
Project Title: Paris Olympic 2024 Dashboard

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Project Overview:

The **Paris Olympic 2024 Dashboard** provides a comprehensive analysis of the upcoming Olympic Games. It offers insights into athlete participation, country performance, and medal distribution by type and gender. This interactive dashboard enables users to explore detailed data and uncover trends that highlight top-performing countries and athlete demographics.

Techniques Used:

1. Data Modeling:

- **Description:** A well-structured **data model** was created to ensure relationships between the datasets (e.g., athlete data, country data, and medal counts) are clearly defined. Proper normalization and the use of **star schema** modeling techniques helped optimize the report's performance.
- **Tables Modeled:**
 - **Athletes** (by age, gender, and country)
 - **Medals** (by type and country)
 - **Olympic Events** (historical data)

2. DAX (Data Analysis Expressions):

- **Calculated Columns and Measures** were created to summarize key metrics:
 - **Total Medals:** Sum of Gold, Silver, and Bronze medals by country and gender.
 - **Medal Distribution by Gender:** Using **DAX formulas**, calculations were made to split medal counts by male and female participants.
 - **Percentage Contributions:** Measures to calculate each country's percentage contribution to the total medal count.

3. Advanced Visualizations:

- **Custom Bar and Line Charts:** Visuals used to display historical trends, medal distribution, and performance comparisons between countries.
- **Slicers:** Interactive slicers were used for users to filter data by gender, country, and medal type, enabling a dynamic and tailored user experience.
- **Key Insights Textbox:** Summaries and insights were dynamically displayed based on the filtered data, allowing users to instantly see key takeaways.

4. Drill-Downs and Interactivity:

- **Drill-down features** were enabled on country-specific visuals, allowing users to view medal performance by gender and medal type with a click.

- **Tooltips:** Hovering over visual elements provides additional data points, such as the exact number of medals or athlete details, enhancing the interactivity of the dashboard.
5. **Performance Optimization:**
- **Aggregations and Filters:** Power BI's built-in **aggregation techniques** were used to handle large datasets efficiently. Data refresh rates were optimized to ensure smooth report performance.
 - **Hierarchical Data:** Athlete and country data were structured in a hierarchical format, allowing easy navigation from broad overviews to detailed data points.
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Page 1: Overview of Total Medals

Visual 1: Total Medals by Country

- **Description:** A bar chart visualizing the total number of medals won by each country, broken down by medal type (Gold, Silver, Bronze).
- **Insight:** Countries like the **United States, France, China, Great Britain, and Australia** dominate the medal count, demonstrating their consistent Olympic success.

Visual 2: Total Medals by Country and Gender

- **Description:** A visual comparing the number of medals won by male and female athletes for each country.
- **Insight:** The **United States** leads in both male and female medal winners, highlighting gender balance in top-performing countries.

Key Highlights:

- **Insight:** The USA is the top performer, with a close balance in medals won by male (368 Gold) and female (363 Gold) athletes.
 - **Technique Used:** **DAX calculations** to dynamically update the total values based on the data filter.
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Page 2: Athlete Overview

Visual 1: Total Athletes by Country and Gender

- **Description:** Total number of athletes from each country, segmented by gender.
- **Insight:** The United States, France, and Australia have the largest number of participating athletes, with a near-even split between male and female competitors.

- **Technique Used:** Bar chart with **gender filters**, showing athlete participation and medal counts.

Visual 2: Total Athletes by Country and Medal Type

- **Description:** Comparison of athletes by medal type.
- **Insight:** This visual shows the leading countries with high medal counts, reinforcing the dominance of **USA, France, and Australia**.
- **Technique Used:** **Aggregated data** using **DAX formulas** to show total medal counts by country and type

Key Medal Stats:

- **Gold:** 732 (368 male, 363 female)
- **Silver:** 741 (371 male, 370 female)
- **Bronze:** 793 (402 male, 389 female)
- **Insight:** The medal distribution between genders is almost even, showcasing gender balance in Olympic achievements.

Visual 3: Athletes by Age Category and Gender

- **Description:** A bar chart visualizing the number of athletes across different age groups and genders.
- **Insight:** Most athletes fall within the **21-30** age category, with a slight male dominance in older age brackets.
- **Technique Used:** Age-based **hierarchical data modeling**, allowing drill-down by age and gender.

Page 3: Country Performance

Visual 1: Top Performing Countries by Medal Type

- **Description:** A bar chart ranking countries based on the number of Gold, Silver, and Bronze medals they have won.
- **Insight:** The **United States** is the leading country in all medal categories, with close competition from **France and China**.
- **Technique Used:** **DAX measures** for medal ranking.

Visual 2: Historical Trends of Medals by Year

- **Description:** Line chart displaying the number of medals won over time (1900-2020).
- **Insight:** The chart reveals steady growth in medal counts, reflecting both the increase in participating countries and the expansion of the Games over time. **World Wars** caused dips in medal totals due to cancellations or reduced participation during those periods.
- **Technique Used:** **DAX measures** for medal ranking.

Page 4: Historical Medal Performance

Visual 1: Gold, Silver, and Bronze Medals by Year

- **Description:** This line graph tracks the evolution of medal counts for Gold, Silver, and Bronze from the early 1900s to 2020.
- **Insight:** The steady increase in medals over the decades highlights the growth of the Olympics. Key peaks and dips correspond with major global events (e.g., World Wars) and changes in Olympic participation.
- **Technique Used:** **Time-based data visualization** with year-over-year comparison.

Conclusion:

The **Paris Olympic 2024 Dashboard** provides valuable insights into athlete participation and medal distribution across countries and genders. It also demonstrates how **data modeling, DAX calculations, and advanced visualization techniques** can be used to deliver insightful, interactive reports. It highlights key performers like the USA, and gives an in-depth look into how Olympic performance has evolved over the years. The dashboard also underscores gender balance in medal-winning athletes, emphasizing the inclusivity of the modern Olympic Games.