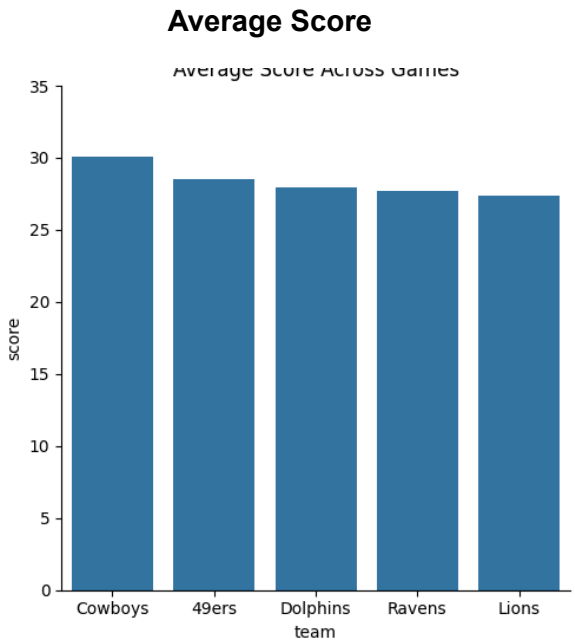
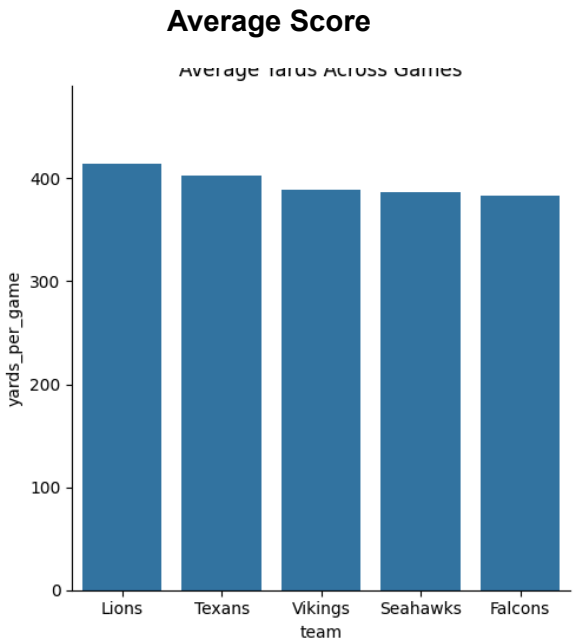
Data in NFL Offenses

I went into this project to try and figure out who was the most productive NFL offense in the 2023 season. I decided to make this my goal since I figured much of the data that I could use to support this would be numbered and hopefully imported from my data sources as integers. I wanted to make the decision based on a few factors, yards, first downs, score, and possession time. These were the factors that I felt would provide the best insight into an NFL team's offensive output. Yards would tell me how much offense they put out in general which is a large part since you cannot score unless you get down the field. Scoring however is the main goal so I would need to look into this. First downs are also a critical part of football as they allow you to keep your drive going allowing you to hopefully score, first downs are different in that there are good drives with no first downs but you generally want to take time off the clock before you score. This brings me to possession time which is an underrated aspect of football but many teams aim to keep the ball as long as possible while still scoring since keeping the ball away from the other team is a great defensive strategy. While all these things are important to a productive NFL offense they are not equally important so I took a weighted average of all these things. I weighed both first downs and yards 2x since they are very important to running an offense and put scoring at 4x since it's the main goal. I kept possession time as is since it should be taken into consideration but it's not something teams focus on, unlike these other aspects. I also felt an important aspect of being considered the best NFL offense is how you perform away vs at home. A team should be generally well rounded so I also took a look at this however not taking it into account in my weighted score. The last thing I looked at was drive averages provided directly to me from the Api, this was lightly taken into consideration when crowing the best offense but since my data was on game averages the drive averages were not used very much.

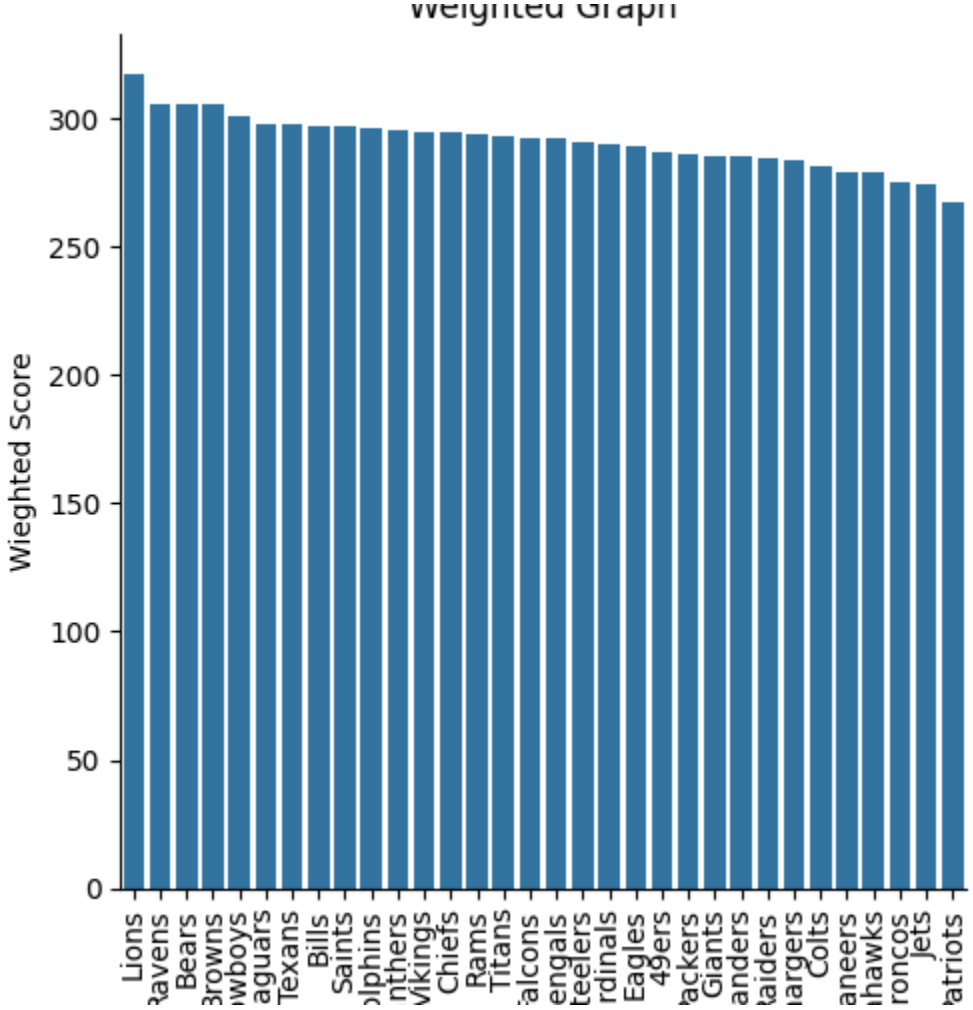
My data came in two csv and one api and information was abundant within these sources. The first thing I was tasked with doing was collecting the most important columns from my CSV and putting them into one bigger data frame. These columns were yards, score, first downs, and possession time for each game. I then took the average for each game and put the top 5 teams into a graph. Some of the graphs are here.





These graphs helped me decide what teams were the best in each category and teams that made multiple appearances such as the Cowboys or the Lions were taken note. These teams both took first place in the most important columns and appeared in the others. This is why I felt the weights were able to clarify the best team for me. The best team according to the weighted values was the Lions, this was kind of shocking to me since before I decided to take a weighted average I thought the Cowboys would be the best. They performed the best in the most important aspect and appeared in the others, after I found that the lions had the highest weighted value I did direct comparisons between the two teams. Doing surface-level analysis on Google I found that they had the same record and the same playoff performance. This lets me rest easy with the Lions being the best offense.

Graph for weighted score here..



The results I found in my API did open this can of worms again however, since I did this last. The API had a category for drive averages so I looked at each team's drive average and again the Lions and Cowboys stuck out. The Cowboys however had higher drive averages in

almost every category but I didn't let this change my decision. I decided that the Cowboys having higher averages could be due to them having fewer drives allowing their similar scoring and yards to be divided amongst fewer drives.

If I were to continue with this analysis of NFL offenses I would go into drive averages with a CSV to get a better understanding of that. I would also look at specific player performance to gauge the best players in the league. I would like to also analyze if any one player propels a team forward. I specifically want to look at how the player's pay equates to productivity on the field, other than quarterbacks. I would like to look at each player based on the price tag associated with them to see how a team can get the best bang for their buck. Looking at players such as wide receivers and running backs to gauge their value can help to understand how to build the best team while efficiently spending within the salary cap.