

Premierships

A Premiership is what the winning team of the Premier League are rewarded with. Winning a Premiership means you have won the grand final and earned a Premier League title. The amount of titles that a club has, often plays a large role in determining the success they will have in future seasons. I have utilised experimental probability to explore the frequency of each team winning a premier league title in the past seasons and used this to give insight into which team is more likely to win another one.

$$\text{Experimental Probability} = \frac{\text{Number of times an event occurs}}{\text{Total number of trials}}$$

Manchester United-

Number of seasons they've won the premier league titles = 20

Total number seasons they've participated in the premier league = 29

$$20/29 = 69\%$$

Manchester City-

Number of seasons they've won the premier league titles = 7

Total number seasons they've participated in the premier league = 25

$$7/25 = 28\%$$

From the information above, it may be concluded that Manchester United are more likely than Manchester City to win a 2021/22 premiership. This conclusion has been made due to the fact that Manchester United have only lost 9 seasons out of 29, giving them a 69% Premiership frequency. This leaves Manchester City 41% below United, with a 28% frequency as they have only won 7 premierships out of 25 seasons. Therefore, due to Manchester United having won over double the amount of past Premierships than City, United are seen to be more likely to win the 2021/22 Premier League title.

Placement

Placement refers to what position a team finishes on the table (1st, 2nd, 3rd etc.) This often plays the largest role in determining which team is most likely to finish first on the table each season. I have analysed the placement of both Manchester United and Manchester City on the table for the past 19 seasons and put these into a frequency table. I have also included a frequency polygon and histogram for visual aspects.

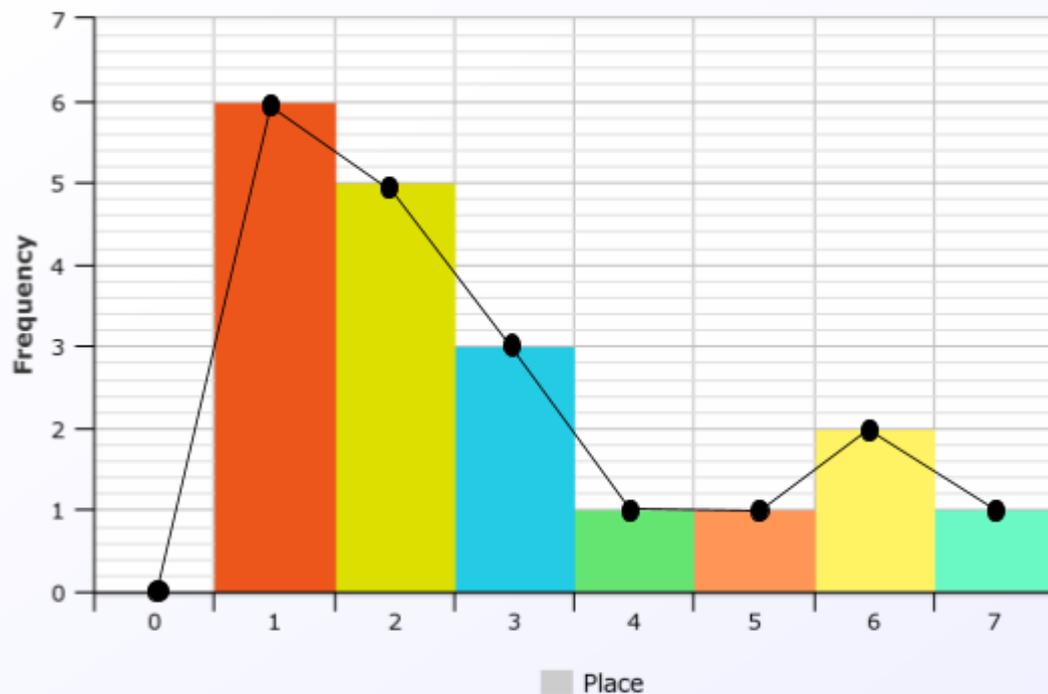
Manchester United-

Placings over the last 19 seasons (not including 2021/22)

Place	Frequency	Percentage frequency
1	6	31.5
2	5	26.3
3	3	15.8
4	1	5.3
5	1	5.3
6	2	10.5
7	1	5.3

Relative frequency of coming first- $6/19 = 32\%$

Frequency Polygon & Histogram of placings over the last 19 seasons



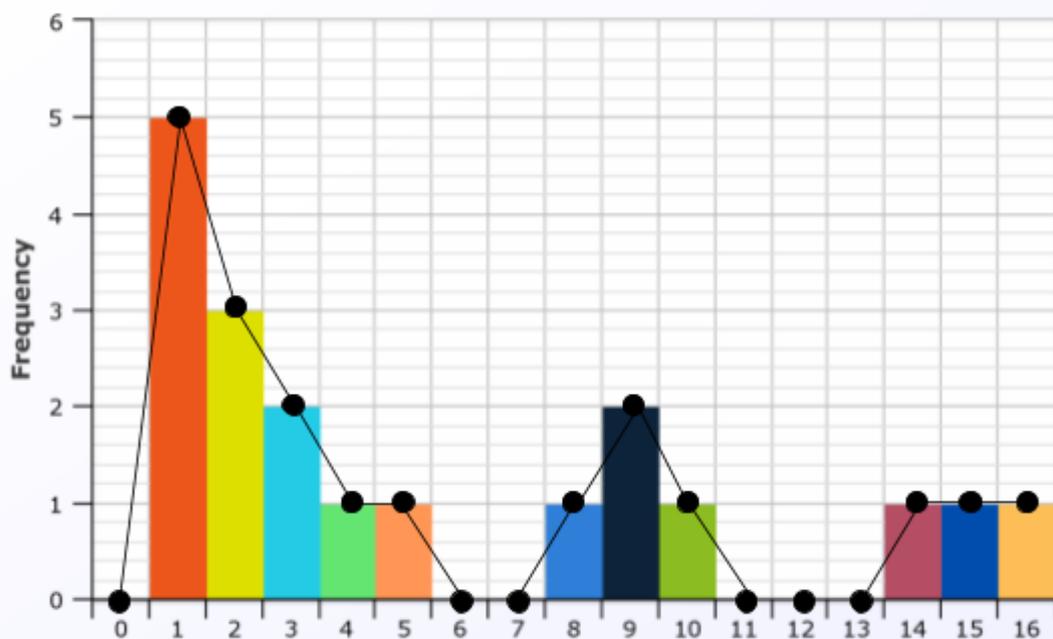
Manchester City-

Placings over the last 19 seasons

Place	Frequency	Percentage frequency
1	5	26.3
2	3	15.8
3	2	10.5
4	1	5.3
5	1	5.3
6		
7		
8	1	5.3
9	2	10.5
10	1	5.3
11		
12		
13		
14	1	5.3
15	1	5.3
16	1	5.3

Relative frequency of coming first- $5/19 = 26\%$

Frequency Polygon & Histogram of placings over the last 19 season



From the information above, it may be concluded that Manchester United are more likely than Manchester City to finish first on the table. This conclusion is made from many elements of the table, one being that Manchester City's placement is not as consistent as Manchester United. United have placed 7th or above throughout all 19 seasons, whereas City's placement ranges from 1st all the way to 16th. Another element that influences this conclusion is the relative frequency of either team coming first. This result is again in favour of Manchester United as the relative frequency of them coming first is 32%, whereas Manchester City's falls just below with 26%. Therefore, due to Manchester City's inconsistency and slightly lower relative frequency of placing first, it may be concluded that Manchester United are more likely than Manchester City to finish first on the table.

Prime Players

Prime Players refers to a team's deemed "best players". These players are decided by overall goals, wins and other statistics that have been recorded throughout their careers. I have looked into both teams best players over the last 19 seasons and have found 1 for each team. Using the success these players have provided for the club, I have again utilised experimental probability to show the importance of these assets and how they will affect each club's 2021/22 performance.

$$\text{Experimental Probability} = \frac{\text{Number of times an event occurs}}{\text{Total number of trials}}$$

Manchester United-

Cristiano Ronaldo joins for 7 seasons from 2003-2009

Ronaldo helps them win 3 premierships in a row (3-year streak, one of their longest premiership streaks)

$$3/7 = 43\%$$

Manchester City-

David Silva joins for 11 seasons from 2010-2020

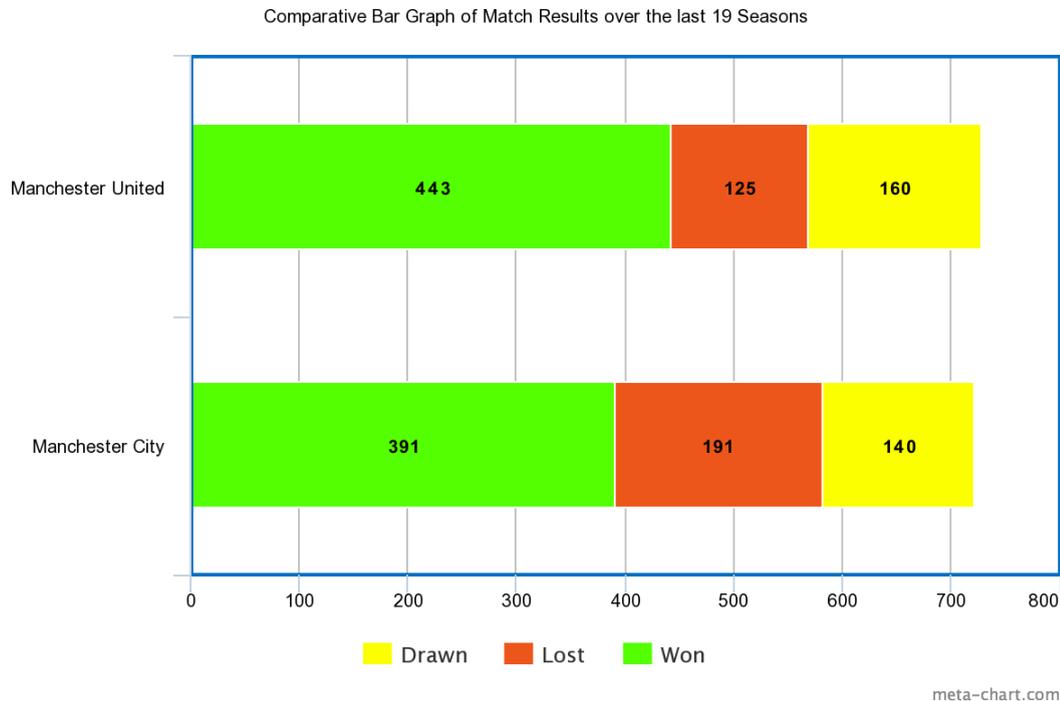
Silva helps them win 5 premierships (with 2-year streak) and 71% of their total premierships (5/7 = 71%)

$$5/11 = 45\%$$

From the information above, it is clear that both players have made a large impact on each club and its success. David Silva, for Manchester City, has won 5 premierships out of the total 11 seasons that he has played with the club. These 5 premierships contributed to over half of the club's acclaimed titles, bringing them to a total of 7. Unfortunately, David Silva has left Manchester City for the 2021/22 season. Cristiano Ronaldo, for Manchester United, has won 3 premierships in the 7 seasons he has played for them, and by doing this has helped United achieve one of their longest title streaks. Ronaldo left United in 2009 but fortunately has returned for the 2021/22 season. Subsequently, due to Manchester City losing the greatest player they've had in the last 11 seasons, combined with Manchester United regaining one of the greatest players in the world, it may be concluded that Manchester United may have more luck when attempting to attain to 2021/22 premiership title.

Match results

Match results refer to the number of wins, losses and draws compared to the total number of games played. I have explored each team's results over the last 19 seasons and recorded the results below in a comparative bar graph and simple statistics.



Manchester United: last 19 seasons-

Matches played- 722

Matches won- 443

Matches lost- 125

Matches drawn- 160

Win%- 443/722

= 61%

Manchester City: last 19 seasons-

Matches played- 722

Matches won- 391

Matches lost- 191

Matches drawn- 140

Win% - 391/722

= 55%

From the information above, it is clear that Manchester United has a more prominent chance of winning a game during the Premier League season. More specifically, Manchester City has a 55% win rate whereas Manchester United's is 6% higher with 61%. Additionally, the comparative bar graph highlights the different frequencies of results, by displaying how Manchester City has less green and more orange than Manchester United. The green sector represents wins and the orange sector represents losses, meaning that this exemplifies Manchester City's higher chance of losing. Subsequently, this factor also contributes to my overall investigation as it provides me with the knowledge that allows me to state that Manchester United may be more likely to win the 2021/22 Premier League.

Collaboration

In my collaboration with Penny, we found that we both noticed, even though investigating different sports, that the amount of championships that the team has previously won will also assist in increasing the probability of a win.

On top of all my own findings, when collaborating with Hannah, she noticed that if the team were to have a home game, this would also increase their chances of a win due to the larger amount of positive support and the psychological aspects of playing in their own home town. Thus, the winner of the Premier League grand final may also be affected depending on which team's stadium the game is played in.

Conclusion

Conclusively, the soccer teams Manchester City and Manchester United are both worthy competitors in the Premier League, however, through this investigation's ability to utilise the analysis of statistical information and probability, I have been able to determine which of the two teams will be more likely to win the 2021/22 premier league. Manchester City provides some good odds and statistics, although, Manchester United prevails with their satisfactory amount of goals per game, the high number of previous premierships, consistent placing on the table, outstanding match results and their obtainment of one of the best players in the world. Therefore, Manchester United is more likely to win the 2021/22 premier league.