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EXPERIMENT 9

NAME:	Sarthak Gharat
ROLL NO:	2021700025
BATCH:	CSE(DS) - D

Aim:
Design Big Data Dashboards using Tableau 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

DATASET:

https://www.kaggle.com/datasets/gianinamariapetrascu/gender-inequality-index

The Gender Inequality Index (GII) dataset provides a comprehensive measure of gender inequality across countries, capturing gender disparities in health, education, and economic opportunities. Developed by the United Nations Development Programme (UNDP), the GII measures gender inequality by analyzing health, empowerment, and labor market participation indicators. This dataset includes GII scores, as well as component scores for each indicator, for over 190 countries, in 2021.

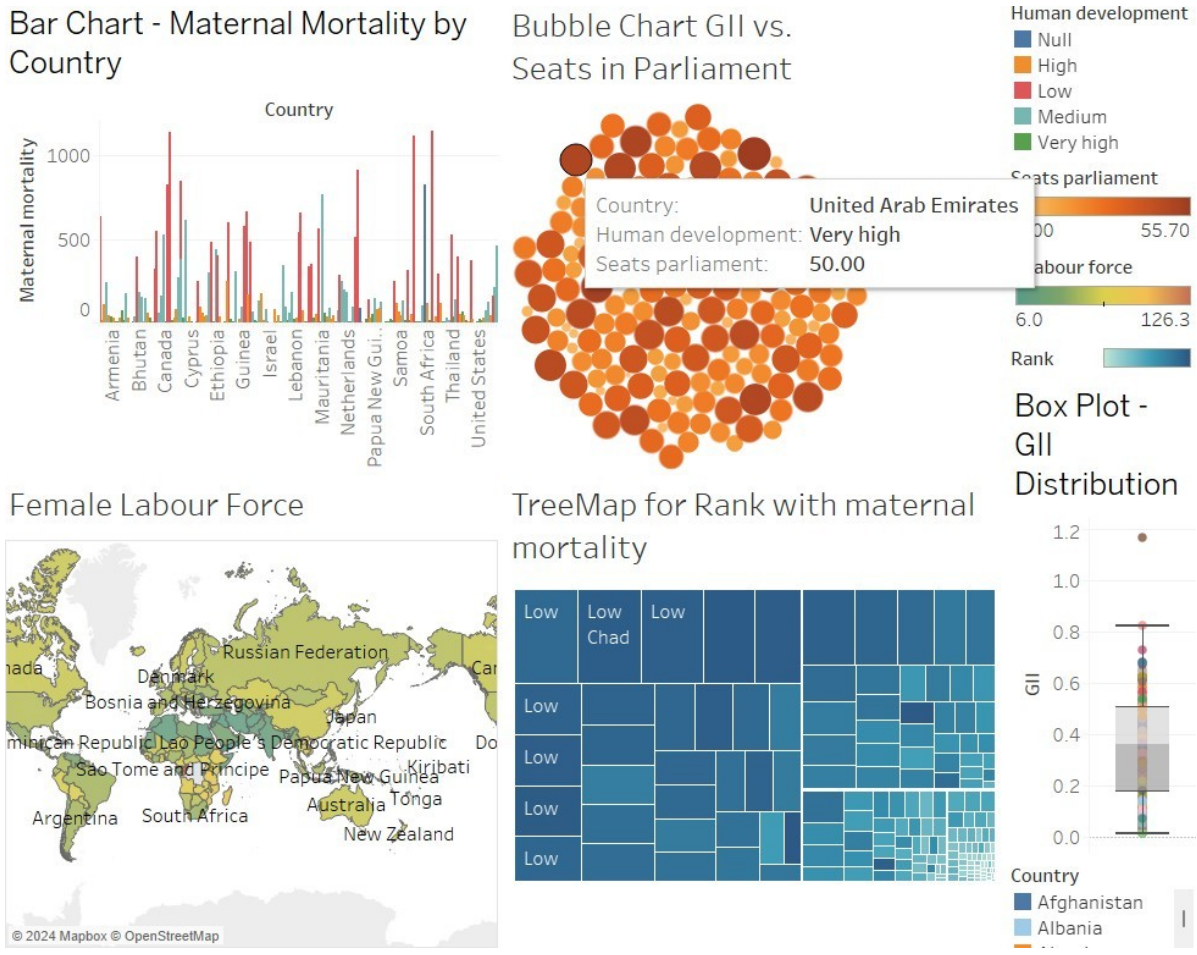
Summary of the main columns:

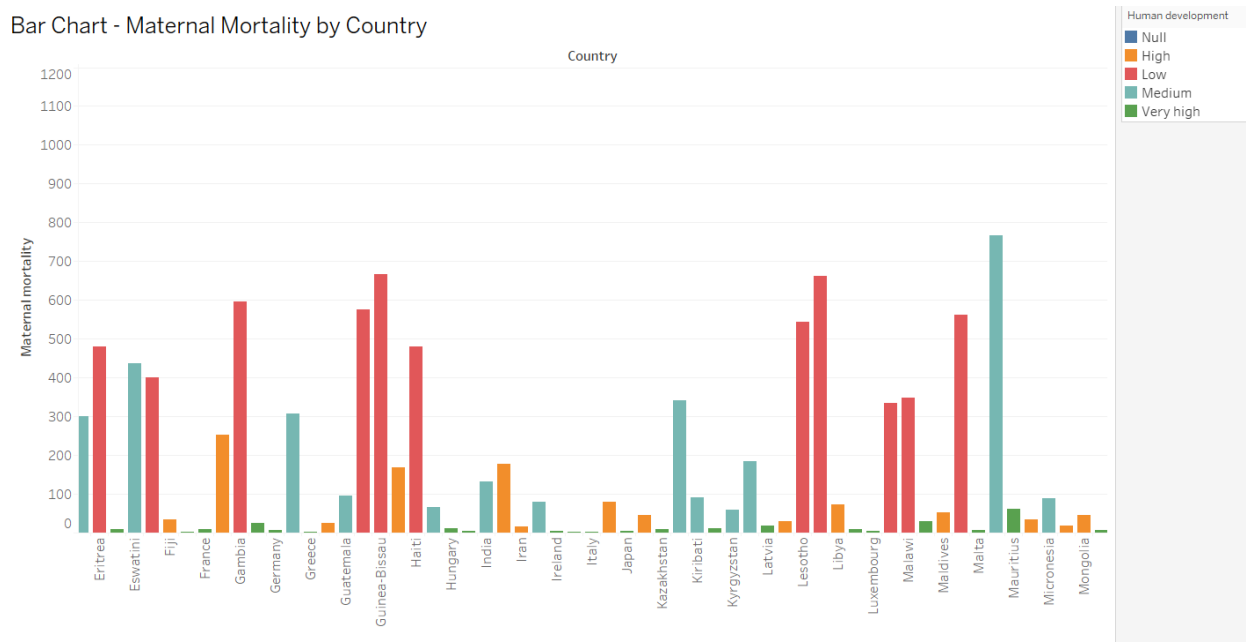
1. **Country**: Contains country names with most entries being unique. Approximately 1% each are from Congo and Switzerland, with the rest distributed among other countries.
2. **Human Development Category**: Classifies countries into human development categories (Very High, High, Medium, Low), with "Very High" being the most common at 34%.
3. **Gender Inequality Index (GII)**: A numeric range of gender inequality scores, with most countries falling within 0.01 to 0.50, indicating moderate inequality. Mean score is 0.34.
4. **Country Rank**: Ranks countries by specific criteria (e.g., Human Development Index), ranging from 1 to 170, with a mean rank of 85.4.
5. **Maternal Mortality**: Ratio of maternal deaths per 100,000 live births, widely ranging from 2 to 1150, with an average of 160 deaths.
6. **Adolescent Birth Rate**: Births per 1,000 women aged 15-19, ranging from 1.6 to 171, with a mean rate of 44.6.

7. **Seats in Parliament Held by Women**: Percentage of parliamentary seats held by women, ranging from 0% to 55.7%, with a mean of 24.7%.
8. **Secondary Education (Females)**: Percentage of females (ages 25+) with at least some secondary education, ranging from 6.4% to 100%, with a mean of 62.7%.
9. **Secondary Education (Males)**: Percentage of males (ages 25+) with at least some secondary education, ranging from 13% to 100%, with a mean of 67.1%.
10. **Female Labour Force Participation**: Percentage of females (ages 15+) in the labor force, ranging from 6% to 83.1%, with a mean of 50.2%.

Dashboard:

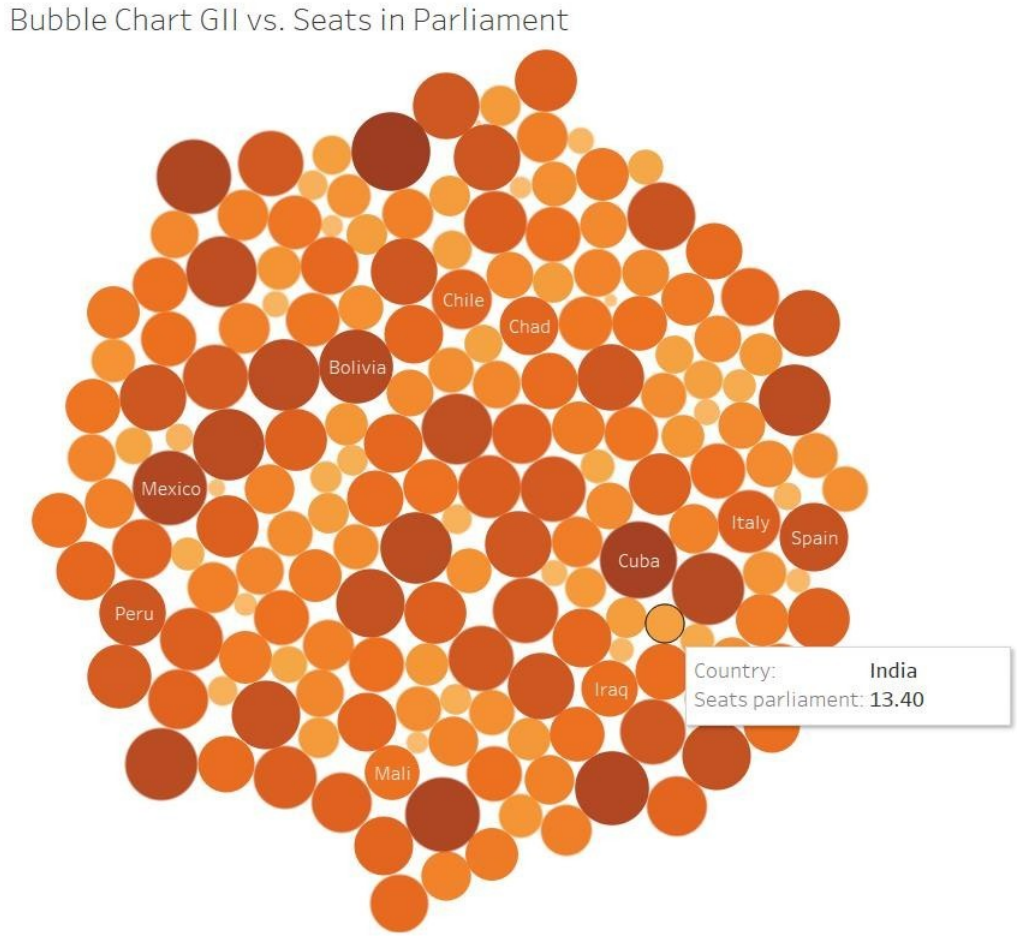
Global Gender Equality and Development Dashboard





1. **Maternal mortality varies widely across countries:** Some countries (e.g., Eritrea, Eswatini) have very high maternal mortality rates, while others (e.g., Japan, Kazakhstan) have much lower rates.
2. **Human development seems to be a factor:** Countries with higher human development indices tend to have lower maternal mortality rates.
3. **Some countries with similar human development levels have different mortality rates:** For example, Germany and France have similar human development levels, but Germany has a higher maternal mortality rate. This suggests that other factors beyond human development may also play a role.

Overall, the chart highlights the global disparities in maternal mortality and the need for further investigation into the underlying causes.



1. **Countries with higher human development and lower gender inequality tend to have more women representation in parliament.** This is evident from the larger bubbles (indicating more seats in parliament) being concentrated in the lower GII regions.
2. **There is a wide range of GII scores across countries.** This suggests that gender inequality is a complex issue with varying levels across different nations.
3. **India's position:** India is located towards the center of the chart with a moderate GII score and a relatively large number of seats in parliament.

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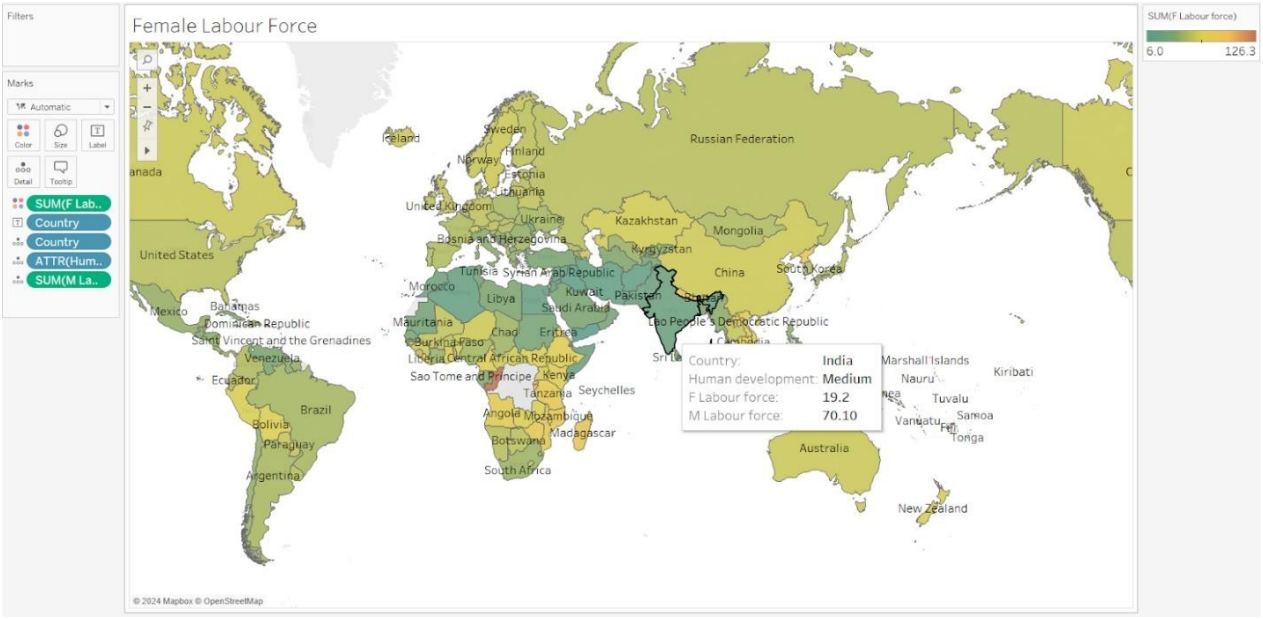
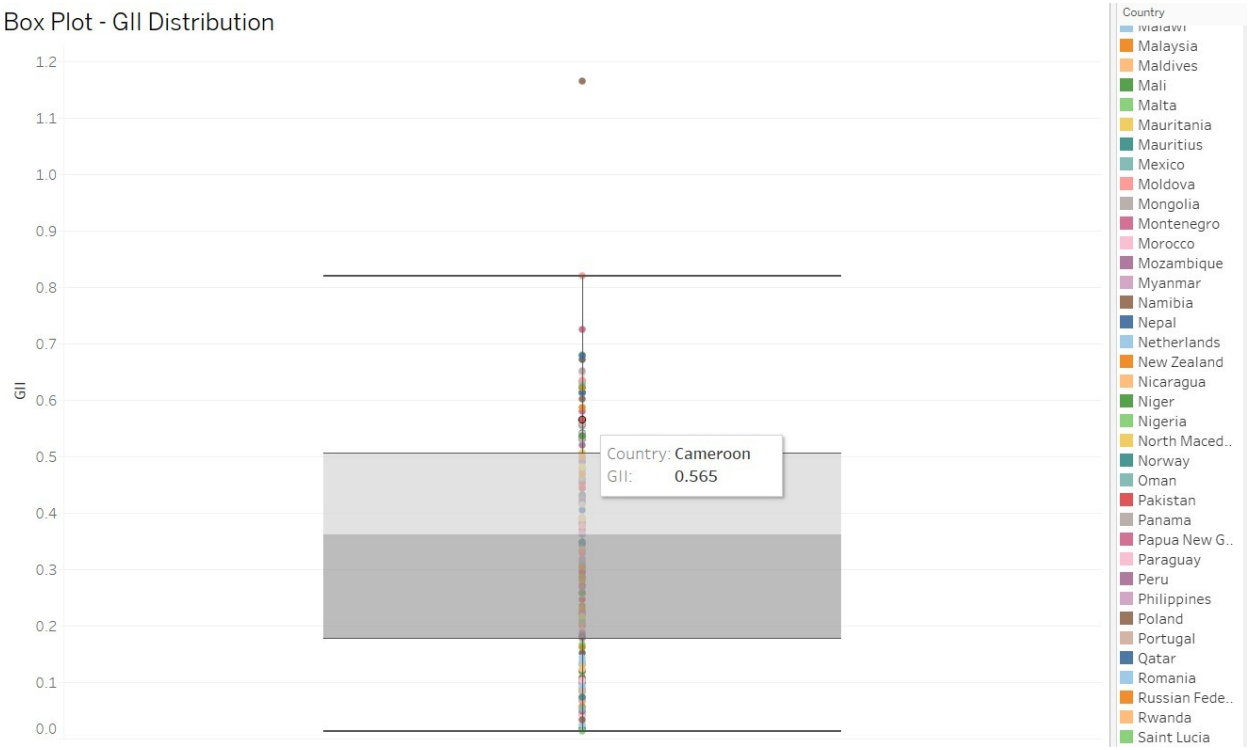


The map highlights the disparities in female labor force participation across the globe and the need for further efforts to promote gender equality in the workplace.



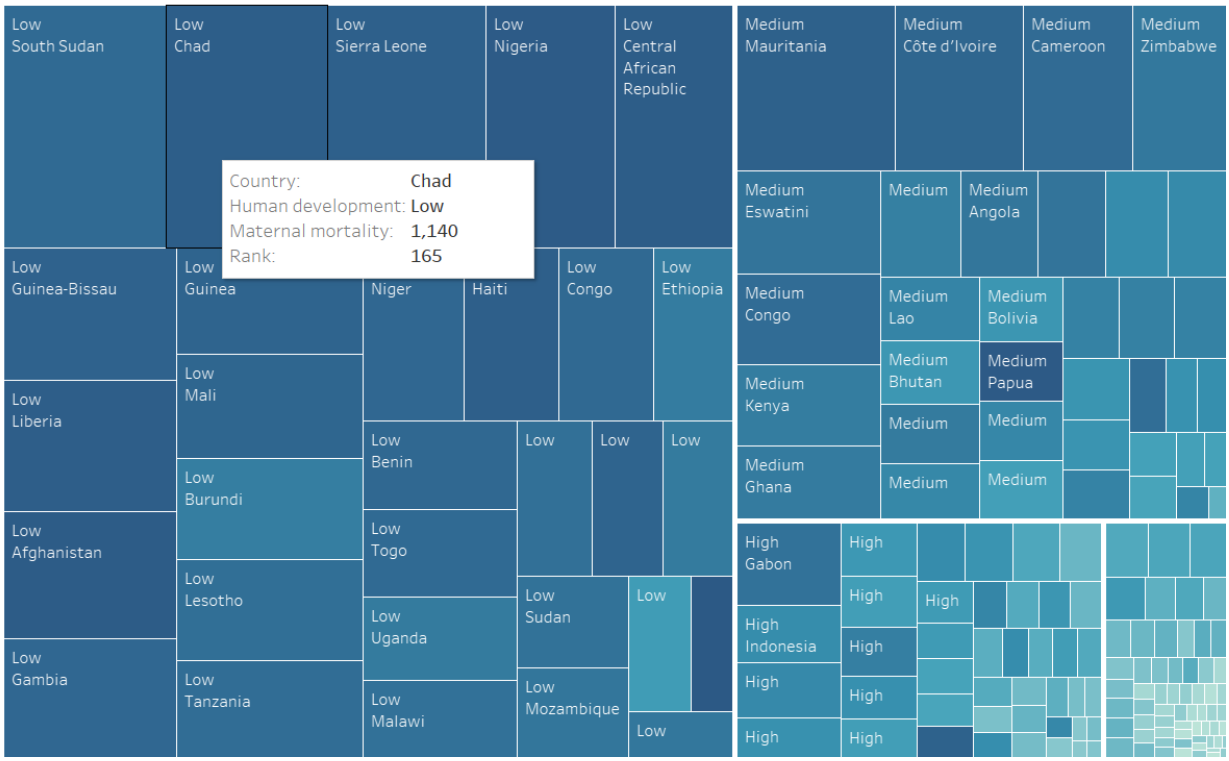
1. **Wide range of GII scores:** The box plot shows a significant spread in Gender Inequality Index (GII) scores across the countries represented.
2. **Skewed distribution:** The distribution appears to be slightly skewed to the right, indicating a higher concentration of countries with lower GII scores.
3. **Outliers:** There are two outliers with significantly higher GII scores compared to the rest of the

data.

4. **Interquartile Range (IQR):** The IQR, represented by the box, shows the range within which 50% of the data lies. This suggests that a significant portion of the countries have GII scores within a relatively narrow range.
5. **Median GII:** The median, represented by the line within the box, indicates the middle value of the distribution. It appears to be around 0.565.

Overall, the box plot provides a visual representation of the distribution of gender inequality across the countries, highlighting the variation and the presence of outliers with significantly higher GII scores.

TreeMap for Rank with maternal mortality



1. **High Maternal Mortality:** Countries with low human development tend to have significantly higher maternal mortality rates.
2. **Regional Disparities:** The concentration of darker blue blocks in certain regions indicates that entire regions have higher maternal mortality rates.
3. **Outliers:** Some countries with relatively low human development have lower maternal mortality rates compared to their peers, suggesting potential interventions or unique circumstances.

Overall, the treemap visually highlights the strong correlation between low human development and high maternal mortality rates, emphasizing the need for targeted interventions in these regions. Countries with higher human development rank higher in overall women gender equality.