**ANALYSIS ON TOKOYO-2020 OLYMPIC GAME**

**Introduction/Overview**

This dataset presents a detailed breakdown of the Olympic medal tally for various countries, ranked by their total number of medals. It includes data for gold, silver, and bronze medals won by each country, as well as the overall total of medals. Additionally, it provides percentage distributions for each type of medal (gold, silver, and bronze), allowing for comparative insights into how each country performed across the different medal categories.

Data Source

The data was sourced from a reliable web database such as the **International Olympic Committee (IOC)**, which maintains official records of Olympic results. Sports databases like **Olympic.org** contributed to this dataset. It was then uploaded into Power Bi for cleaning and visualization.

Tools

For this dataset, **Power BI** was primarily utilized for both data cleaning and visualization. Power BI is a powerful business intelligence tool that offers a wide range of features for transforming raw data into meaningful insights through dynamic visualizations. Below is a detailed explanation of the tools and features used within Power BI:

**1. Data Cleaning**:

* + **Handling Missing Data**: Any missing values or blanks within the dataset was identified and dealt with by filling and replacing them.
* **Data Transformation**:
  + **Filtering Rows**: Specific countries or records can be excluded or filtered based on criteria like medal counts or rankings.
  + **Creating New Columns**: I made use of Dax measures to create new columns and calculate columns such as the total number of medals or the percentage distribution for gold, silver, and bronze medals.
  + **Creating Measures**: A measure was created to sum the total medals won by each country and also to calculate the percentage share of each medal type (gold, silver, bronze) relative to the total medals.

**3. Power BI Visualizations**

* **Visual Types Used**:
  + **Bar/Column Charts**: Bar charts were used to compare the number of gold, silver, and bronze medals won by different countries. This allows for quick visual comparisons of performance across nations.
  + **Pie Charts/Donut Charts**: These charts help visualize the percentage breakdown of each type of medal (gold, silver, bronze) for individual countries. This is particularly useful for showing the distribution of medals as a portion of the total.
  + **Tables**: Power BI allows for tabular displays of the data, providing a structured view of the medal counts and percentages.
  + **Maps**: Geographical maps can be used to visualize how different countries performed in the Olympic Games, making it easy to see the global distribution of medal achievements.
* **Slicers and Filters**: Interactive slicers were used to filter the data by country, medal type, or rank, allowing for customized analysis and exploration of the dataset.

**Data Description**

This dataset provides a comprehensive view of the Olympic medal distribution across multiple countries. It includes key performance metrics for each country, focusing on the number of medals won and the percentage distribution of these medals across different types (gold, silver, and bronze). The dataset is organized by rank, which is based on the total number of medals won by each country. Below is a detailed breakdown of the dataset:

1. **Rank**: The dataset ranks countries based on the total number of medals they have won. The country with the highest total medal count is ranked first, and subsequent rankings are based on descending totals.
2. **Countries**: This column lists the participating countries in the Olympic Games, each of which has won at least one medal.
3. **Gold Medals**: The number of **gold medals** won by each country. These are typically the highest achievement in the Olympic Games and are key in determining a country's overall rank.
4. **Silver Medals**: The number of **silver medals** won by each country. Silver medals are awarded to the second-place finishers in each event.
5. **Bronze Medals**: The number of **bronze medals** won by each country, awarded to third-place finishers.
6. **Total Medals**: This column sums up the total number of medals (gold, silver, and bronze) that each country has won, providing an overall measure of performance across all events.
7. **Percentage of Gold Medals**: The percentage of gold medals relative to the total medals won by the country. This metric shows how many of the total medals won by the country were gold, giving insight into the country's dominance in winning first place.
8. **Percentage of Silver Medals**: The percentage of silver medals relative to the total medal count. This helps in analyzing a country’s tendency to secure second-place finishes.
9. **Percentage of Bronze Medals**: The percentage of bronze medals relative to the total medals. It highlights the proportion of third-place finishes achieved by each country.

**Problem Statement**

**1. Which Country Dominated the Olympics in Terms of Gold Medals?**

* **Problem Statement**: Identify the country or countries that won the highest percentage of gold medals relative to their total medals and analyze what factors contributed to their success.

**2. What is the Relationship Between Total Medal Count and Percentage of Gold Medals?**

* **Problem Statement**: Explore whether countries with higher total medal counts also tend to have higher percentages of gold medals, or if they win more silver and bronze medals relative to gold.

**3. How Does Medal Distribution Vary Between Countries?**

* **Problem Statement**: Investigate how the distribution of gold, silver, and bronze medals varies between countries with similar total medal counts.

**4. Which Countries Overperform or Underperform in Securing Gold Medals?**

* **Problem Statement**: Identify countries that have a high total medal count but a lower percentage of gold medals, and determine potential reasons for underperformance in winning gold.

**5. What Factors Contribute to the Success of Top-Ranked Countries?**

* **Problem Statement**: Examine the factors that contribute to the success of the top-performing countries in terms of their overall rank and total medal count.

**6. How Do Smaller or Lesser-Known Countries Perform Compared to Global Powerhouses?**

* **Problem Statement**: Compare the performance of smaller or lesser-known countries with larger, more established countries in terms of medal distribution.

**7. How Do Regional or Continental Trends Impact Olympic Performance?**

* **Problem Statement**: Examine how regional factors (e.g., Europe, Asia, Americas) influence Olympic medal counts and the types of medals won by countries within each region.

**8. What is the Success Rate of Countries in Specific Types of Medals?**

* **Problem Statement**: Identify which countries have a higher tendency to win a particular type of medal (gold, silver, or bronze) and analyze the success rate in specific events.

**9. Can Historical Medal Performance Predict Future Olympic Success?**

* **Problem Statement**: Using historical medal distribution data, can we predict which countries are likely to succeed in future Olympic Games?

**RECOMMENDATION**

**1. Increase Focus on Gold Medal Performance**

* **Recommendation**: Countries with a high total medal count but a lower percentage of gold medals should analyze their strategies to improve first-place finishes. This can include increasing investment in high-potential athletes, enhancing coaching techniques, and focusing on event-specific training that yields gold medals.

**2. Diversify Event Participation**

* **Recommendation**: Countries with a low overall medal count but a high success rate in specific events should consider diversifying their participation in other sports disciplines. By expanding into less competitive events or sports, they could increase their total medal haul.

**3.Improve Talent Development and Athlete Retention**

* **Recommendation**: Governments and sports organizations should invest in long-term athlete development programs to nurture talent from a young age. Providing adequate funding, training facilities, and competitive opportunities can lead to better medal outcomes in the future.

**4. Target Underrepresented or Niche Sports**

* **Recommendation**: Countries with lower medal counts should target underrepresented sports where there is less global competition, such as certain team sports, niche athletics events, or emerging Olympic disciplines.

**5. Benchmark Performance Against Leading Nations**

* **Recommendation**: Countries aspiring to improve their medal counts should benchmark their performance against top-performing nations such as the United States, China, and Japan. They can study their training programs, funding mechanisms, and event participation strategies to adopt best practices.

**6. Focus on Efficient Use of Resources**

* **Recommendation**: Countries with limited sports budgets should focus on efficient resource allocation by investing in high-potential athletes and events where they have a competitive advantage. Funds should be directed toward sports with the best prospects for medals.

**7. Strengthen Coaching and Technical Expertise**

* **Recommendation**: Invest in high-quality coaching staff and sports scientists to improve athletes' performance. Countries that fall behind in gold medal counts should consider hiring foreign coaches with expertise in key sports to build local capacity.

**8. Establish Strategic Partnerships with Successful Countries**

* **Recommendation**: Countries looking to improve their medal tallies should seek partnerships with nations that excel in specific sports. This could include joint training camps, knowledge-sharing programs, or foreign coaching exchanges.

**9. Focus on Gender Parity and Inclusion**

* **Recommendation**: Countries should aim to support gender parity in sports participation by increasing opportunities for women and other underrepresented groups. Ensuring that both men’s and women’s teams receive equal funding and attention can enhance overall medal prospects.

**10. Utilize Data Analytics for Future Performance Improvement**

* **Recommendation**: Countries should use data analytics to track and analyze past performances, identify trends, and make data-driven decisions about where to focus efforts for future Olympic Games.

**11. Invest in Mental Health and Athlete Well-Being Programs**

* **Recommendation**: In addition to physical training, countries should focus on mental health programs to support athletes in high-pressure environments. Ensuring the mental well-being of athletes can lead to improved focus, motivation, and ultimately better performances in competitions.

**12. Develop Incentive Programs to Motivate Athletes**

* **Recommendation**: Introduce financial and non-financial incentives to motivate athletes to aim for top-tier performances, particularly in events where a country traditionally underperforms.