Throughout our database project phases, our main focus was always on seeing what results we could produce with the dataset and, subsequently, what insightful conclusions could be drawn from those results. With our queries, we were able to showcase important aspects of modern European football, teams, and players.

We studied some of the top scoring teams to understand what attacking tactics were most successful with *teamOffensiveTactics* queries. From those teams, the results indicated that crossing and shooting were generally preferred over extensive passing to create scoring chances. While dribbling data had many null values, for the non-null values, there was a strong trend of the top teams having higher dribbling frequencies than passing. This was surprising as football coaches always encourage young players to focus on passing opportunities over dribbling. When looking at all teams' data, however, passing frequency was usually higher than dribbling frequency. Our discussion, along with the data, concluded that the top scoring teams likely have some of the best dribblers in the world and they can afford to take the risk associated with dribbling in exchange for higher scoring opportunities from those players.
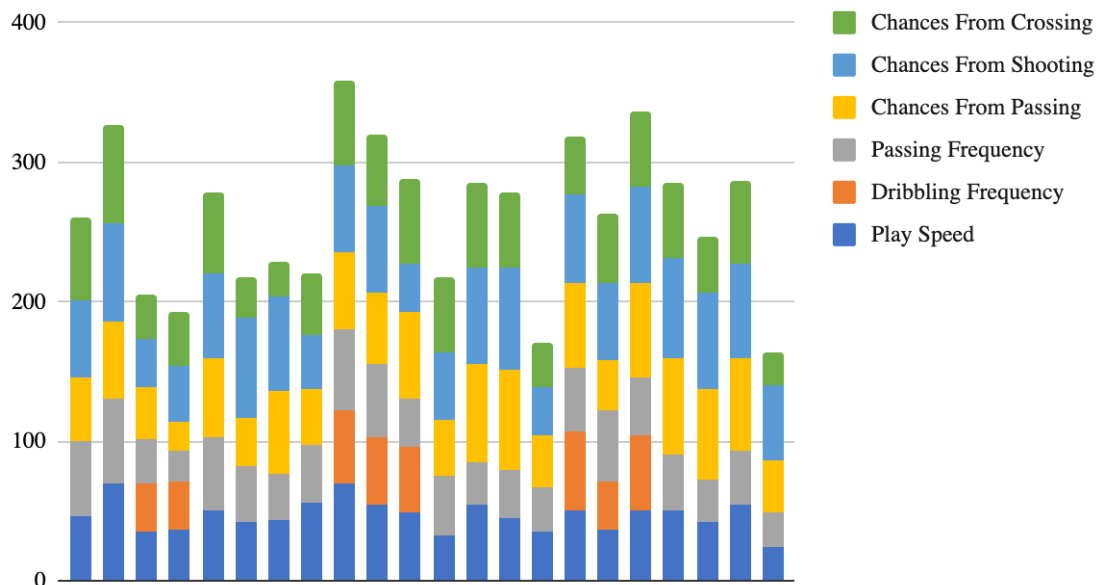
Conversely, we also examined the teams that conceded the least number of goals to try to determine the most effective defensive tactics with *teamDefensiveTactics* queries. For these teams, their team width and aggression were generally balanced as shown in the graph below. As we move right towards the teams that have allowed more goals, the spikes become more volatile which indicates that teams that were too aggressive or too wide ended up allowing more goals. This was in line with our experience as such teams are susceptible to losing players to red cards or getting pulled out of position by attacking players to create space for their teammates.
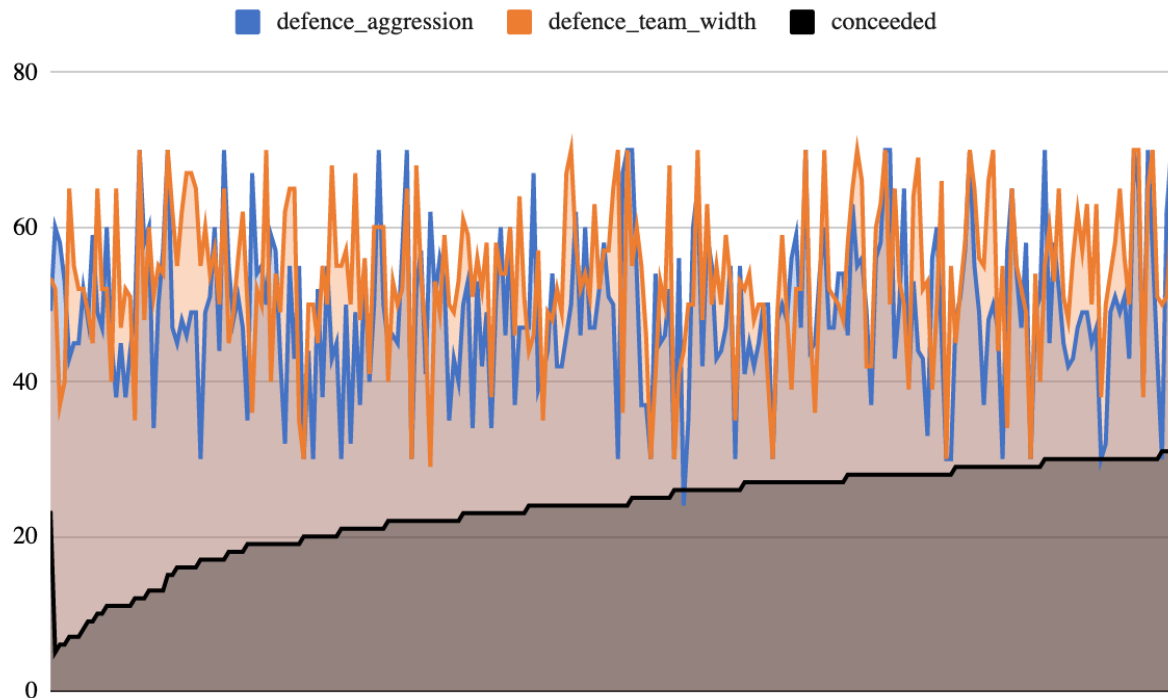
Grassroots coaching is focused on hard work being critical to the success of a player and/or a team. However, plenty of top players appear to be efficient so we investigated with *playerOffensiveWorkRate* and *playerDefensiveWorkRate* queries. In terms of individual players' work rates, we were able to uncover compelling information. Nearly a quarter of the players in the database had a high attacking work rate while only 15% of players had high defensive work rates. Similarly, only 4.8% of the players had low attacking work rates while the percentage who had low defensive work rates was more than double that. This data suggested that attacking work rate is important while defensive work rate efficiency is prioritized. This also explained why attacking players were substituted near the end of matches far more often than defenders; they were simply more tired. Another potential reason that we came up with for this was that football teams now, more than ever before, have players who can score regardless of their position so a high attacking work rate is preferred by coaches. Of the top 20 most expensive transfers ever, only 3 were defenders; goals are clearly valued and paid for more so it makes sense that players have higher attacking work rates than defensive work rates.

Attacking Work Rate

norm
0.2%

high
24.2%

low
4.8%

medium
70.7%

Defensive Work Rate

high
15.3%

low
10.5%

medium
74.2%
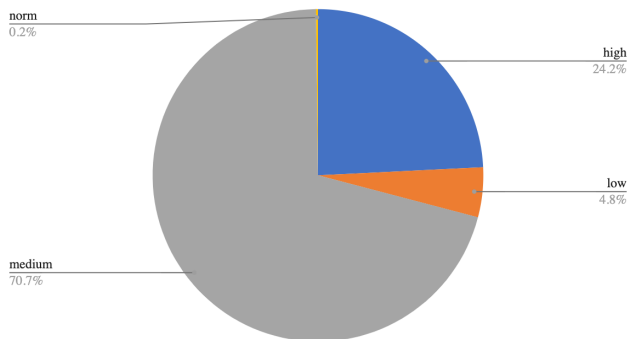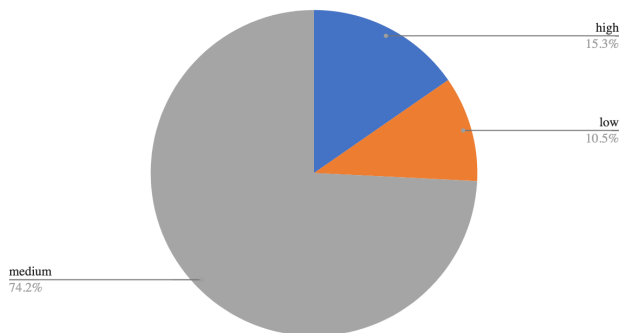
As for the best teams' work rates, based on play speed, aggression, and pressure, there was a marked difference shown by the *teamWinRatio* queries. While the averages of all teams were in the 40s for all 3 categories, the teams with over 80% winning percentages had at least one where they were rated at over 50 points and most had at least one where they were rated over 60 points. Their average for each of the 3 categories was at least 1 standard deviation higher than the overall average. It appears that a team's high work rate is quite important in their overall success even if individual player work rates did not have to be as high. This suggests that team formation and coordination is valued over individual effort. "Teamwork makes the dream work" as the adage goes and our data certainly reflects that.

Best Teams' Work Rates
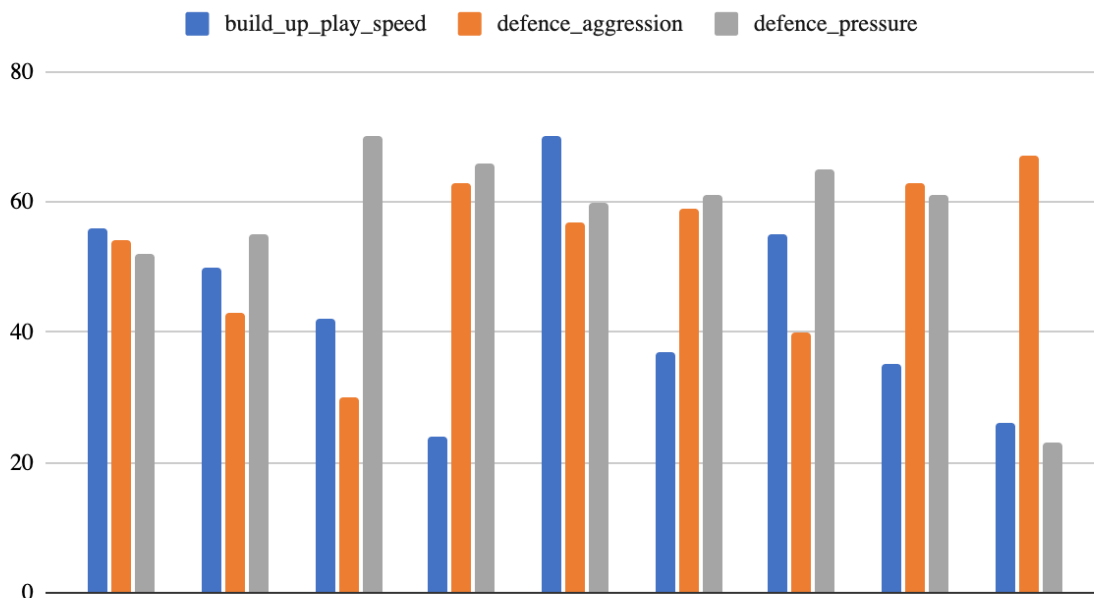
While we investigated our original questions, we felt that it would be interesting to see what age is the peak performance of most football players. This data would be critical for a coach to determine the future trajectory of a team. We looked at the average difference between the potential rating and the actual rating of all players in the database. The lowest average difference would signal the peak age; a player has reached as high a rating and is as close to their potential as they can be. From our *playerAge* queries, it appears that the peak age is just a little over 30. This was a bit surprising as people are generally stronger in their mid 20 to late 20s. However, the data probably reflected the fact that their game sense and tactical understanding resulted in better, and likely more consistent, performances at 30. Likely, they have played longer and been in more 'big' games at that point along with learning to manage their personal and professional lives.

Potential and Rating Difference to Find Peak Age
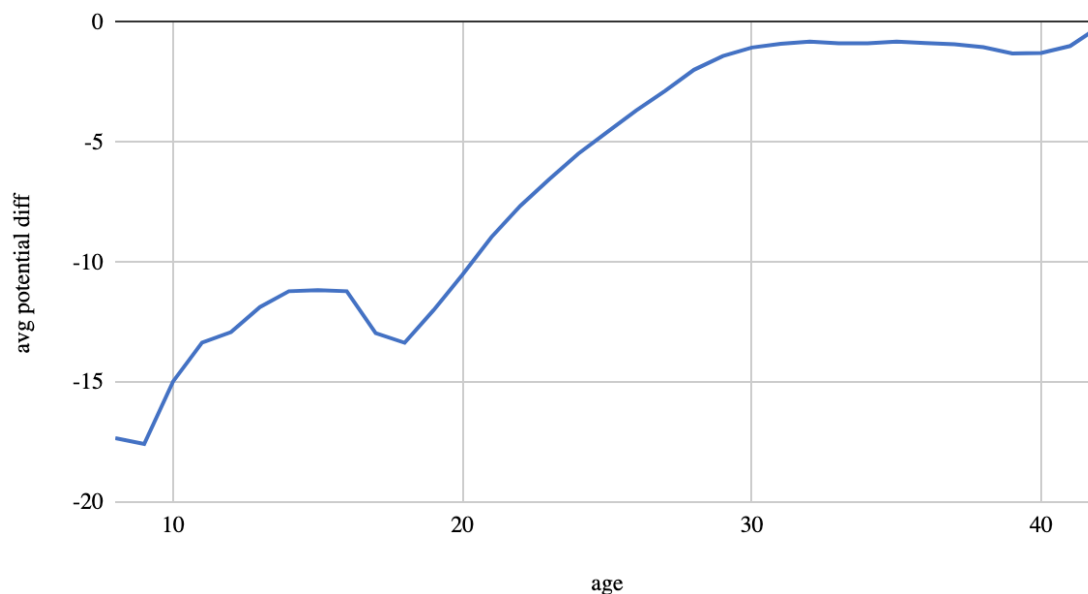
Furthermore, the match details evoked a desire to compare footballing styles, entertainment, and competitiveness across the top leagues in the data's countries. With our *leagueBreakdown* queries, we evaluated the frequency of draws and results as well as the average number of goals for both respective results for each league. The results were as we anticipated in this case; the German, Dutch, and Spanish leagues are all considered attacking leagues which corroborated with their higher result to draw ratio and their high goal averages. Their style of football can be extrapolated as more free-flowing while maximizing chance creation. The English and Italian leagues are considered physically challenging leagues. With their lower result to draw ratio and lower goal averages, their style of football can be considered more cautious and minimizing chances allowed to the opposition. The English and Italian league can also be considered more competitive for those reasons; their UEFA country coefficient (which measures the strength of the teams from each European country) have been among the top 3 for the majority of the coefficient's existence.

Results and Draws By League
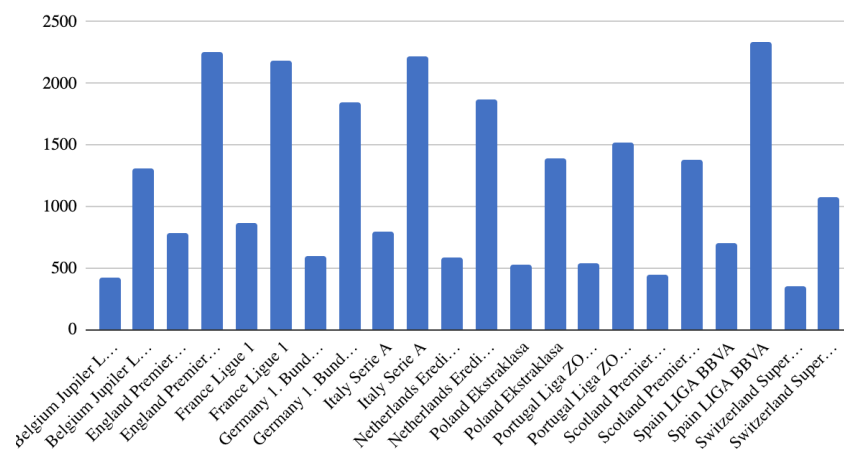
Average Goals For Each Result By League