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Aim:

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

Objectives

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

Dataset:

https://www.kaggle.com/datasets/rabieelkharoua/students-performance-dataset

Description:
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.
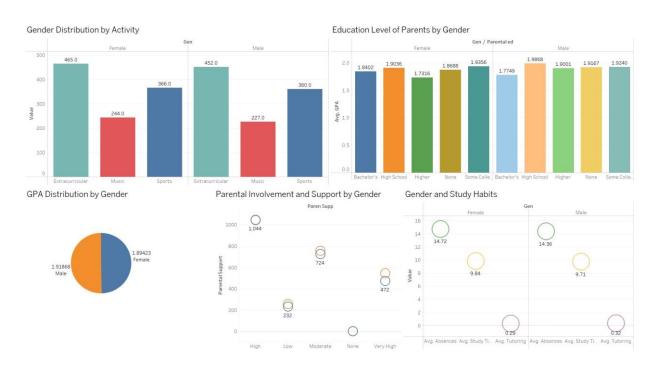
This dataset includes GII scores, as well as component scores for each indicator, for over 190 countries, in 2021.

Attributes/Columns:

- Country
- Human development category: Low- Very High
- Gender Inequality Index
- Country Rank
- Maternal mortality ratio (deaths per 100,000 live births)
- Adolescent birth rate (births per 1,000 women ages 15–19)
- Share of seats in parliament (% held by women)
- Females with at least some secondary education (% ages 25 and older)
- Males with at least some secondary education (% ages 25 and older)
- Female - Labour force participation rate (% ages 15 and older)

Output / Plots:

Dashboard:

The dashboard gives an idea about students performance gender wise. The factors such as parental involvement and parental education play a role in their performance. Also how they perform in separate extracurricular activities.

Gender Distribution by Activity:

- A bar chart showing the number of male and female students involved in extracurricular activities, music, and sports. Females are more involved in extracurriculars, while males have a higher proportion in sports.

Education Level of Parents by Gender:

- A grouped bar chart displaying average GPA by parental education level for both genders. The chart helps to see how parental education correlates with student GPA by gender.

GPA Distribution by Gender:

- A pie chart comparing the average GPA between male and female students. This gives an overview of academic performance by gender.

Parental Involvement and Support by Gender:

- A scatter plot illustrating parental support levels for male and female students. Each point represents a level of parental support, showing which levels are more common for each gender.

Gender and Study Habits:

- A bubble chart showing average study time, absences, and tutoring status by gender. This highlights gender differences in study habits, attendance, and tutoring.

Conclusion:

In this experiment, we used Tableau to explore various aspects of gender equality and women's participation across countries. By examining indicators such as human development, labor force participation, educational disparity, parliamentary representation, and gender inequality, we identified key patterns and disparities between genders globally. The visualizations highlight areas where gender gaps remain significant, especially in education and political representation, and show how these gaps vary with a country's development level.