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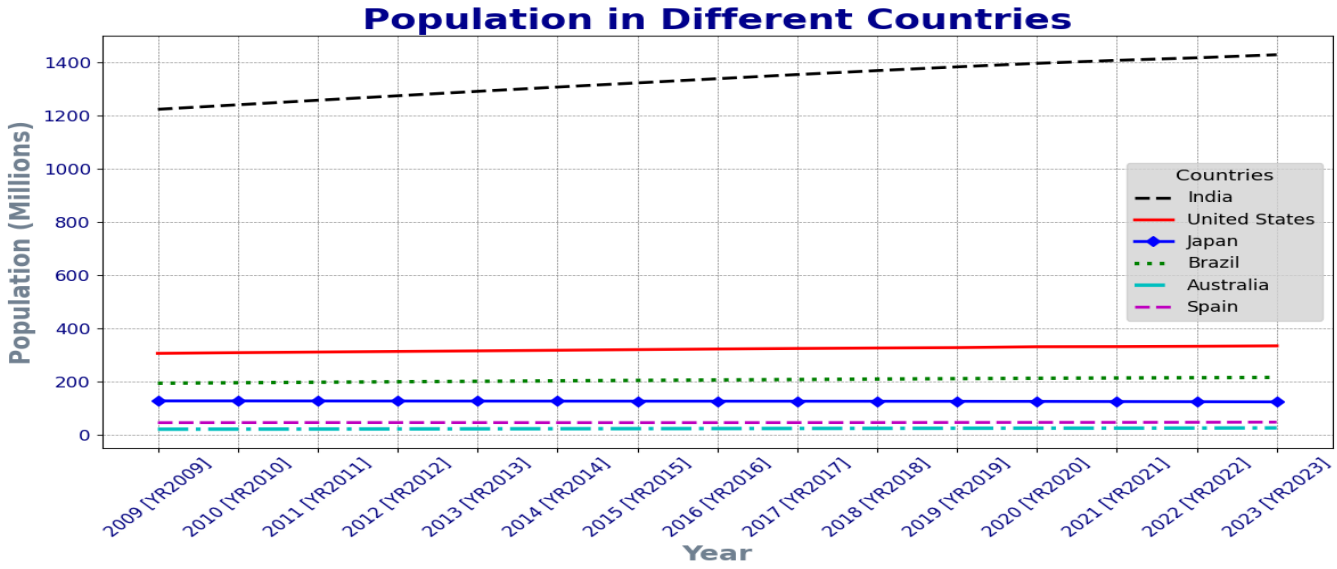
Github Link , Colab Link

Statistics and Trends

1. Relational Graph: I created this line plot to visualize the population trends of several countries over the years, using data I downloaded from the World Bank. In the data there is many countries but here I have showed only selected countries which shows population growth from 2009 to 2023 for India, the United States, Japan, Brazil, Australia, and Spain. The y-axis represents the population in millions, while the x-axis displays the years.

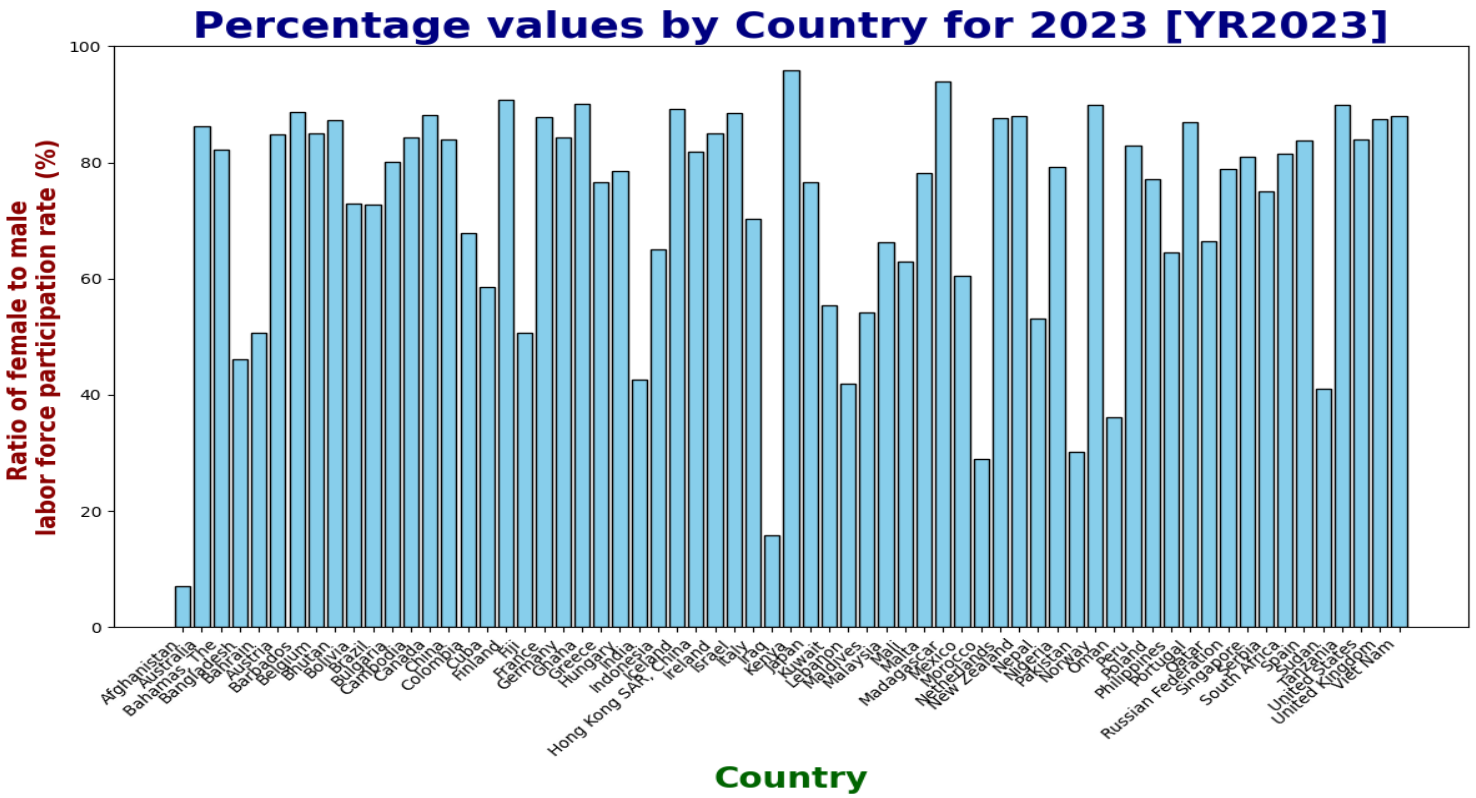


Additionally, India's population, represented by the black dashed line, shows consistent growth and remains above 1.3 billion. The United States, shown in red, has a stable population trend just above 300 million. Japan, Brazil, Australia, and Spain have flatter trends, each represented by distinct colours and line styles for easy comparison. I included a legend to identify each country's line, allowing for a clear view of population differences and trends across these selected countries. This graph provides an effective way to analyze the population differences and trends across these countries.

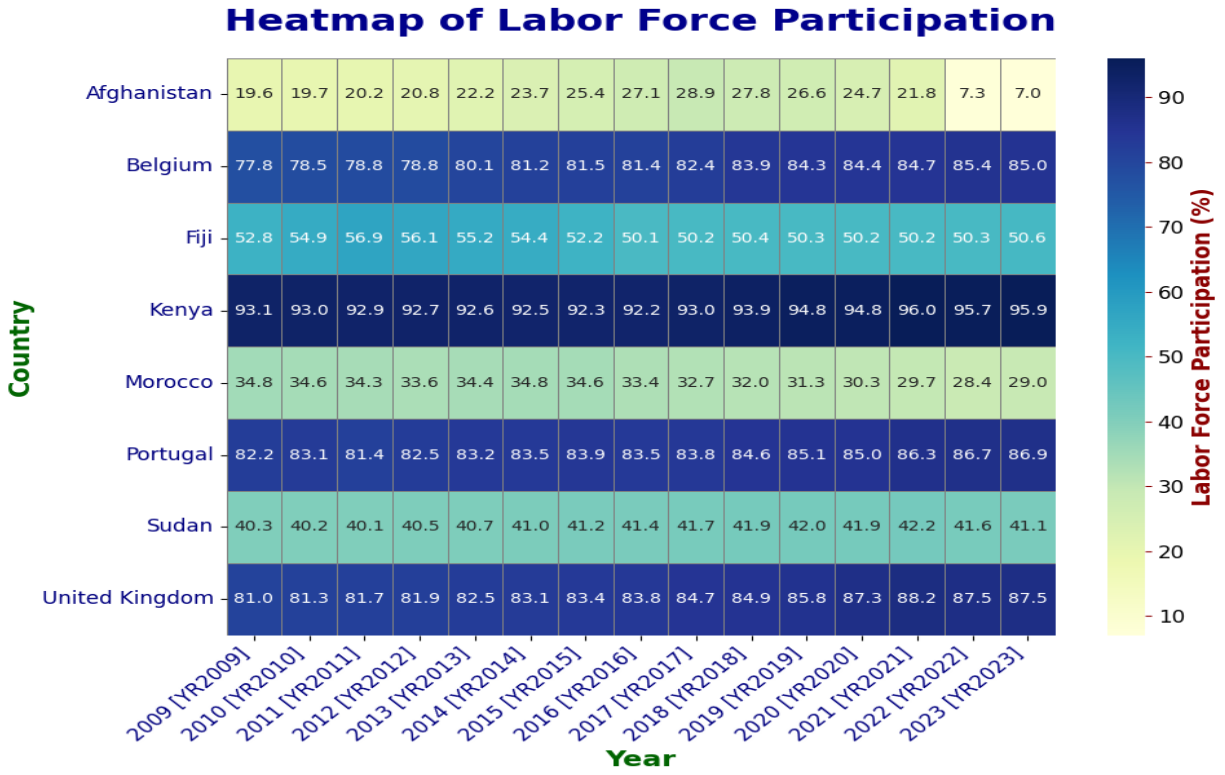
2. Categorical Graph: Bar chart is and very easy to understand for categorial data therefore I have created this bar plot and it illustrates the ratio of female to male labor force participation rates by 65 different countries for the year 2023 which is also downloaded from World Bank. This bar graph illustrates the x-axis lists various countries, while the y-axis represents the percentage ratio. The title at the top, "Percentage values by Country for 2023 [YR2023]," clearly indicates the data's focus. Each bar represents a different country, with the height of the bar corresponding to the percentage value of female participation relative to male participation. The graph uses a light blue color for the bars, making it easy to distinguish between different countries.

The y-axis is labelled in red, emphasizing the importance of the percentage values. The values range from 0 to 100%, allowing for a straightforward comparison across countries. From this we can clearly see that the labor force of women from Afghanistan has lowest percentage as compare to other country and while Kenya has the most among the all given other countries. The countries are listed in alphabetical order along the x-axis, with their names rotated for better readability.

Overall, This data can be useful for analyzing gender equality in employment globally. The bar plot is shown as below.



3. Statistical Graph: This heatmap displays labor force participation rates for various countries from 2009 to 2023. The countries are listed on the y-axis, and the years are on the x-axis. Each cell represents the participation percentage for a specific country and year, with colors ranging from light yellow to dark blue. The color gradient on the right shows the percentage scale, where lighter colors indicate lower participation rates and darker colors signify higher rates. For instance, Kenya consistently shows high participation, reflected in darker blue shades, while Afghanistan displays lower rates with lighter colors.



Furthermore, statistical depth has been showed in colab (coding work) as well.The title, "Heatmap of Labor Force Participation," clearly indicates the focus of the data. The use of color makes it easy to spot trends over time, such as increasing or decreasing participation in specific countries. This visual representation allows for quick comparison and analysis of changes across the years, providing a comprehensive overview of labor force participation trends.