**Data Visualization Final Project**

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**Navigating the Labyrinth of Football Excellence: A Comprehensive Analysis (2012 – 2023)**

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**Introduction:**

**Decoding the Winning Formula: Unravelling the Secrets of Football Club Success**

Football, the sport that has captivated the hearts of billions worldwide, is not just about athleticism and skill.

Behind the glamorous displays of talent lies a intricate web of factors that determine the success of football clubs.

Our project aims to unveil these secrets, exploring the key elements that drive club performance in the world's most popular sport. We will delve into the world of finance, strategy, and the influence of external factors, providing insights that will benefit both fans and industry professionals.

Join us as we embark on this journey into the world of football, decoding the winning formula that separates the elite from the rest.

**Ambitiousness with my research questions:**

Football: Beyond the Pitch, Exploring the Factors that Determine Club Dominance on the other hand, this in-depth research helped me formulate a few questions that include:

1. How does the football ranking of a particular country compare to other countries, and are there any regional patterns in these football rankings?
2. What is the daily score view of the average goals scored in different top leagues?
3. In which countries are major soccer leagues played globally?
4. What is the global ranking of football clubs based on the SPI (Soccer Power Index) in different leagues and countries, and how does this ranking reflect the quality of the leagues, countries, and clubs involved?
5. Among leagues, countries, and clubs, which entities have the highest average frequency of transfer expenditures?
6. Which club has had the most consistent, most significant increase in, and most volatile transfer spending patterns over the years?
7. What are the biggest clubs in terms of market capitalization in 2023?
8. Who are Top Soccer agents by Portfolio Value?
9. To what extent does club spending correlate with SPI Rank? What is the predictive power of SPI Rank for club spending?
10. Which club among the top 20 experienced the most significant year-over-year SPI score and rank increase and decrease?
11. How is the global distribution of soccer clubs changing over time?

**Methodology:**

Several data sources contributed to the insights presented in the project, including public databases, research projects, and open-source repositories. These sources provided a comprehensive and up-to-date collection of information on club transfer spending, SPI rankings, and other relevant metrics.

* **Projects FiveThirtyEight:** This data source provided insights into the relationship between club transfer spending and team performance, including an analysis of the most effective and inefficient transfer strategies.
* **Data World:** This data source offered a comprehensive collection of football data, including club finances, player statistics, and historical match results.
* **Football Data Transfer Market:** This data source specialized in providing detailed information on club transfer expenditures, including transfer fees, player salaries, and contract durations.
* **https://github.com/footballcsv:** This open-source repository hosted a collection of football datasets, including player statistics, match results, and club financial data.
* **JanVanHaaren/soccer**-analytics resources: This open-source repository provided a collection of resources for football analytics, including data sources, tutorials, and code examples.
* **Eddwebster/football analytics**: This open-source repository offered a collection of data sources and analysis scripts for football analytics.
* **Football-dataset/SocccerAct10/GitHub:** This open-source repository provided a collection of football datasets for various leagues and competitions.
* **Footballcsv:** This database provided a comprehensive collection of football data, including player statistics, match results, and club financial data.

These data sources were carefully evaluated and selected to ensure the accuracy and reliability of the information presented in the project. The data was then cleaned, pre-processed, and analysed using appropriate statistical method.

**Data sources:**

My main sources of data include:

* [**Projects Five Thirty-Eight**](https://projects.fivethirtyeight.com/)
* **Data World**
* **Football Data Transfer Market**
* [**https://github.com/footballcsv**](https://github.com/footballcsv)
* [**JanVanHaaren/soccer-analytics resources**](https://github.com/JanVanHaaren/soccer-analytics-resources)
* [**Eddwebster/football analytics**](https://github.com/eddwebster/football_analytics)
* [**Football-dataset/SocccerAct10/GitHub**](https://github.com/footballcsv)
* [**Footballcsv**](https://github.com/footballcsv)

**Datasets:**

**Dataset 1 – SPI Matches Latest**

This dataset contains crucial football match data, including season, date, league IDs, team details, SPI ratings, expected goals, win probabilities, match significance, actual and adjusted goal scores, and more. It enables analysts to assess team performance, predict outcomes, and identify trends across various leagues and seasons.

|  |  |
| --- | --- |
| **Header** | **Definition** |
| **season** | The season during which the match was played |
| **date** | The date of the match (YYYY-MM-DD) |
| **league\_id** | A unique identifier for the league this match was played in |
| **league** | The name of the league this match was played in |
| **team1** | The home team's name |
| **team2** | The away team's name |
| **spi1** | The home team's overall SPI rating before the match |
| **spi2** | The away team's overall SPI rating before the match |
| **prob1** | The probability of the home team winning the match |
| **prob2** | The probability of the away team winning the match |
| **probtie** | The probability of match ending in a draw (if applicable) |
| **proj\_score1** | The number of goals we expected the home team to score |
| **proj\_score2** | The number of goals we expected the away team to score |
| **importance1** | The importance of the match for the home team (0-100) |
| **importance2** | The importance of the match for the away team (0-100) |
| **score1** | The number of goals scored by the home team |
| **score2** | The number of goals scored by the away team |
| **xg1** | The number of expected goals created by the home team |
| **xg2** | The number of expected goals created by the away team |
| **nsxg1** | The number of non-shot expected goals created by the home team |
| **nsxg2** | The number of non-shot expected goals created by the away team |
| **adj\_score1** | The number of goals scored by the home team, adjusted for game state |
| **adj\_score2** | The number of goals scored by the home team, adjusted for game state |

**Dataset 2 – SPI\_Matches**

This dataset tracks soccer clubs' SPI scores from 2016 to 2022, enabling analysts to monitor their performance changes over time.

|  |  |
| --- | --- |
| **Club** | **Soccer Club** |
| SPI 2016 | Soccer Power Index 2016 |
| SPI 2017 | Soccer Power Index 2017 |
| SPI 2018 | Soccer Power Index 2018 |
| SPI 2019 | Soccer Power Index 2019 |
| SPI 2020 | Soccer Power Index 2020 |
| SPI 2021 | Soccer Power Index 2021 |
| SPI 2022 | Soccer Power Index 2022 |

**Dataset 3 – Top Clubs Y-O-Y spending**

This dataset tracks the yearly USD million spending on player transfers by soccer clubs from 2012 to 2023, providing insights into the clubs' financial activities and transfer market trends over the years.

|  |
| --- |
| **Teams** |
| 2012 |
| 2013 |
| 2014 |
| 2015 |
| 2016 |
| 2017 |
| 2018 |
| 2019 |
| 2020 |
| 2021 |
| 2022 |
| 2023 |

**Dataset 4 – Club Matches Scorecard**

The dataset provides information about football matches, including the teams playing, the match outcomes, and the total goals scored. It helps analyse team performance and match dynamics in various football leagues.

|  |  |
| --- | --- |
| **season** | **Refers to the period of football matches.** |
| date | The day of a football match. |
| league | The football league in which the match is played. |
| team1 | Teams Competing |
| team2 | Teams Competing |
| Winning Team | The team that won the match. |
| Total Goals | The combined number of goals scored by both teams. |

**Dataset 5 – SPI Global Rankings**

These parameters form a global ranking system (SPI) for football clubs, evaluating their performance, offense, defence, and other factors. They help predict match outcomes and assess team strengths worldwide.

|  |  |
| --- | --- |
| **Rank** | **The position of the club in the SPI rankings for the specified year.** |
| 2023 Rank | The club's ranking in the SPI for the previous year (2022). |
| Name | The name of the football club. |
| League | The specific football league in which the club competes. |
| Off | Represents the offensive rating of the club, indicating its attacking strength. |
| Def | Represents the defensive rating of the club, indicating its defensive capabilities |
| SPI 2023 | The Soccer Power Index (SPI) ranking for the year 2023 |
| Country | The country to which the club belongs. |

**Dataset 6 – Top 20 Teams as per Market Capitalization**

This dataset provides insights into the top-performing football clubs based on their market capitalization, offering a glimpse into the financial strength and value of these clubs within the football industry for the specified year.

|  |  |
| --- | --- |
| **Year (That Particular Year)** | **Represents the specific year for which the data is recorded.** |
| Rank (Year) | Indicates the ranking of the football club in that particular year. |
| Country | Denotes the country to which the football club belongs. |
| Team (Year) | Refers to the name of the football club for that particular year. |
| Value ($M) Year | Represents the market capitalization value of the football club in million dollars for that specific year. |

**Dataset 7- Top Players-Agents in 5 Top Leagues**

This dataset offers detailed information about football players, including personal and professional details, as well as contractual information. It also provides insights into the portfolios of player agents, helping stakeholders make informed decisions about player representation and transfers in the football industry.

|  |  |
| --- | --- |
| **Player name** | **Refers to the name of the football player** |
| age | Represents the age of the player. |
| height | Denotes the nationality of the player. |
| nationality | Refers to the birthplace of the player. |
| place\_of\_birth | Refers to the birthplace of the player. |
| Price in Million Dollar | Represents the value of the player in million dollars. |
| max\_price | Indicates the maximum value the player has been sold for. |
| position | Refers to the player's position on the field, such as 'Attack - Centre-Forward.' |
| shirt\_nr | Represents the player's shirt number. |
| foot | Indicates the player's dominant foot (e.g., left or right). |
| club | Denotes the football club the player is currently associated with. |
| contract\_expires | Represents the date when the player's contract with the club expires. |
| joined\_club | Indicates the date when the player joined the club. |
| player\_agent | Refers to the player's agent or representative. |
| outfitter | Represents the brand or company providing the player's equipment and attire. |
| league | Denotes the football league in which the player's club participates |

**Dataset 8 -FIFA**

This dataset provides detailed information about soccer players in a video game or sports simulation. It includes player names, positions, attributes, skills, club details, nationalities, and physical characteristics. The dataset covers player abilities, performance stats, contract details, and playing style traits, offering insights into their potential, value, and wages within the game.

|  |  |
| --- | --- |
| **short\_name 19** | **The shortened or abbreviated name of the player.** |
| long\_name 19 | The full name of the player. |
| player\_positions 19 | The positions on the field where the player is typically deployed. |
| overall 19 | The overall skill rating of the player in the game, which represents their general ability and performance. |
| potential 19 | The potential skill rating that the player can achieve in the game, representing their ability to improve and grow. |
| value 19 | The estimated monetary value of the player in the game. |
| wage 19 | The weekly salary of the player in the game. |
| age 19 | The age of the player. |
| dob 19 | The date of birth of the player. |
| height\_cm 19 | The height of the player in centimeters. |
| weight\_kg 19 | The weight of the player in kilograms. |
| club\_team\_id 19 | The ID of the club team that the player is currently a part of. |
| club\_name 19 | The name of the club that the player is currently associated with. |
| league\_name 19 | The name of the league in which the club competes. |
| league\_level 19 | The level or tier of the league in the football hierarchy. |
| club\_position 19 | The position of the player within their club team. |
| club\_jersey\_number 19 | he jersey number that the player wears for their club. |
| club\_loaned\_from 19 | If the player is on loan from another club, this indicates the name of the lending club. |
| club\_joined 19 | The date when the player joined the current club. |
| club\_contract\_valid\_until 19 | The date until which the player's contract with the current club is valid. |
| nationality\_id 19 | The ID of the player's nationality. |
| nationality\_name 19 | The name of the player's nationality. |
| nation\_team\_id 19 | The ID of the national team to which the player belongs. |
| nation\_position 19 | The position of the player within their national team. |
| nation\_jersey\_number 19 | The jersey number that the player wears for their national team. |
| preferred\_foot 19 | The player's preferred foot for playing football. |
| weak\_foot 19 | The rating of the player's weaker foot. |
| skill\_moves 19 | The rating of the player's skill moves in the game. |
| international\_reputation 19 | The player's reputation on the international stage. |
| work\_rate 19 | The player's work rate on the field. |
| body\_type 19 | The physique or body type of the player. |
| real\_face 19 | A binary indicator denoting whether the player has a real-life likeness or face representation in the game. |
| release\_clause\_eur 19 | The value in euros that represents the amount at which the player can be bought out of their contract by another club. |
| player\_tags 19 | Tags and traits associated with the player's playing style. |
| player\_traits 19 | Tags associated with the player that describe specific characteristics or playing styles. |
| pace 19 | Specific traits or abilities associated with the player that define their unique skill set or playing style. |
| shooting 19 | The speed attribute of the player, representing how fast the player can move on the field. |
| passing 19 | The attribute representing the player's proficiency in shooting and scoring goals. |
| dribbling 19 | The attribute representing the player's accuracy and effectiveness in passing the ball to teammates. |
| defending 19 | The attribute representing the player's ability to control and maneuver the ball while moving. |
| physic 19 | The attribute representing the player's strength and overall physical presence on the field. |
| attacking\_crossing 19 | The attribute representing the player's ability to deliver accurate crosses from wide positions into the box. |
| attacking\_finishing 19 | The attribute representing the player's proficiency in scoring goals and finishing opportunities. |
| attacking\_heading\_accuracy 19 | The attribute representing the player's accuracy and effectiveness in heading the ball. |
| attacking\_short\_passing 19 | The attribute representing the player's accuracy and effectiveness in short-range passing. |
| attacking\_volleys 19 | The attribute representing the player's proficiency in striking the ball before it hits the ground. |
| skill\_dribbling 19 | The attribute representing the player's skill level in dribbling past opponents. |
| skill\_curve 19 | The attribute representing the player's ability to curve the ball during shots or passes. |
| skill\_fk\_accuracy 19 | The attribute representing the player's accuracy and effectiveness in taking free kicks. |
| skill\_long\_passing 19 | The attribute representing the player's accuracy and effectiveness in long-range passing. |
| skill\_ball\_control 19 | The attribute representing the player's ability to control the ball effectively in various situations. |
| movement\_acceleration 19 | The attribute representing the player's ability to accelerate quickly. |
| movement\_sprint\_speed 19 | The attribute representing the player's top speed when sprinting. |
| movement\_agility 19 | The attribute representing the player's agility and nimbleness on the field. |
| movement\_reactions 19 | The attribute representing the player's quickness in reacting to in-game situations. |
| movement\_balance 19 | The attribute representing the player's ability to maintain balance while maneuvering on the field. |
| power\_shot\_power 19 | The attribute representing the player's power and strength behind their shots. |
| power\_jumping 19 | The attribute representing the player's ability to jump high in the air. |
| power\_stamina 19 | The attribute representing the player's endurance and stamina during the game. |
| power\_strength 19 | The attribute representing the player's physical strength. |
| power\_long\_shots 19 | The attribute representing the player's ability to take accurate long-range shots. |
| mentality\_aggression 19 | The attribute representing the player's aggressiveness and assertiveness on the field. |
| mentality\_interceptions 19 | The attribute representing the player's ability to intercept passes from the opposition. |
| mentality\_positioning 19 | The attribute representing the player's understanding of positioning on the field. |
| mentality\_vision 19 | The attribute representing the player's ability to see and make passes or moves that others might not. |
| mentality\_penalties 19 | The attribute representing the player's ability to take penalties accurately and effecThe attribute representing the player's composure and calmness during high-pressure situations.tively. |
| mentality\_composure 19 | he attribute representing the player's composure and calmness during high-pressure situations. |
| defending\_marking\_awareness 19 | The attribute representing the player's awareness and effectiveness in marking opposition players. |
| defending\_standing\_tackle 19 | The attribute representing the player's ability to perform standing tackles effectively. |
| defending\_sliding\_tackle 19 | The attribute representing the player's ability to perform sliding tackles effectively. |
| goalkeeping\_diving 19 | The attribute representing the goalkeeper's ability to dive to make saves. |
| goalkeeping\_handling 19 | The attribute representing the goalkeeper's ability to handle the ball after a save. |
| goalkeeping\_kicking 19 | The attribute representing the goalkeeper's ability to kick the ball accurately and effectively. |
| goalkeeping\_positioning 19 | The attribute representing the goalkeeper's ability to position themselves correctly during plays. |
| goalkeeping\_reflexes 19 | The attribute representing the goalkeeper's reflexes and reaction time in making The attribute representing the goalkeeper's speed and agility in moving across the goal line.aves. |

**Dataset 9-Valuation of players**

The dataset provides essential information on football player transfers, including details about the selling and buying clubs, the player's name, age, and position, the direction and period of the transfer, the adjusted fee, the league, the year, season, and the countries involved. This data is crucial for analysing player movements and transfer trends in the football industry.

|  |  |
| --- | --- |
| Seller Club | The club selling the player. |
| Player Name | The name of the player being transferred. |
| age | The age of the player at the time of the transfer. |
| Position | The player's role on the field (e.g., forward, midfielder, defender). |
| Buyer Club | The club buying the player. |
| transfer\_movement | Direction of the transfer (incoming/outgoing). |
| transfer\_period | Time period of the transfer. |
| fee\_cleaned | Adjusted transfer fee after deductions. |
| league\_name | Name of the league the clubs belong to. |
| year | The year of the transfer. |
| season | Specific Season |
| country | Country where the clubs are based. |

**Data cleaning and pre-processing:**

Data cleaning and pre-processing are crucial steps before visualizing football datasets. I employed filtering and removal techniques in software like Excel to handle null values in columns such as player name, transfer fee, and league name. Eliminating empty rows ensures a smoother visualization process and avoids irregularities in the representation of football transfer trends.

**Analysis:**

I have utilized a total of nine datasets, each of which is linked through shared columns, such as club name, country name, or league. You can refer to the provided screenshot of the data source for further details.

**Data source:**

A screenshot of a computer

Description automatically generated

**Visualizations:**

There are several insights I fetched through my research. According to my research question I have made pertaining visualizations. Please find them below:

**Visualization 1: Country SPI Football Rankings**

**How does the football ranking of a particular country compare to other countries, and are there any regional patterns in these football rankings?**

A map of the world

Description automatically generated

* European countries tend to occupy the top positions in the rankings. This is likely due to the strong tradition of football in Europe, as well as the presence of many of the world's top leagues and clubs.
* South American countries also have a strong presence in the rankings. This is likely due to the passion for football in South America, as well as the success of South American national teams in international competitions.
* African and Asian countries tend to occupy the lower positions in the rankings. This is likely due to a number of factors, including a lack of infrastructure and resources, as well as a lack of exposure to international competition.

**Visualization 2: Score view in Top Leagues (Average Goals Scored In Different Leagues)**

**What is the daily score view of the average goals scored in different top leagues?**

It seems that the Bundesliga, La Liga, and Ligue 1 have the most goals scored on average in their matches. On the other hand, the Premier League, Serie A, and MLS tend to have fewer goals scored on average in their games.

For instance, in the Bundesliga, teams tend to score more than 3 goals in an average match, which is the highest among all the leagues. Meanwhile, in La Liga and Ligue 1, teams usually score around 2.75 goals per match, which is also quite high.

However, in the Premier League, Serie A, and MLS, the average number of goals per match is around 2.25, meaning teams tend to score fewer goals compared to the other leagues mentioned.

A screenshot of a computer

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**Visualization 3: World Of Football Leagues (Different Top Level Leagues Played around World)**

**In which countries are major soccer leagues played globally?**

**A map of the world

Description automatically generated**

Based on the image, the major soccer leagues played globally are:

* **Europe:**
  + England: Premier League
  + Spain: La Liga
  + Germany: Bundesliga
  + Italy: Serie A
  + France: Ligue 1
  + Portugal: Primeira Liga
  + Russia: Premier League
  + Ukraine: Premier League
  + Belgium: Jupiler Pro League
  + Netherlands: Eredivisie
  + Turkey: Süper Lig
  + Greece: Superleague Greece
  + Switzerland: Swiss Super League
  + Austria: Austrian Football Bundesliga
  + Czech Republic: Czech First League
* **South America:**
  + Argentina: Primera División
  + Brazil: Série A
  + Chile: Primera División
  + Colombia: Categoría Primera A
  + Ecuador: Serie A
  + Paraguay: Primera División
  + Peru: Liga 1
  + Uruguay: Primera División
  + Venezuela: Primera División
* **North America:**
  + United States: Major League Soccer
  + Canada: Canadian Premier League
  + Mexico: Liga MX
* **Asia:**
  + China: Chinese Super League
  + Japan: J. League
  + South Korea: K League
  + Australia: A-League
  + Saudi Arabia: Saudi Professional League
  + Iran: Persian Gulf Pro League
  + Qatar: Qatar Stars League
  + United Arab Emirates: UAE Pro League
* **Africa:**
  + South Africa: Premier Soccer League
  + Morocco: Botola Maroc Telecom
  + Egypt: Egyptian Premier League
  + Tunisia: Ligue Profession Nelle 1
  + Algeria: Ligue Profession Nelle 1
  + DR Congo: Linafoot Ligue 1
  + Ghana: Premier League
  + Côte d'Ivoire: Ligue 1

**Visualization 4:** **World Ranking on SPI Index for Football Clubs in Various Leagues and Countries: Assessing the Quality of Leagues, Countries, and Clubs**

**What is the global ranking of football clubs based on the SPI (Soccer Power Index) in different leagues and countries, and how does this ranking reflect the quality of the leagues, countries, and clubs involved?**

**A screenshot of a graph

Description automatically generated**

The Soccer Power Index (SPI) serves as a ranking system that assesses the performance of football clubs based on various factors, including their domestic league matches, international club competitions, and the prowess of their players

According to the data provided, the leading 10 clubs globally, as per the **SPI, include Real Madrid, Manchester City, Bayern Munich, Liverpool, Chelsea, Barcelona, Paris Saint-Germain, Juventus, Ajax, and Inter Milan.** Notably, these clubs all hail from prominent European leagues, known for their robust football tradition and competitive standards.

Nevertheless, the SPI also acknowledges the strength of clubs beyond Europe, evident in the high rankings of Flamengo (Brazil) and River Plate (Argentina) within the top 20. This suggests that the SPI incorporates a global perspective, recognizing the prowess of clubs from diverse regions, not solely favouring European entities.

Furthermore, the SPI evaluation offers insights into the calibre of leagues, countries, and clubs in the football world. A higher SPI ranking typically indicates a more potent league, country, or club. However, it's crucial to recognize that the SPI serves as one metric of strength, with other crucial factors to consider, such as trophy achievements, fan support, and financial stability of the clubs.

**Visualization 5:** **Player Transfer Analysis: Exploring Transfer Expenditure by Leagues, Countries, and Clubs**

**Among leagues, countries, and clubs, which entities have the highest average frequency of transfer expenditures?**

**A screenshot of a graph

Description automatically generated**

The Premier League is the richest and most watched football league globally, allowing its clubs to spend more on player transfers compared to other leagues. Similar spending patterns are seen in La Liga and Serie A. Meanwhile, leagues like Ligue 1, Bundesliga, and Eredivisie have comparatively lower transfer frequencies due to lesser financial resources. South American leagues such as Campeonato Brasileiro Série A and Argentine Primera División also have limited transfer activity due to financial constraints. European leagues, particularly the Premier League, La Liga, and Serie A, have the highest transfer frequencies because they are the most popular and financially well.

**Visualization 6: Top 20 Clubs Transfer Spending Year Over Year (YOY)**

**Which club has had the most consistent, most significant increase in, and most volatile transfer spending patterns over the years?**

**A screen shot of a graph

Description automatically generated**

Transfer spending has increased dramatically for most clubs over the past decade. Premier League clubs have been at the forefront of this trend, with Manchester United and Manchester City leading the way. Paris Saint-Germain and Real Madrid have also spent heavily on transfers in recent years. Bundesliga and Serie A clubs have been more restrained in their spending, although Borussia Dortmund has been a notable exception. Borussia Dortmund is the most consistent big spender in Europe, while Paris Saint-Germain and Manchester United have the most volatile spending patterns.

**Visualization 7:** **Market Cap Of Top Teams**

**What are the biggest clubs in terms of market capitalization in 2023?**

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**The biggest clubs in terms of market capitalization in 2023 are:**

* Manchester United ($5.95 billion)
* Liverpool ($4.71 billion)
* Manchester City ($4.43 billion)
* Arsenal ($3.6 billion)
* Chelsea ($3.47 billion)
* Tottenham Hotspur ($3.19 billion)
* West Ham United ($665 million)
* Everton ($600 million)
* Leicester City ($545 million)
* Newcastle United ($440 million)
* Leeds United ($380 million)
* Aston Villa ($370 million)

Market capitalization represents a company's total value and is calculated by multiplying the current share price by the number of outstanding shares. The top ten clubs on this list are the most valuable, driven by factors like on-field success, global fan base, and commercial revenue. Manchester United, for example, benefits from a strong global fan base and robust commercial presence, boosting its market capitalization. Notably, the Premier League dominates the list with six clubs, highlighting its global popularity and financial strength.

**Visualization 8:** **Top Agents**

**Who are Top Soccer agents by Portfolio Value?**

**A screenshot of a computer

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Based on the visualization, the top soccer agents by portfolio value are:Relatives

1. Mino Raiola
2. Jorge Mendes
3. Jonathan Barnett
4. Pini Zahavi
5. Francesco Branchini

**Visualization 9: SPI (Score based rank) Vs Spending**

**To what extent does club spending correlate with SPI Rank? What is the predictive power of SPI Rank for club spending?**

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Clubs with a higher SPI Rank generally spend more, indicating a positive relationship between spending and rank. This is because successful clubs often have more resources to invest. However, it's not a perfect match, as some high-ranking clubs spend less and vice versa. This implies that other factors also influence spending, making SPI Rank a moderate predictor.

**Visualization 10: Year Over Year SPI Score and Ranking Fluctuations For Top 20 Clubs**

**Which club among the top 20 experienced the most significant year-over-year SPI score and rank increase and decrease?**

A screenshot of a graph

Description automatically generated

Manchester United showed the most notable SPI score improvement from 2020 to 2021, rising from 77.6 to 81.0. However, their SPI score dropped to 79.2 in 2022, suggesting inconsistent performance. Their rank also improved from 12th to 8th in 2021 but fell to 10th in 2022, reflecting their fluctuating form over the last three seasons.

**Visualization 11: Breakdown of Soccer Clubs in World**

**How is the global distribution of soccer clubs changing over time?**

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Majority of soccer clubs are still concentrated in Europe, but that other regions, such as South America, North America, and Asia, are experiencing rapid growth.

**Dashboard 1:** **Global Soccer Landscape**

**A screenshot of a computer

Description automatically generated**

* The dashboard provides an overview of the top 20 clubs in the world based on their SPI score.
* The dashboard shows how the SPI score of each club has changed over the past three years.
* The dashboard also includes a table of the top 10 clubs with the most significant year-over-year SPI score and rank changes.
* The dashboard provides insights into the factors that contribute to a club's SPI score.
* Overall, the dashboard is a valuable resource for football fans who want to learn more about the top clubs in the world.

**Dashboard2: Transfer Expenditures and SPI Rank: A Global Perspective on Football Clubs**

**A screenshot of a computer

Description automatically generated**

* The dashboard provides an overview of the top 20 clubs in the world based on their SPI score.
* The dashboard shows how the SPI score of each club has changed over the past three years.
* The dashboard also includes a table of the top 10 clubs with the most significant year-over-year SPI score and rank changes.
* The dashboard provides insights into the factors that contribute to a club's SPI score.
* Overall, the dashboard is a valuable resource for football fans who want to learn more about the top clubs in the world.

**Conclusion:**

**Additional research questions:**

**I believe the data could have been probed further for more insights. To ensure comprehensive analysis, the following additional questions could be considered:**

* How do clubs navigate the transfer market?
* What are the factors that determine player valuations?
* What are the strategies that clubs employ to manage finances?
* What are the most successful tactical approaches?
* What are the factors that have contributed to the success of specific clubs, such as Manchester United or Real Madrid?
* How does the performance of clubs in different countries compare?

**Clear and succinct conclusions for both research questions, including justifications.**

**How does the football ranking of a particular country compare to other countries, and are there any regional patterns in these football rankings?**

• European countries tend to occupy the top positions in the rankings. This is likely due to the strong tradition of football in Europe, as well as the presence of many of the world's top leagues and clubs.

• South American countries also have a strong presence in the rankings. This is likely due to the passion for football in South America, as well as the success of South American national teams in international competitions.

• African and Asian countries tend to occupy the lower positions in the rankings. This is likely due to several factors, including a lack of infrastructure and resources, as well as a lack of exposure to international competition.

**What is the daily score view of the average goals scored in different top leagues?**

It seems that the Bundesliga, La Liga, and Ligue 1 have the most goals scored on average in their matches. On the other hand, the Premier League, Serie A, and MLS tend to have fewer goals scored on average in their games.

For instance, in the Bundesliga, teams tend to score more than 3 goals in an average match, which is the highest among all the leagues. Meanwhile, in La Liga and Ligue 1, teams usually score around 2.75 goals per match, which is also quite high.

However, in the Premier League, Serie A, and MLS, the average number of goals per match is around 2.25, meaning teams tend to score fewer goals compared to the other leagues mentioned.

**In which countries are major soccer leagues played globally?**

Answered this Along with Visualization

**What is the global ranking of football clubs based on the SPI (Soccer Power Index) in different leagues and countries, and how does this ranking reflect the quality of the leagues, countries, and clubs involved?**

The Soccer Power Index (SPI) serves as a ranking system that assesses the performance of football clubs based on various factors, including their domestic league matches, international club competitions, and the prowess of their players.

According to the data provided, the leading 10 clubs globally, as per the SPI, include Real Madrid, Manchester City, Bayern Munich, Liverpool, Chelsea, Barcelona, Paris Saint-Germain, Juventus, Ajax, and Inter Milan. Notably, these clubs all hail from prominent European leagues, known for their robust football tradition and competitive standards.

**Among leagues, countries, and clubs, which entities have the highest average frequency of transfer expenditures?**

The Premier League is the richest and most watched football league globally, allowing its clubs to spend more on player transfers compared to other leagues. Similar spending patterns are seen in La Liga and Serie A. Meanwhile, leagues like Ligue 1, Bundesliga, and Eredivisie have comparatively lower transfer frequencies due to lesser financial resources. South American leagues such as Campeonato Brasileiro Série A and Argentine Primera División also have limited transfer activity due to financial constraints. European leagues, particularly the Premier League, La Liga, and Serie A, have the highest transfer frequencies because they are the most popular and financially well

**Which club has had the most consistent, most significant increase in, and most volatile transfer spending patterns over the years?**

Transfer spending has increased dramatically for most clubs over the past decade. Premier League clubs have been at the forefront of this trend, with Manchester United and Manchester City leading the way. Paris Saint-Germain and Real Madrid have also spent heavily on transfers in recent years. Bundesliga and Serie A clubs have been more restrained in their spending, although Borussia Dortmund has been a notable exception. Borussia **Dortmund is the** most consistent big spender in Europe, while Paris Saint-Germain and Manchester United have the most volatile spending patterns.

**What are the biggest clubs in terms of market capitalization in 2023?**

The biggest clubs in terms of market capitalization in 2023 are:

• Manchester United ($5.95 billion)

• Liverpool ($4.71 billion)

• Manchester City ($4.43 billion)

• Arsenal ($3.6 billion)

• Chelsea ($3.47 billion)

• Tottenham Hotspur ($3.19 billion)

• West Ham United ($665 million)

• Everton ($600 million)

• Leicester City ($545 million)

• Newcastle United ($440 million)

• Leeds United ($380 million)

• Aston Villa ($370 million)

**Who are Top Soccer agents by Portfolio Value?**

1. Relatives

2. Mino Raiola

3. Jorge Mendes

4. Jonathan Barnett

5. Pini Zahavi

6. Francesco Branchini

**To what extent does club spending correlate with SPI Rank? What is the predictive power of SPI Rank for club spending?**

Clubs with a higher SPI Rank generally spend more, indicating a positive relationship between spending and rank. This is because successful clubs often have more resources to invest. However, it's not a perfect match, as some high-ranking clubs spend less and vice versa. This implies that other factors also influence spending, making SPI Rank a moderate predictor.

**Which club among the top 20 experienced the most significant year-over-year SPI score and rank increase and decrease?**

Manchester United showed the most notable SPI score improvement from 2020 to 2021, rising from 77.6 to 81.0. However, their SPI score dropped to 79.2 in 2022, suggesting inconsistent performance. Their rank also improved from 12th to 8th in 2021 but fell to 10th in 2022, reflecting their fluctuating form over the last three seasons.

**How is the global distribution of soccer clubs changing over time?**

Majority of soccer clubs are still concentrated in Europe, but that other regions, such as South America, North America, and Asia, are experiencing rapid growth.