

## Analysis Report for Top 4 Goal Scoring Countries of All Time

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### Objective

The primary goal of this project was to analyze football goal data to identify the top 4 goal-scoring countries of all time. This analysis provides insights into the distribution of goals scored by these countries and visualizes the data using a pie chart and a horizontal bar chart.

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### Data Description

The dataset used in this project, Goalscorers.csv, contains the following key columns:

- **home\_team:** Represents the home team in the match.
- **away\_team:** Represents the away team in the match.

Using these columns, the frequency of goals scored by countries, whether as the home or away team, was calculated to determine the top-performing nations.

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### Methodology

1. **Data Loading:** The dataset was loaded into a pandas DataFrame for processing.
2. **Data Preprocessing:**
  - Combined the home\_team and away\_team columns using the Counter module.
  - Calculated the total number of goals scored by each country by updating the counter with both home and away team values.
3. **Top 4 Countries Extraction:**
  - Identified the top 4 countries with the highest goal counts using the most\_common() method from the Counter class.
4. **Data Visualization:**
  - Created a **pie chart** to represent the proportional goal contribution of the top 4 countries.
  - Created a **horizontal bar chart** to compare the total goals scored by these countries.
5. **Aesthetic Enhancements:**
  - Used the fivethirtyeight style for a modern and clean look.
  - Added shadows and explosion effects to the pie chart for emphasis.

- Added titles, labels, and legends to make the visualizations self-explanatory.
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## Findings

- **Top 4 Goal Scoring Countries:** The top-performing countries identified were:
    1. **Brazil**
    2. **Argentina**
    3. **Germany**
    4. **Uruguay**
  - **Goal Distribution:**
    - Brazil accounted for the highest percentage of goals at **26.7%**.
    - Argentina followed closely with **25.1%**, while Germany and Uruguay contributed **24.5%** and **23.7%**, respectively.
  - **Visual Insights:**
    - The pie chart highlights the proportional dominance of each country in terms of goals scored.
    - The horizontal bar chart provides a clear and direct comparison of total goals scored by each country.
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## Recommendations

1. **Advanced Analysis:**
    - Include time-series analysis to observe trends in goal scoring over different decades.
    - Analyze other metrics, such as average goals per match or goals scored in specific tournaments.
  2. **Data Expansion:**
    - Incorporate additional data, such as player statistics, match outcomes, or tournament phases, to provide deeper insights.
  3. **Presentation Improvements:**
    - Use interactive visualization tools like Plotly or Tableau for better audience engagement.
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## **Conclusion**

This project successfully analyzed and visualized the top 4 goal-scoring countries of all time using a structured approach and effective visualizations. The results highlight the dominance of these countries in football history and provide a foundation for further exploratory analyses.