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Lab9

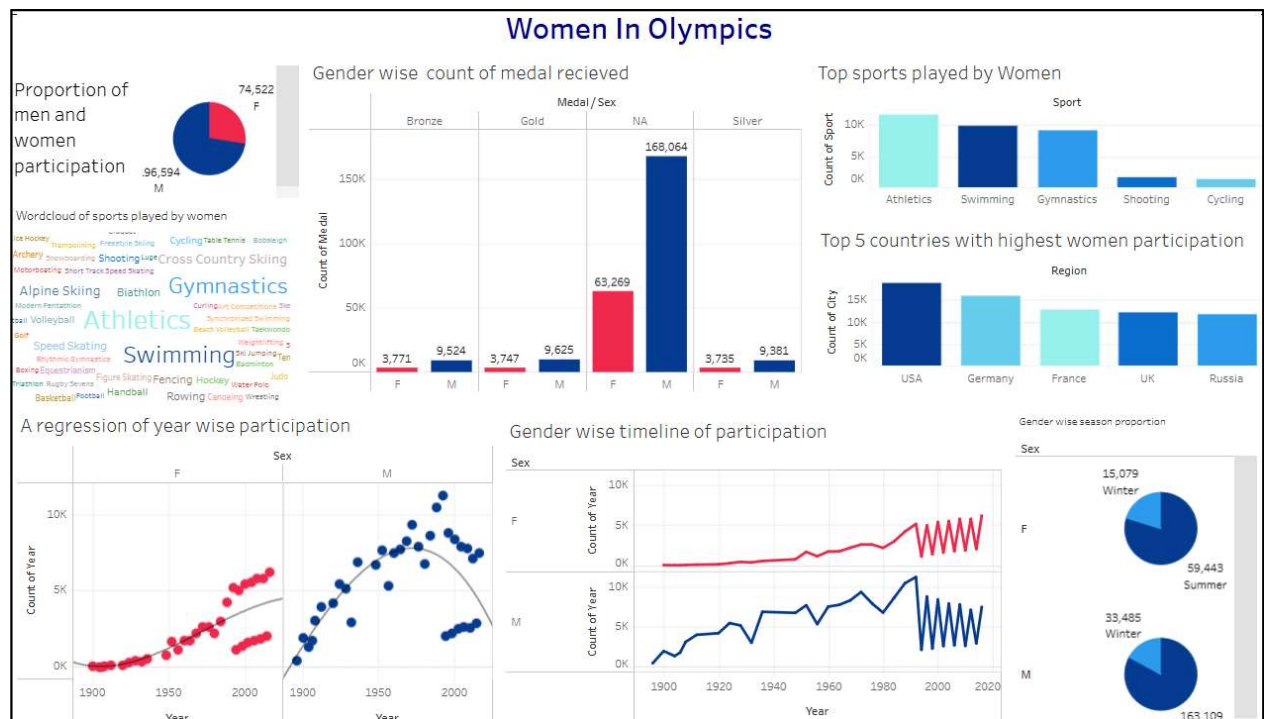
Aim:

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 cloud, Box and Whisker plot, Violin plot, Regression plot, 3D chart, Jitter)
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.

DashBoard:



Here are observations based on each diagram:

1. **Proportion of Men and Women Participation (Pie Chart):** The pie chart highlights a noticeable gap in participation between men and women, with 96,594 men and 74,522 women participating. This suggests that although women have gained substantial representation in the Olympics, there is still a considerable difference when compared to men, indicating room for improvement in gender parity.
2. **Gender-wise Count of Medals Received (Bar Chart):** This bar chart distinguishes medal counts by gender and award type. The "NA" category represents participants who did not win any award, and it shows a significant disparity, with many more men (168,064) not receiving medals compared to women (63,269). Among the medal winners, men have a higher count across all categories—bronze, silver, and gold—though women's participation is notable as well. This indicates that while fewer women have competed historically, their representation is increasing, though men still dominate in terms of both participation and medal counts.
3. **Word Cloud of Sports Played by Women:** This word cloud visually emphasizes the variety of sports in which women participate. Larger text like "Athletics," "Swimming," and "Gymnastics" indicates that these are the most common sports for women, while smaller terms like "Ice Hockey" and "Handball" suggest lesser participation in these sports. This showcases both the breadth of women's involvement in Olympic sports and some potential areas for growth.
4. **Top Sports Played by Women (Bar Chart):** The bar chart shows that "Athletics," "Swimming," and "Gymnastics" are the most popular sports for women, with a significant number of participants. Sports like "Shooting" and "Cycling" have fewer participants. This indicates that while women have opportunities in various sports, certain categories like athletics and gymnastics dominate their participation.
5. **Top 5 Countries with Highest Women Participation (Bar Chart):** This chart shows that the USA has the highest women participation in the Olympics, followed by Germany, France, the UK, and Russia. This suggests that countries with strong sports infrastructures and progressive gender policies may contribute to higher female representation in the Olympics.
6. **A Regression of Year-Wise Participation (Scatter Plot):** This scatter plot demonstrates the upward trend of women's participation over time. The regression line shows a clear increase in women's participation from 1900 to the present day, with a sharper rise in more recent decades. Men's participation, on the other hand, has plateaued and even dipped slightly in certain years. This could imply that the focus on increasing gender inclusivity in the Olympics is paying off.
7. **Gender-wise Timeline of Participation (Line Chart):** The timeline of participation further emphasizes the steady growth of female athletes in the Olympics, particularly from the 1980s onward. Men's participation shows more variability, but it remains generally higher. The chart reinforces the narrative of increasing opportunities and representation for women over time.

8. **Gender-wise Season Proportion (Pie Charts):** These pie charts show that both men and women tend to participate more in Summer Olympics than Winter Olympics, with women making up 59,443 entries in summer versus 15,079 in winter. Men's participation also follows this trend, with 163,109 entries in summer compared to 33,485 in winter. This reflects the wider range of sports and events available in the Summer Olympics, leading to higher overall participation.

This dashboard gives us a clear picture of women's participation in the Olympics over time and across different sports. We see a noticeable gap between the number of men and women participating, though women have made significant strides. The most common sports for women are athletics, swimming, and gymnastics, while countries like the USA and Germany lead in female representation. The trend over time shows a steady rise in women's participation, especially since the 1980s, reflecting growing inclusivity. Though men still win more medals overall, women's achievements are increasingly being recognized across many Olympic events.