

DSCI 401

PROJECT

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Introduction

The English Premier League is the most watched league globally. The league is the top tier of England's football pyramid, with 20 teams. The league takes place between August and May, and it involves teams playing each other home and away across a season. The English league originally started with 22 teams for the first three seasons from 1993 to 1994 after which it was changed to 20 teams and rebranded as the Premier League. The Premier League reduced the number of teams from a 22-team league with 462 matches a season to a 20-team league with 380 total matches to combat fixture congestion and player fatigue, to improve the quality of matches and to increase its competitiveness both domestically and internationally.

This project will conduct an extensive exploratory data analysis on the history of the English Premier League from 1993 to 2023. The EDA will highlight key trends, performance of the “Big Six”, Relegation, Goals and other interesting insights.

Dataset Cleaning and Exploration

The [dataset](#) was sourced from Kaggle. It contains information about the English Premier League matches from 1993 to 2023. It has 12026 rows and 8 columns. The columns are 'Season_End_Year', 'Week', 'Date', 'Home', 'HomeGoals', 'AwayGoals', 'Away', and 'FTR'. The dataset contains two data types: int and object.

To perform the targeted analysis, the dataset was cleaned. A points system was introduced, assigning 3 points for a win and 1 point for a draw. Columns were also renamed for clarity and consistency.

Performance Analysis

Total Games Played in a Season

The number of games played in each season showcased the league's evolution, the premier league originally started with 22 teams for the first three seasons after which it was changed to 20 teams. The Premier League reduced the number of teams from a 22-team league with 462 matches a season to a 20-team league to combat fixture congestion and player fatigue, to improve the quality of matches and to increase its competitiveness both domestically and internationally.

Unique Teams

The English Premier League has a rich history of iconic teams that have participated in it. A list of the unique teams was obtained, highlighting the diversity of teams that have participated in the league. There have been 50 different teams so far as seen in Table 1.

	Team	Team	Team	Team	Team
0	Sunderland	Leeds United	Bournemouth	Oldham Athletic	Swindon Town
1	Middlesbrough	QPR	Derby County	Bradford City	Liverpool
2	Huddersfield	Sheffield Utd	West Brom	Newcastle Utd	Stoke City
3	Fulham	Hull City	Chelsea	Sheffield Weds	Aston Villa

	Team	Team	Team	Team	Team
4	West Ham	Norwich City	Southampton	Leicester City	Manchester Utd
5	Ipswich Town	Portsmouth	Burnley	Tottenham	Bolton
6	Coventry City	Nottingham Forest	Blackburn	Reading	Barnsley
7	Everton	Brighton	Arsenal	Swansea City	Birmingham City
8	Charlton Ath	Crystal Palace	Cardiff City	Wimbledon	Watford
9	Wigan Athletic	Manchester City	Wolves	Blackpool	Brentford

Table 1: Unique Teams in Premier League History

Big Six Teams

The "Big Six" teams (Manchester United, Liverpool, Arsenal, Chelsea, Manchester City, Tottenham) were analyzed for their performance trends over the years. A line plot has been graphed to show the performance trends of these teams.

As observed, Manchester United dominated the first couple of decades of the Premier League, primarily due to having the best players and the legendary British manager, Sir Alex Ferguson, at the helm. However, their performance plummeted after his retirement. Chelsea became competitive after being acquired by Roman Abramovich in 2003, investing significantly to enhance their competitiveness.

Manchester City, initially not in the same stratosphere as other teams, faced relegation multiple times before being acquired by Abu Dhabi, leading to their dominance with substantial financial backing from a literal country. This dominance was further solidified by appointing arguably the greatest manager of all time, Pep Guardiola, who secured the last three league titles consecutively and five out of the last six.

Arsenal, once strong contenders with Manchester United in the early 2000s, have since remained mediocre. Liverpool followed a similar pattern until recently when they appointed Jurgen Klopp as manager. As for Tottenham, their performance has remained consistently mediocre, well known across Europe. [Giorgio Chiellini after Tottenham bottled a Champions League game to Juventus.](#)

This narrative highlight that while money plays a crucial role in a team's success, having the right backroom team is equally vital. Manchester United and Chelsea, despite continued substantial investments in players and managers, have seen limited returns in terms of league titles.

Performance of Big Six Teams Over the Years

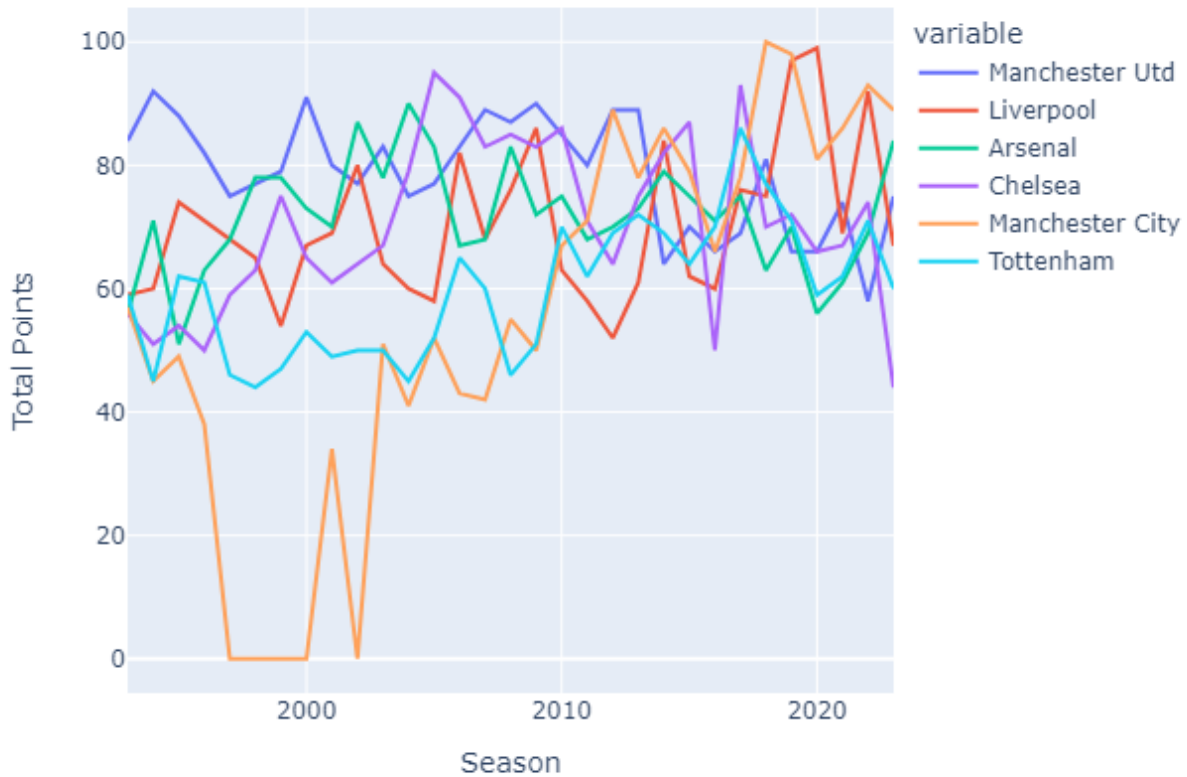


Figure 1

Title Winners

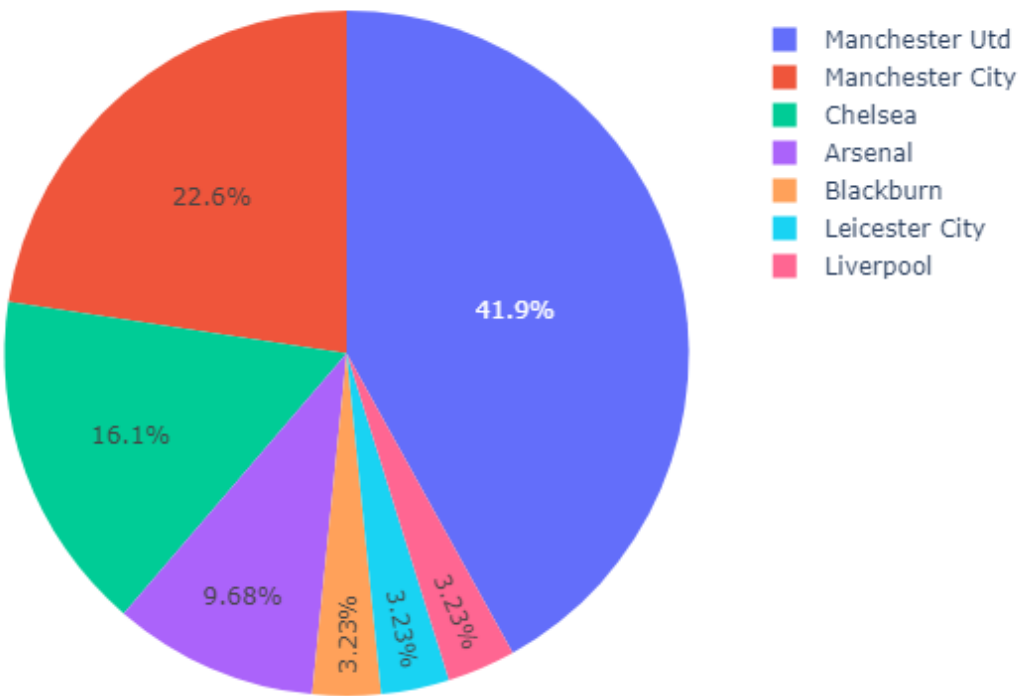
Although the premier League is known as being one of the most competitive leagues across all sports, only a select few has won the league. A list of the teams to have won the league is shown below in figure. Notable observations include the dominance of the two Manchester clubs and the only two underdogs win in Blackburn and Leicester City who won the league in 2016 with whooping 5000-1 odds. Truly one of the greatest sporting achievements ever. I urge you to watch the documentary: [Fearless Foxes: Our Story | Leicester City's 2015/16 Premier League Title](#). The pie chart shows the percentage of title wins be pas Premier League winners.

Team	Titles Won
Manchester Utd	13
Manchester City	7
Chelsea	5
Arsenal	3
Blackburn	1
Leicester City	1

Liverpool	1
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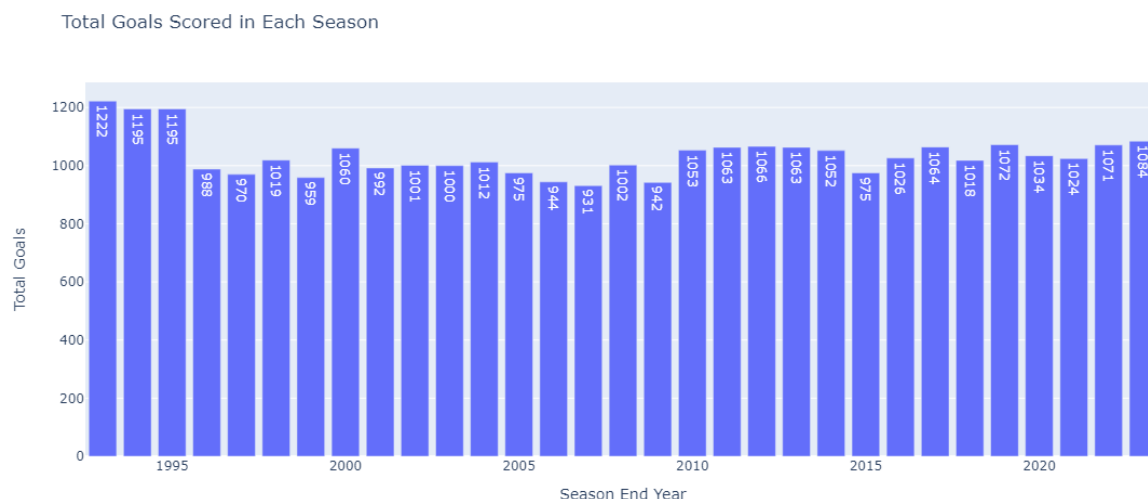
Table 2: Title Winners

Premier League Title Counts by Team



Total Goals Scored

Goals win games and I have truly witnessed some amazing goals over the years. Of the 32072 total goals scored my favorite was a goal scored by [Dennis Bergkamp](#) for Arsenal against Newcastle Analysis of the total goals scored in each season showcases fluctuating trends and provides insights into the league’s competitiveness and attacking styles over the years. The bar plot below shows the total number of goals scored in each season. The first 3 seasons had the highest goals due to the number of teams and then decreased afterwards when the number of teams was reduced to 20. In that period, there is no discernable pattern with fluctuations every season.



Highest and Lowest Total Points by a Team

Records can be good or bad. And the premier league has its fair share of unique records. Like Arsenal going a whole season unbeaten, some records will take something truly special to break. I looked at the teams who have accrued the highest and lowest points ever in all seasons. Results from the analysis showed that Manchester City have the record for the highest points tally ever in a season with 100 points in the 2017-2018 season. Derby County holds the record for the lowest points ever in a season with 11 points obtained in the 2007-2008 season.

Relegation

The Premier League, much like almost every other soccer league across the world uses is a pyramid with relegation. Teams in the lower tier leagues dreams of promotion whilst some teams in the Premier League fight to stay in the league. Not just because of the prestige, but also because of the insane amount of money these teams make every season in the league. In the Premier League, the three teams with the fewest accumulated points in a season gets relegated to the Championship (the league below the Premier League), and the top three teams in the championship gets promoted to the Premier League the following season. Some clubs have suffered more relegations than they would have liked. Other like Norwich City and West Brom are termed as “Yo-Yo” clubs because of their repeated number of relegation and promotion from the championship. They are basically too good for the Championship and not too good for the level of the Premier League. An analysis was done to find the teams that have been relegated the most in the history of the league.

Team	Number of Relegations
Norwich City	6
West Brom	5
Watford	4
Fulham	4
Sunderland	4

Table 3: Top 5 teams with the most relegations

Conclusion

The English Premier League has witnessed dynamic shifts in team performance, dominance by certain clubs, repeat offenders over the past three decades. This analysis provides valuable insights for soccer enthusiasts interested in the historical trends of the Premier League.

Future Work

The Premier League is rich with interesting datasets. Further investigations into the financial investments on teams' success and player statistics will make for great analysis.

Appendix

Google Colab Link:

<https://colab.research.google.com/drive/1SEhHqy231FZB9T6cjfQGfwltZ0c3XES7#scrollTo=2mcNZhXQadfd>