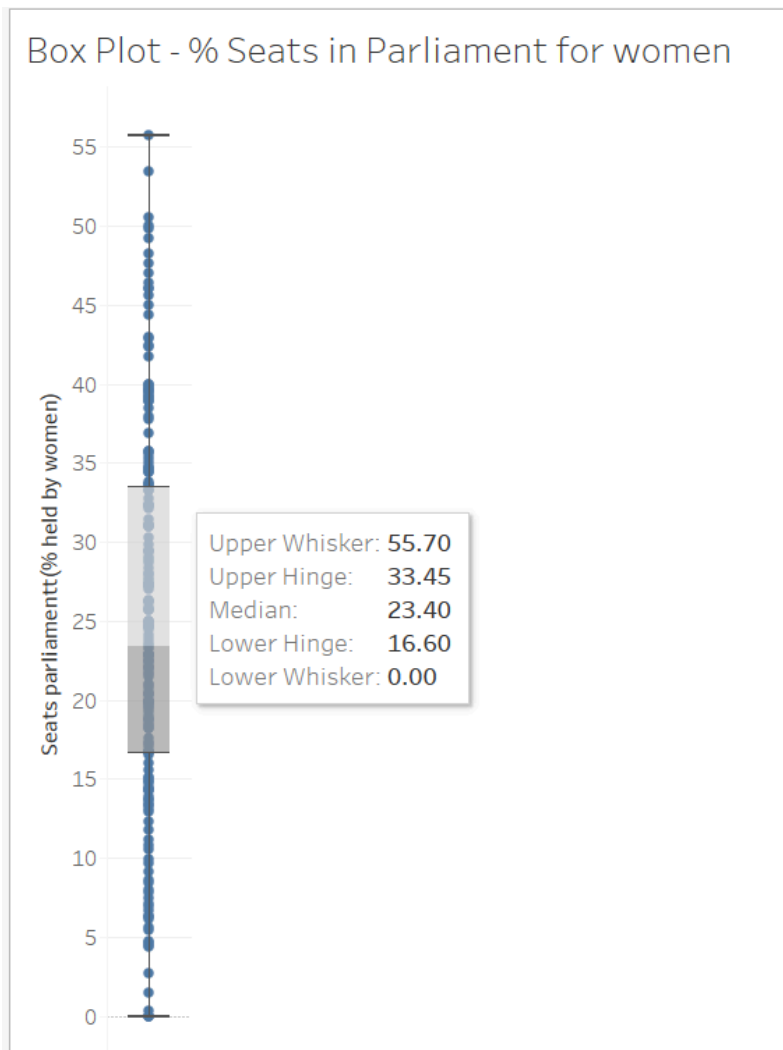
Each chart has a specific use:

1. Bar and Pie charts are effective for categorical comparisons.
2. Histograms help understand data distributions.

3. Timeline and Scatter plots show trends over time and relationships between variables.
4. Bubble plots add another dimension to scatter plots, useful for displaying data points with varying magnitudes.
5. Box and Whisker, Violin plots display statistical distributions.
6. Regression plots analyze relationships between variables.
7. 3D charts provide a multi-dimensional view.
8. Jitter plots prevent overplotting by slightly shifting data points.

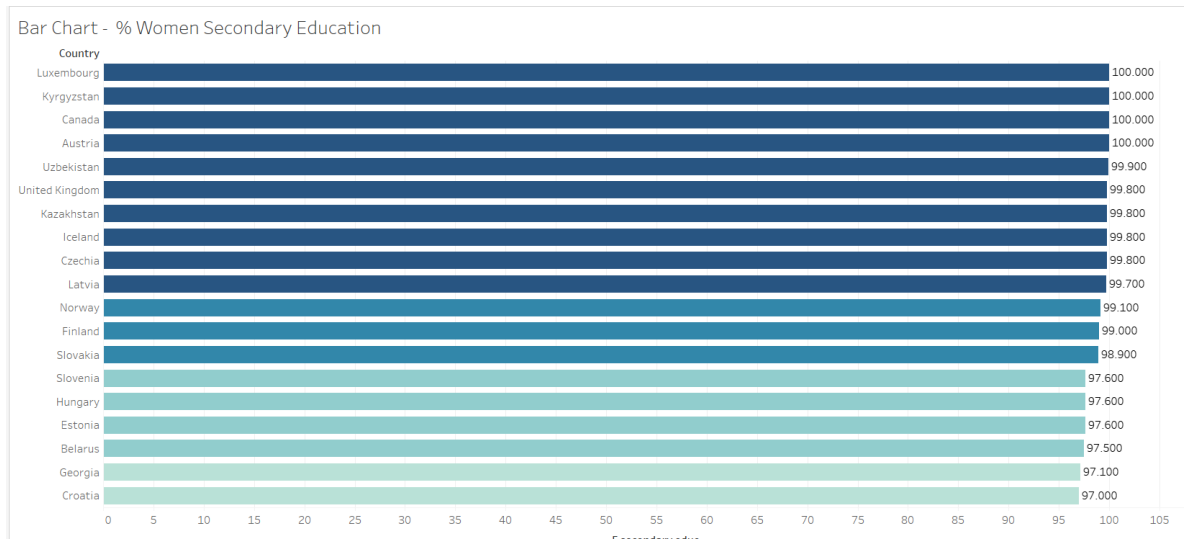
4. Tableau visualization:

1. Box Plot / Whisker Plot:



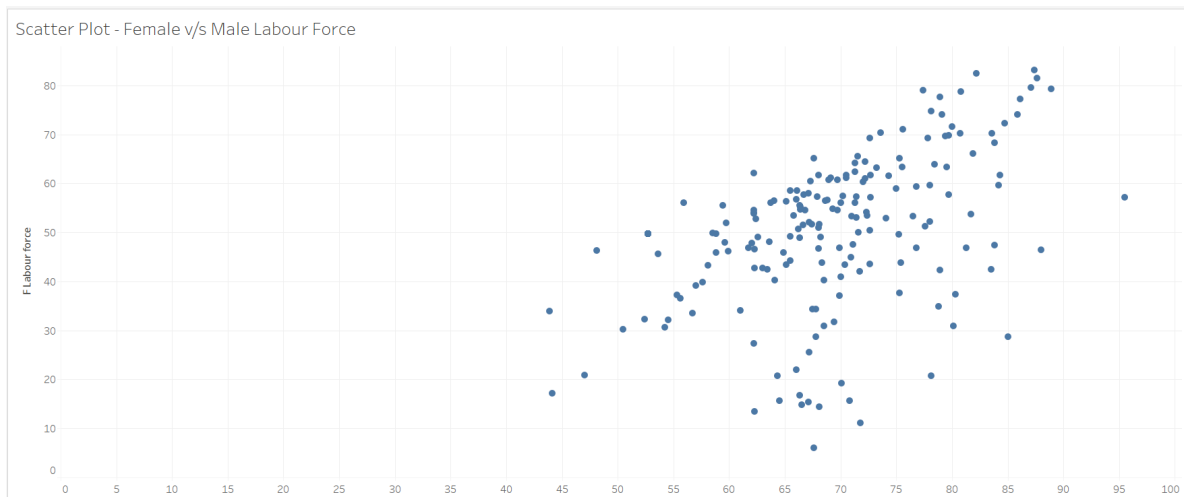
The above chart shows the Box plot of % seats in parliament held by women. The median of the data is 23.4 meaning 23.4% of the seats are held by women in parliament.

2. Bar Chart:



The above chart shows the Top 12 countries with the highest women in secondary education. We can see that there are 4 countries with 100% of the women pursuing secondary education.

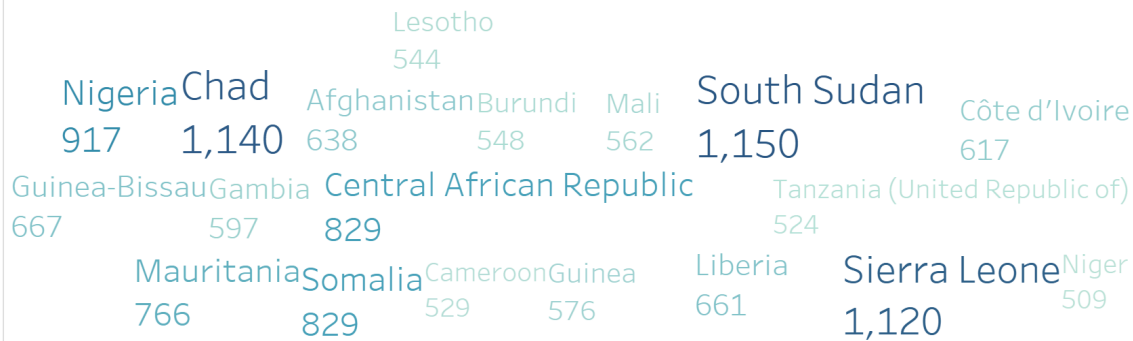
3. Scatter Plot:



The above chart shows the distribution of Female v/s Male Labour Force. We can see that in most of the countries the male labor force is greater than the female labor force, but there are some countries where the ratio of male to female labor force is balanced.

4. Word Chart:

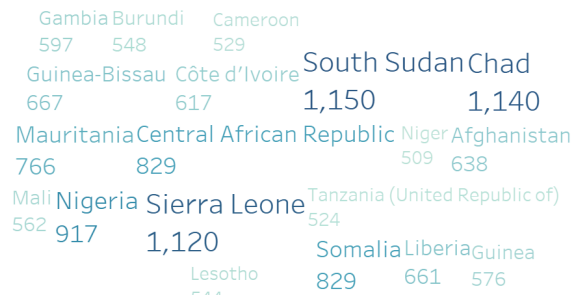
Word Chart - Maternal Mortality



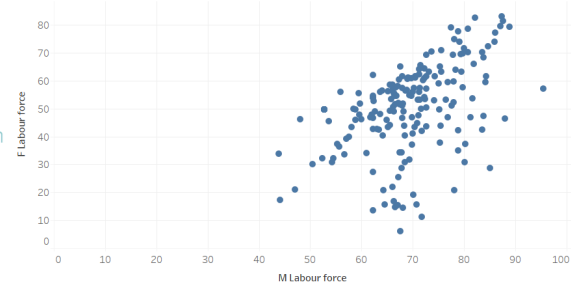
The above chart is a word chart for the top countries with the most maternal mortality. The names which are Darker in color have more maternal mortality than the names which are lighter in color. As the color fades the count decreases.

5. Dashboard:

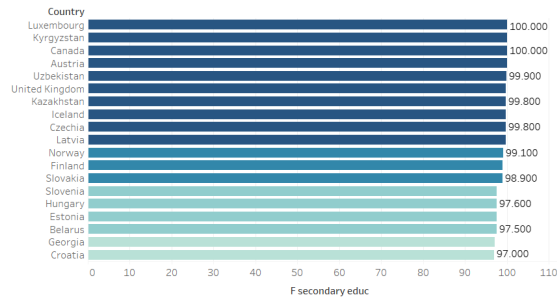
Word Chart - Maternal Mortality



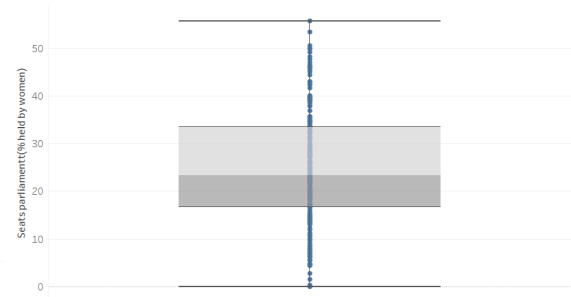
Scatter Plot - Female v/s Male Labour Force



Bar Chart - % Women Secondary Education



Box Plot - % Seats in Parliament for women



The highlight country adds interactivity to the final dashboard by highlighting the country entered in the section and if the country is present in all the charts.