Project Title

Olympic Data Analysis (1976-2008)

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Executive Summary

This report summarizes the analysis performed on the Summer Olympic medal winners dataset covering 1976 (Montreal) through 2008 (Beijing). Using Python for data cleaning, exploration, visualization, and forecasting, SQL for large-scale aggregation and querying, and Power BI for an interactive dashboard, we investigated medal distribution trends, identified top-performing countries, examined gender-based participation and medal patterns, and produced simple forecasts of medal counts for 2012, 2016, and 2020.

Dataset description

Source: **Summer Olympic medals dataset (1976-2008)**

Columns used for analysis: City, Year, Sport, Discipline, Athlete, Event, Gender, Country, Country_Code, Event_gender, Medal.

Rows: Every medal awarded within the period (bronze, silver and gold)

Key takeaways

- Clear concentration of medals among a small set of countries across the period; traditional powerhouses (United States, Soviet Union, Australia, Germany, etc.) dominate total medal counts.
- Gender participation and medal awarding expanded over time; female participation and female-only events gradually increased between 1976 and 2008.
- Sport-level specialization is strong; several countries show high medal concentration in a few sports (e.g., swimming, gymnastics, athletics).
- Forecasting based on historical medal trends produces baseline estimates for 2012, 2016, and 2020.

Libraries used in Python,

- Pandas, Numpy for data wrangling
- Matplotlib, Seaborn for static visualization
- Scikit-learn or statsmodels for forecasting

Additionally, forecasted medal counts for future Olympic years (2012, 2016, 2020) were generated using a Random Forest model in Python, and the results are provided in a separate Excel file.

In **SQL**, I have written queries to extract the medal distribution, gender splits, top performers and related aggregations.

In **Power BI**, I have built an interactive dashboard with clear visuals, filters, slicers and tooltips.