**Power BI Olympics User Guide**

**1. Introduction**

The **Olympic Performance Analysis** report focuses on analyzing 120 years of historical Olympic data. It includes key trends related to medal counts, athlete participation, and country-specific performance, with an aim to predict medal outcomes for future events like the 2028 Olympics.

The analysis provide insights on:

* Medal performance trends by country and athlete
* Participation rates across different Olympic events
* Predictive models for future Olympics.

**2. Project Overview**

The main objective is to analyze the performance of countries, athletes, and sports categories throughout the history of the Olympics, allowing stakeholders to:

* Identify the key drivers behind medal-winning performance.
* Evaluate participation growth rates by country.
* Compare athlete and country performance across years, events, and seasons.
* Predict medal outcomes for future Olympic events based on historical trends.

**3. Data Source Overview**

The data is organized into

1**.Olympics dataset Table:**

* + Captures the medal counts (Gold, Silver, Bronze) for each country by year and Olympic edition.
  + Contains detailed information about each event an athlete participated in, including medals won, event details, and positions.
  + Contains fields like player\_id, name, sex, team, NOC (National Olympic Committee), year, and medal status.

**2.Game Icons Table:**

* Contains URls for each Sport to link with other tables.

**3.Flags Table:**

* + Contains URls for each Country and NOC to link with other tables.

**4. Data Modeling and Preparation**

Data preparation included several critical steps:

* **Data Cleaning**: Missing values in athlete height and weight columns were handled by interpolation, while duplicate entries were removed.
* **Transformation**:
  + **Calculated Fields**: We introduced measures such as HasMedal to count athletes who have won any medal and fields like TotalGoldMedal, TotalSilverMedal, and TotalBronzeMedal to aggregate medal counts.
  + **Participation Growth Rate**: A custom measure was created to track country participation trends over time using Olympic\_Athlete\_Event\_Details.

**5. Report Design & Visualization**

The report is divided into several key pages:

* **Overall Medal Performance**: Shows total medals won by each country, with interactive continent-level drilldowns.
* **Athlete Participation**: A line chart visualizes participation trends for each country from 1896 to 2024.
* **Medal Prediction for 2028**: A forecast model for the upcoming Olympic Games based on historical medal trends.
* **Gender Breakdown**: A pie chart shows the gender distribution of medal winners across different sports.

Visuals used:

* **Bar Charts**: To compare total medal counts per country.
* **Line Graphs**: To track participation growth rates.
* **Geographical Maps**: To show medal distribution by country and continent.

**6. KPIs and Metrics**

Key metrics tracked in the report:

* **Total Medals by Country**: Sum of Gold, Silver, and Bronze medals won per country.
* **Participation Growth Rate**: Shows how athlete participation has evolved by calculating year-over-year growth.
* **Top Sports for Egypt**: Identifies the top-performing sports for Egypt, based on the number of medals earned.
* **Continental Medal Share**: Analyzes the contribution of each continent to total medal counts.

**7. Interactive Features and Drilldowns**

Users can interact with the data using the following features:

* **Country and Year Slicers**: Allow users to filter the data by specific countries and Olympic years.
* **Drilldown by Continent and Country**: Enables deeper exploration from continent-level to country-specific medal counts and participation rates.
* **Sport-wise Filtering**: Users can filter medal counts and athlete participation by specific sports.
* **Tooltips**: Provide additional insights when hovering over medals and participation charts.

**8. Technical Specifications**

* **Software**: Power BI Version 2023
* **Data Source**: CSV files and Excel sheets for historical Olympic data.
* **Performance**: Data is optimized for quick loading using aggregations and calculated columns.

**9. Limitations and Assumptions**

* **Winter Olympics Data Exclusion**: The analysis is limited to Summer Olympics data due to the unavailability of comprehensive Winter Olympics datasets.
* **Assumptions for 2028 Predictions**: Predictive models assume consistent participation rates and no major geopolitical disruptions that could affect medal counts.

**10. Troubleshooting**

* **Data Not Updating**: Check the data source connection and ensure that the dataset refresh manually from the dataset settings.
* **Visuals in Power BI show no data, even though the dataset is populated:** Check Filters applied in your visuals might be excluding data. Clear or adjust filters to ensure the correct data range is displayed.
* **Python Visual Not Displaying:** Verify that Python is installed on the machine where Power BI is running. Go to File > Options and settings > Options, then check under Python scripting to ensure Power BI is pointing to a valid Python installation.

**11. Future Enhancements**

* **Integration of Winter Olympic Data**: In future iterations, Winter Olympics data will be integrated for a more complete analysis.
* **Predictive Analytics**: Incorporate machine learning models to improve the accuracy of medal predictions for upcoming Olympic events.