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Batch: A

Exp : 9

Aim:

Design Big Data Dashboards using Tableau / Power BI / R / Python / D3.js on the dataset - Women empowerment / Gender participation

- Basic - Bar chart, Pie chart, Histogram, Time line chart, Scatter plot, Bubble plot

- Advanced - Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter

- Write observations from each chart

Theory:

Dataset:

https://www.kaggle.com/datasets/iamsouravbanerjee/women-empowerment-index

Dataset Overview:

The Women Empowerment Index (WEI) is a multifaceted tool designed to assess and track the progress of women's empowerment within societies. Drawing from diverse metrics and indicators, the WEI offers a nuanced understanding of the status of women across various domains. It builds upon the foundation laid by existing indices like the Gender Inequality Index (GII) but focuses specifically on aspects related to women's empowerment. The WEI encompasses several key dimensions, including economic participation, political representation, access to education and healthcare, and social inclusivity. By analyzing these dimensions, the index sheds light on the extent to which women are able to exercise agency, access resources, and participate fully in societal processes.

Column Descriptions:

1. **Country:** The name of the country or territory included in the dataset.

2. **Women's Empowerment Index (WEI) - 2022:** Quantifies women's empowerment within each country for the year 2022, offering insights into gender dynamics and opportunities for women.

3. **Women's Empowerment Group - 2022:** Categorizes countries based on their performance and status regarding women's empowerment, facilitating comparative analysis.

4. **Global Gender Parity Index (GGPI) - 2022:** Measures gender parity at a global level for the year 2022, indicating the degree of equality between men and women.

5. **Gender Parity Group - 2022:** Classifies countries into groups based on their level of gender parity, aiding in the identification of trends and disparities.

6. **Human Development Group - 2021:** Classifies countries into specific groups based on their Human Development Index (HDI) scores and development levels for the year 2021.

7. **Sustainable Development Goal regions:** Aligns countries with specific regions as defined by the Sustainable Development Goals (SDGs), providing context for development efforts and initiatives.
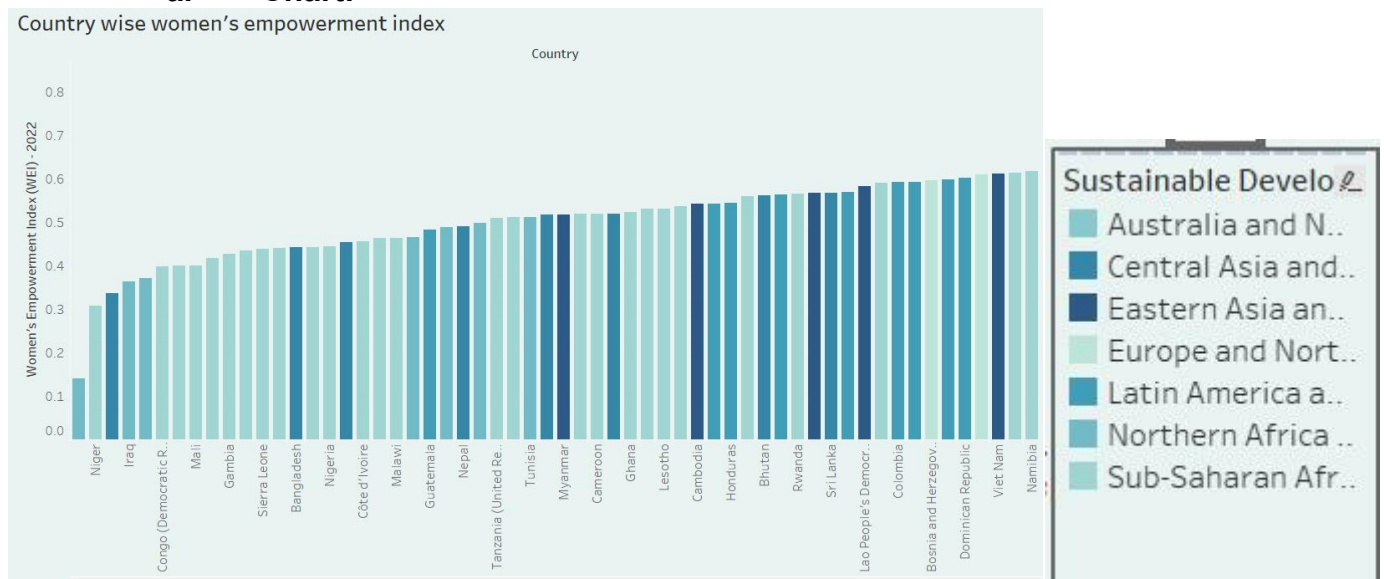
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Charts:

1)Country-wise Women's Empowerment Index (Bar Chart - Top Left):

- This chart shows the Women's Empowerment Index (WEI) for various countries, arranged in ascending order.
- Countries on the left, such as Pakistan, Guinea, and Liberia, have relatively low WEI scores, indicating lower levels of women's empowerment.
- On the right side, countries like Latvia, Slovenia, and Denmark show higher WEI scores, suggesting stronger empowerment initiatives.
- The visualization highlights disparities in women's empowerment levels across different countries, with a gradual progression of scores from low to high.

a. • **Chart:**

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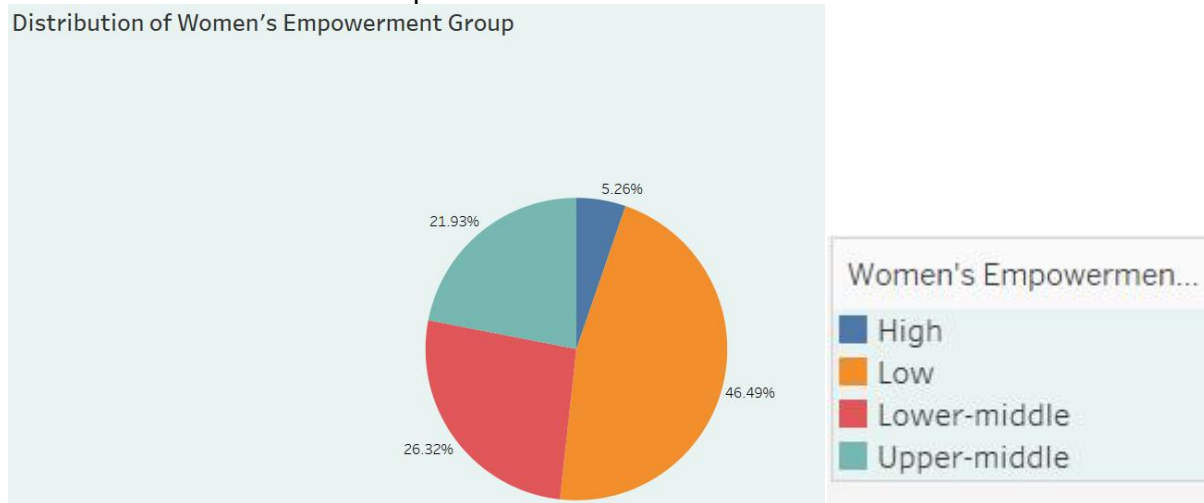**Department of Computer Engineering**

2. Distribution of Women's Empowerment Group (Pie Chart - Top Right) :

- This pie chart categorizes countries into groups based on their WEI levels: high, low, lower-middle, and upper-middle.
- The largest segment, representing 46.49%, falls within the "Upper-middle" group, suggesting that a significant portion of countries has made moderate progress in women's empowerment.
- Smaller percentages are observed in the "High" (5.26%) and "Low" (21.93%) categories, showing fewer countries with extreme levels (either very high or low) of women's empowerment.
- This distribution provides a broad view of the global landscape, showing that most countries fall into the middle tiers of women's empowerment.

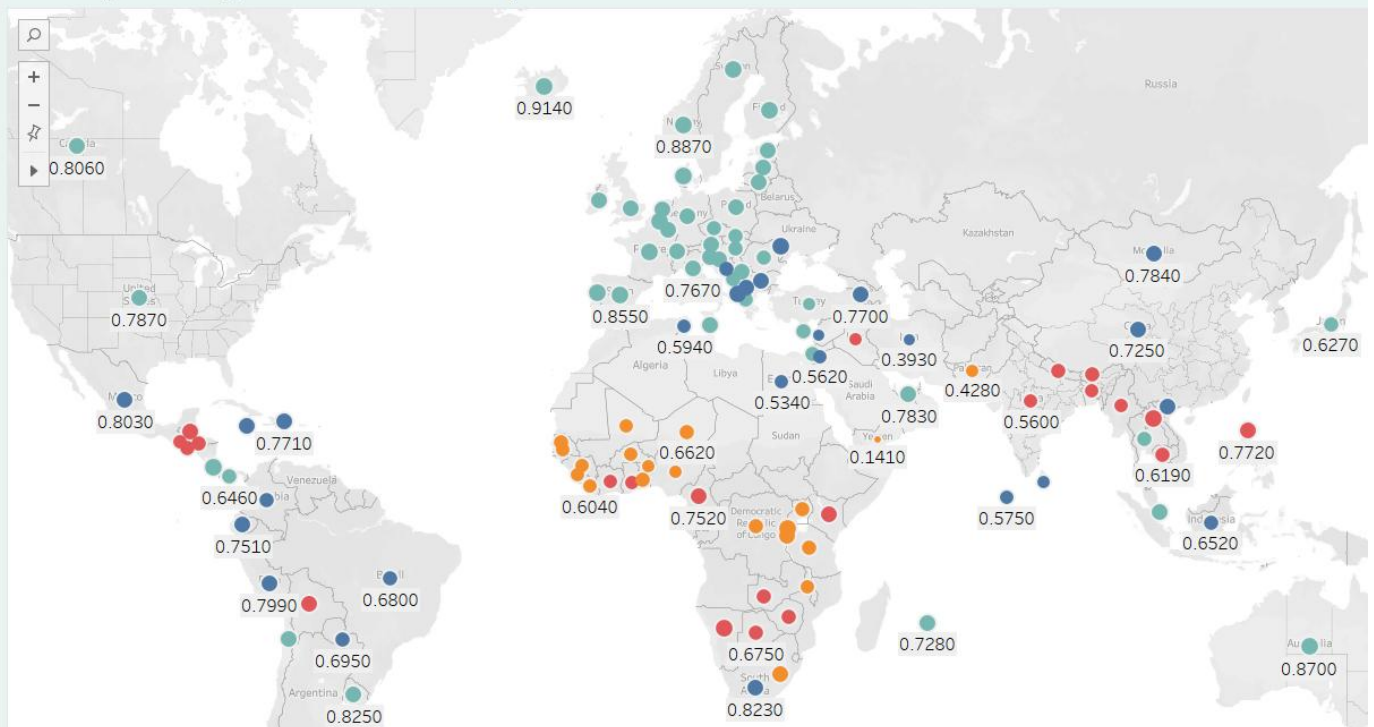Distribution of Women's Empowerment Group

Women's Empowermen...
- High
- Low
- Lower-middle
- Upper-middle

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3. Country-wise Avg Global Gender Parity Index (Map - Bottom Left):

• The map presents the Global Gender Parity Index (GGPI) values across countries, with different colors indicating different regions.

• Higher GGPI scores (e.g., North America and parts of Europe) suggest better gender parity, whereas lower scores (e.g., parts of Africa and South Asia) indicate wider gender disparities.

• This geographical representation helps identify regional patterns, such as stronger gender parity in Europe and North America and more significant gender gaps in regions like Sub-Saharan Africa and parts of Asia.

4. Global Gender Parity Index vs Women Empowerment Index (Scatter Plot - Bottom Right):

- This scatter plot compares the Global Gender Parity Index (GGPI) and the Women's Empowerment Index (WEI) for different countries.
- There's a positive correlation, with countries having higher GGPI scores also tending to have higher WEI scores.
- Each color represents a specific sustainable development region, showing trends within regions as well as overall global trends.
- The plot suggests that gender parity and women's empowerment are closely linked, with regions advancing in both aspects simultaneously.

a. Chart:
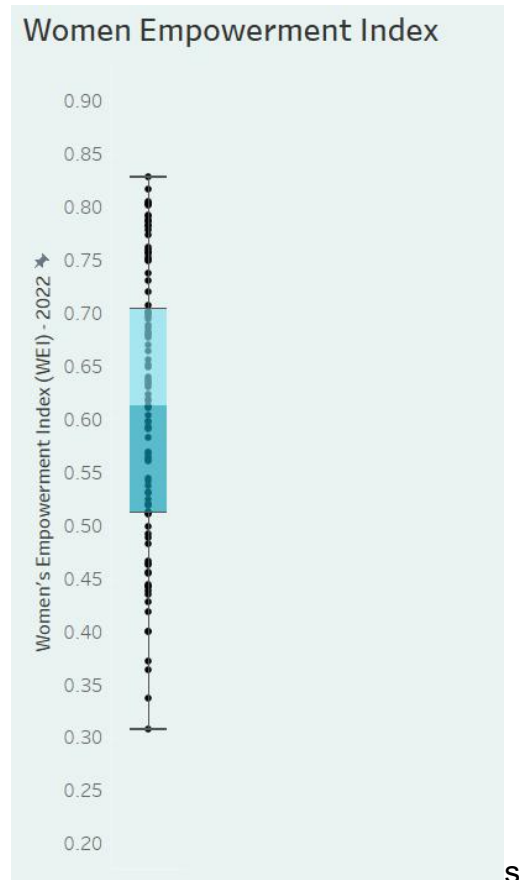

Global Gender PI vs Women Empowerment Index

Box Plot of Women's Empowerment Index (Center):

- The box plot illustrates the distribution of the Women's Empowerment Index across countries.
- The median WEI lies around 0.6, with the interquartile range (IQR) spanning roughly from 0.4 to 0.7.
- There are a few outliers on the lower end of the WEI spectrum, indicating countries with unusually low scores.
- This chart provides an understanding of the typical range of WEI values globally, with most countries falling within a moderate range of empowerment levels.
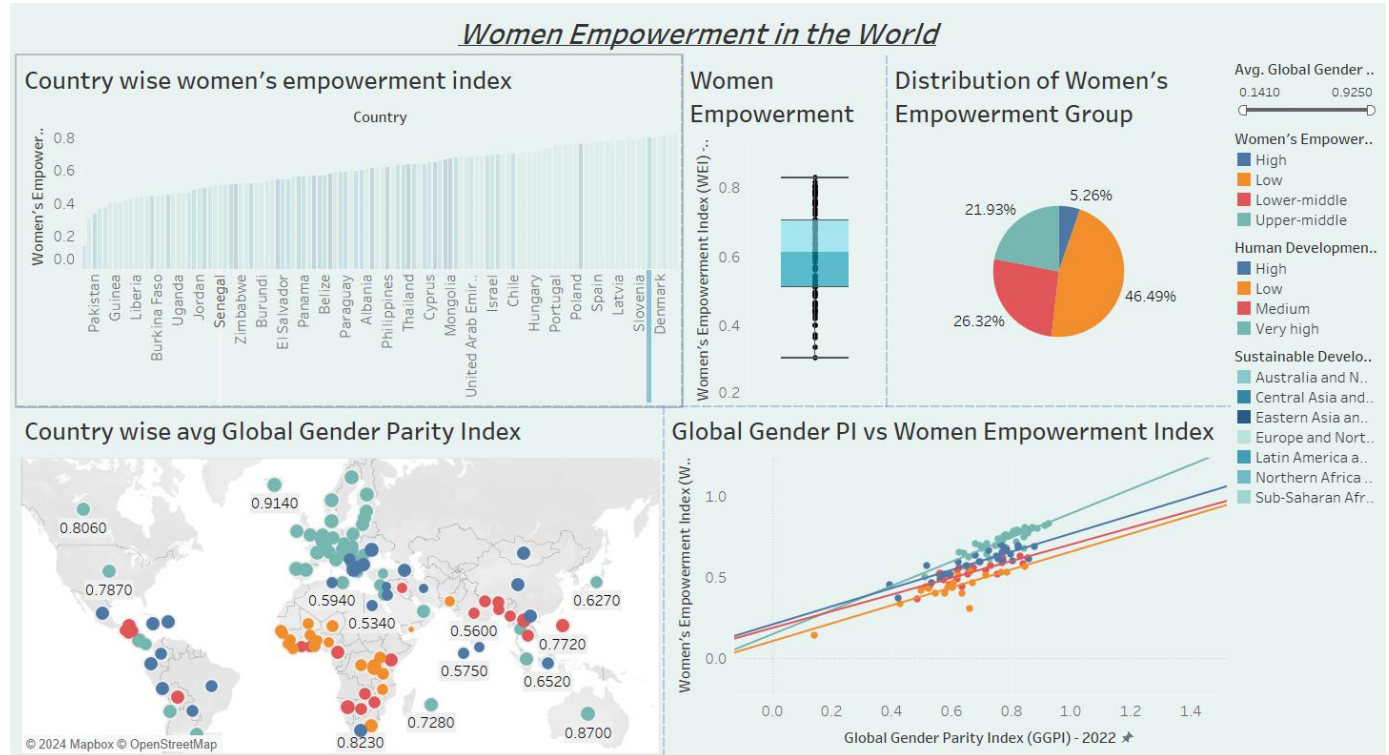
b. Chart:

Women Empowerment Index

Dashboard:

Conclusion:

By leveraging Tableau to visualize the Women's Empowerment Index (WEI) data, we have gained valuable insights into the global landscape of women's empowerment. This dashboard provides a comprehensive view of women's empowerment and gender parity worldwide, with each chart contributing unique insights into different aspects of gender equity across regions. The various perspectives—bar, pie, map, scatter plot, and box plot—help in understanding both individual country performance and regional/global trendsAdditionally, the analysis highlights the need for targeted interventions to promote women's empowerment in specific regions and countries. By understanding the factors influencing women's empowerment and the challenges faced by different countries, policymakers and organizations can develop effective strategies to advance women's rights and opportunities globally.