Sports Performance Analytics

An analysis on performance by age and country.

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Introduction and Project Overview

Client, Dataset and Objectives

- SportStats: A sports analytics firm partnering with journalists and trainers.

- Dataset: Includes **athlete_events.csv** and **noc_regions.csv**, covering Olympic athlete demographics, events, and medal performance.

Objectives

- Uncover trends in sports performance, athlete demographics, and country-based success.

- Provide actionable insights for training programs and sports journalism.

Key Descriptive Statistics & Exploratory Data Analysis

General Insights

- Age, height, and weight distributions across sports.

- Countries with the highest medal counts.

- Most frequently played Olympic sports.

Findings

- Endurance sports favor younger athletes.

- Certain countries specialize in specific sports due to training programs.

- Some sports exhibit near gender parity, while others are male/female-dominated.

Deeper Analysis: Correlations & Trends
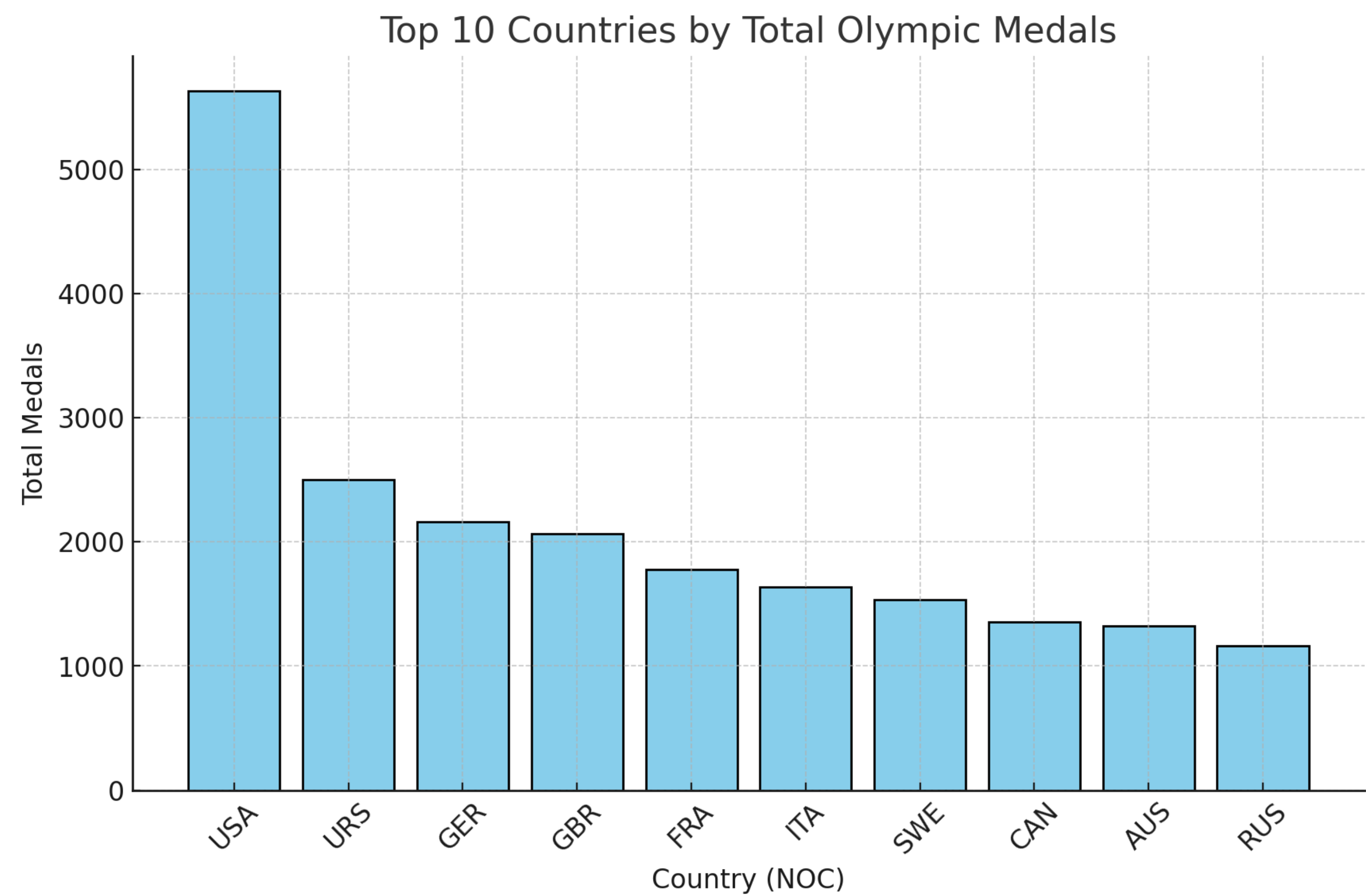## Key Correlations Found

- **Age vs. Medal Success in Endurance Sports:** Younger athletes outperform in swimming and gymnastics.

- **Medal Efficiency per Country:** Some nations produce elite athletes at a higher rate.

- **Height & Success in Specific Sports:** Tall athletes perform better in basketball and rowing.

Metrics Created:

- Medal Efficiency Score (Total Medals / Total Athletes per Country)

- Identifies which countries have the best training programs.

- Performance Consistency Index (Medals per Olympic Year for Top Nations)
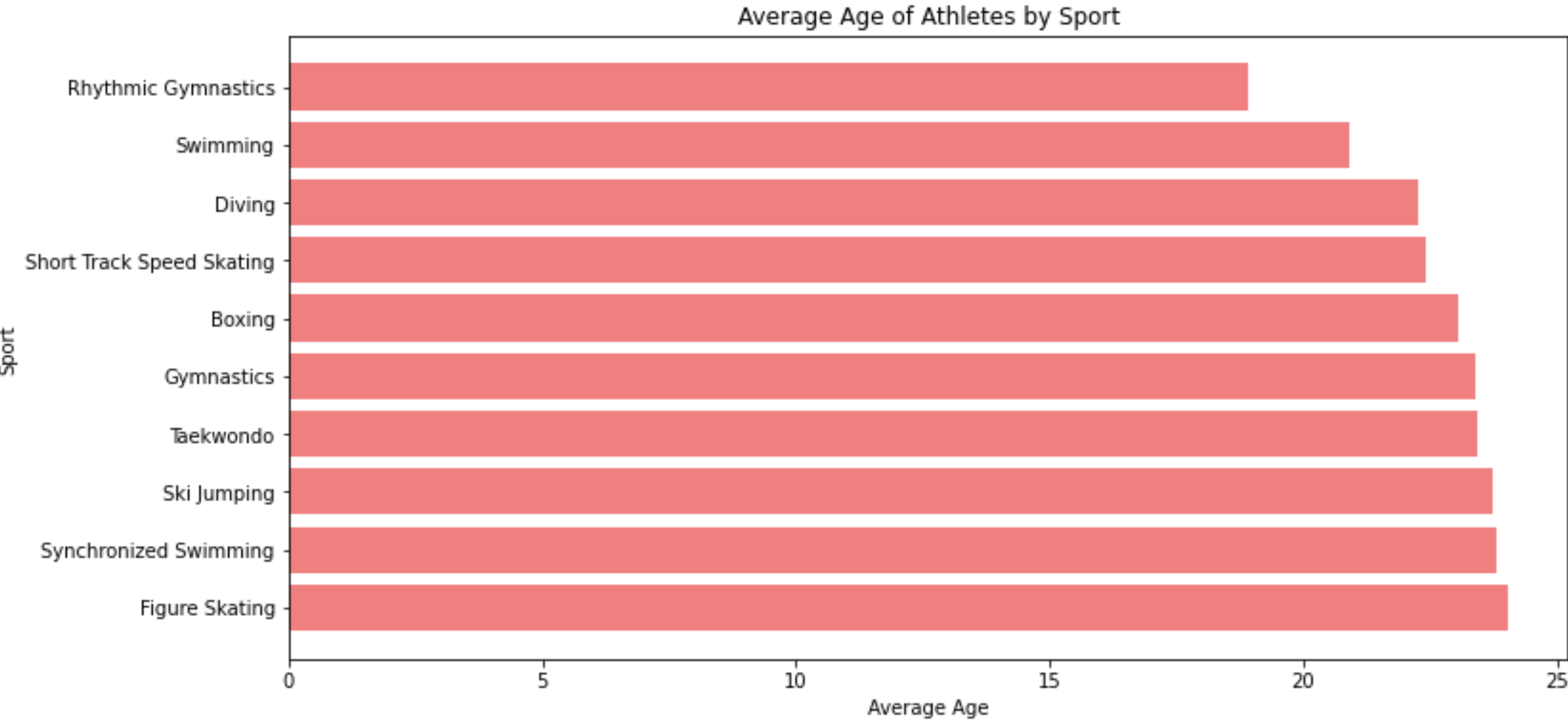
- Highlights long-term dominance in Olympic sports.

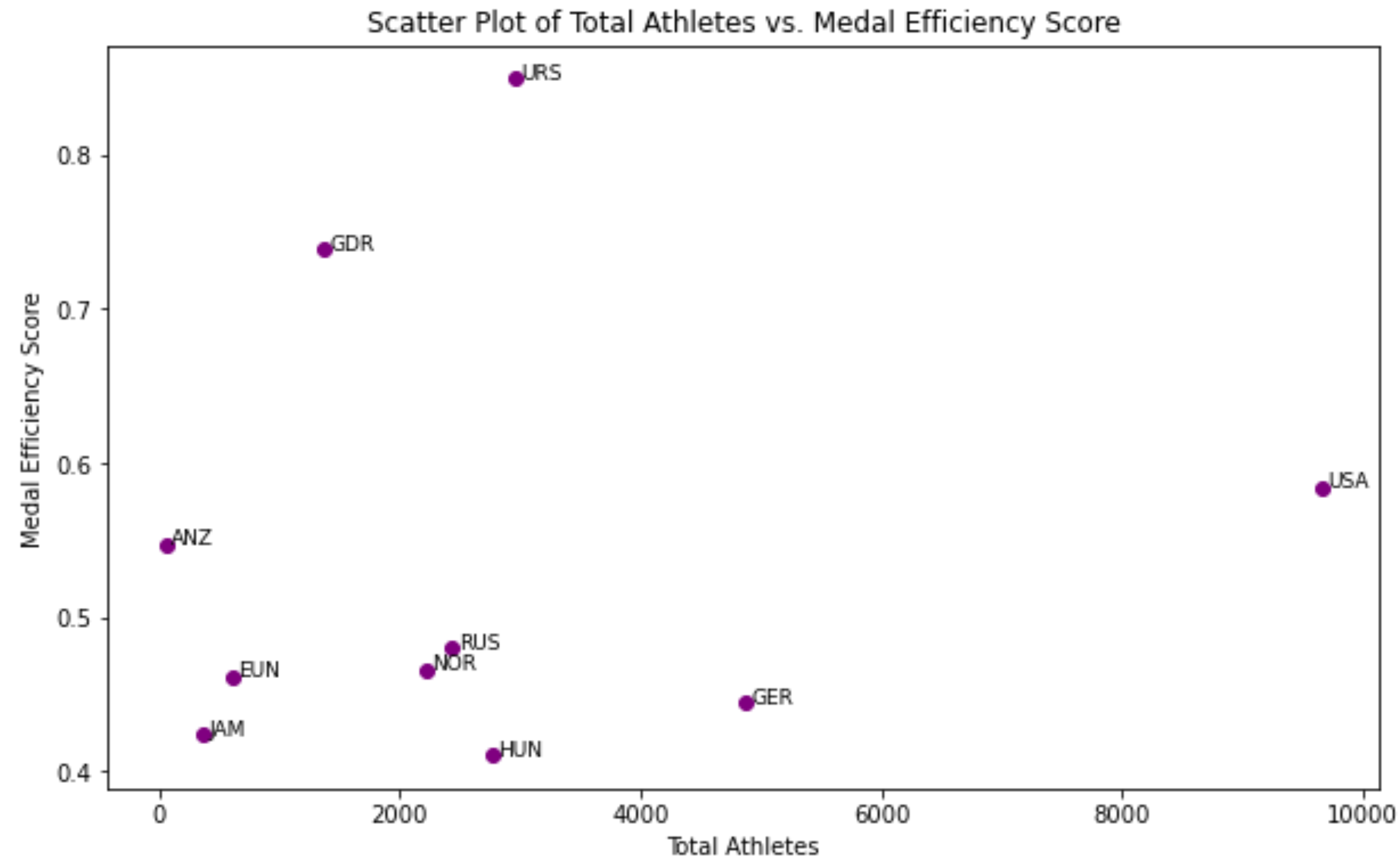# Visualisations and Insights
Medal distributions by Country

Top 10 Countries by Total Olympic Medals

Visualisations and Insights
Age Trends Across Different Sports

Average Age of Athletes by Sport

Visualisations and Insights
Medal efficiency by Country

Scatter Plot of Total Athletes vs. Medal Efficiency Score

Recommendations and Next Steps
For SportStats

- Focus on **emerging sports trends** to help journalists create compelling stories.

- Offer **training efficiency reports** to national sports organizations.

Future Analysis:

- Investigate host country advantages in performance.

- Explore geopolitical and economic factors affecting Olympic success.

- Use **machine learning** to predict future medal winners.