Olympics Performance Analysis Report

1. Introduction

This report presents a comprehensive analysis of Olympic performance using the cleaned dataset **olympics_cleaned.csv**, covering Summer Olympic Games from 1976 to 2008. The objective of this analysis is to evaluate country-wise performance, medal efficiency, temporal trends, and sport-level specialization using **Excel** for KPI and pivot analysis and **Tableau** for interactive visualizations.

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2. Dataset Overview

- **Data Source:** olympics_cleaned.csv
- **Granularity:** Each row represents one Olympic medal event
- **Key Columns Used:**
  - Year
  - Country
  - Sport
  - Medal
  - Medal_Points (Gold = 3, Silver = 2, Bronze = 1)

The dataset is pre-cleaned and validated, ensuring no missing values in critical analytical fields such as Country, Year, Sport, and Medal_Points.

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3. Excel Analysis

Excel was used for KPI validation and country-level aggregation through pivot tables.

3.1 Key Performance Indicators (KPIs)

The following KPIs were calculated:

- **Total Medals:** Sum of all medals awarded across countries
- **Total Weighted Medal Score:** Sum of Medal_Points, giving higher weight to Gold medals
- **Gold Contribution Percentage:** Proportion of total weighted score contributed by Gold medals

These KPIs provide an executive-level summary of Olympic competitiveness and medal quality.

3.2 Pivot Table Analysis: Country vs Medal Performance

A pivot table was created with:

- Rows: Country
- Values:
    - Total Medals
    - Weighted Medal Score

Insight:
While a few countries dominate in total medal count, some countries demonstrate higher efficiency by achieving a stronger weighted medal score relative to their medal volume.

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4. Tableau Visual Analysis

Tableau was used to build interactive and visual insights across geography, time, and sport dimensions.

4.1 Map Visualization: Country Medal Share

Visualization Type: Filled Map

- Country plotted geographically
- Color and size encoded by total Medal_Points

Insight:
Olympic success is geographically concentrated, with North America, Europe, and East Asia accounting for the majority of weighted medal performance.

4.2 Line Chart: Medal Points Over Time

Visualization Type: Line Chart

- X-axis: Year
- Y-axis: Total Medal_Points

Insight:
There is a clear upward trend in medal points over time, driven by the expansion of Olympic events and increased global participation.

4.3 Heatmap: Sport vs Country

Visualization Type: Heatmap

- Rows: Sport
- Columns: Country
- Color intensity: Medal_Points

Insight:
Countries tend to specialize in specific sports rather than performing uniformly across all disciplines, highlighting focused investment and training strategies.

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5. Dashboard Summary

An integrated Tableau dashboard was created combining:

- Country Medal Share Map
- Medal Trend Line Chart
- Sport vs Country Heatmap

Interactive filters for Year and Country allow users to explore performance patterns dynamically.

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6. Business Insights and Conclusions

- Olympic dominance is concentrated among a small set of countries.
- Medal quality (Gold-weighted performance) provides deeper insight than raw medal counts.
- Countries demonstrate strong sport-level specialization.
- Long-term trends show increasing competitiveness and participation over time.

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7. Tools and Technologies Used

- **Microsoft Excel:** KPI calculation and pivot table analysis
- **Tableau Desktop:** Interactive dashboards and visual analytics
- **Dataset:** Olympics Cleaned CSV (1976–2008)

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8. Final Remarks

This project demonstrates an end-to-end analytics workflow, starting from validated clean data, moving through Excel-based aggregation, and culminating in interactive Tableau visualizations. The approach reflects real-world business intelligence practices and provides actionable insights into Olympic performance dynamics.