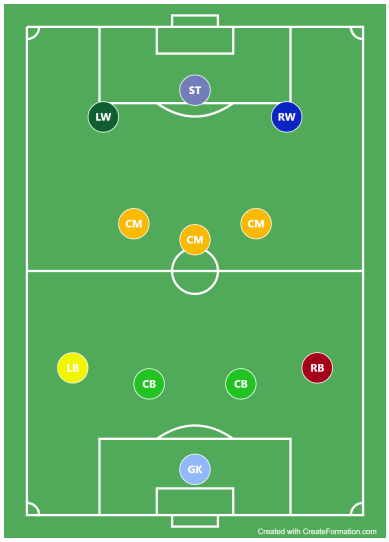
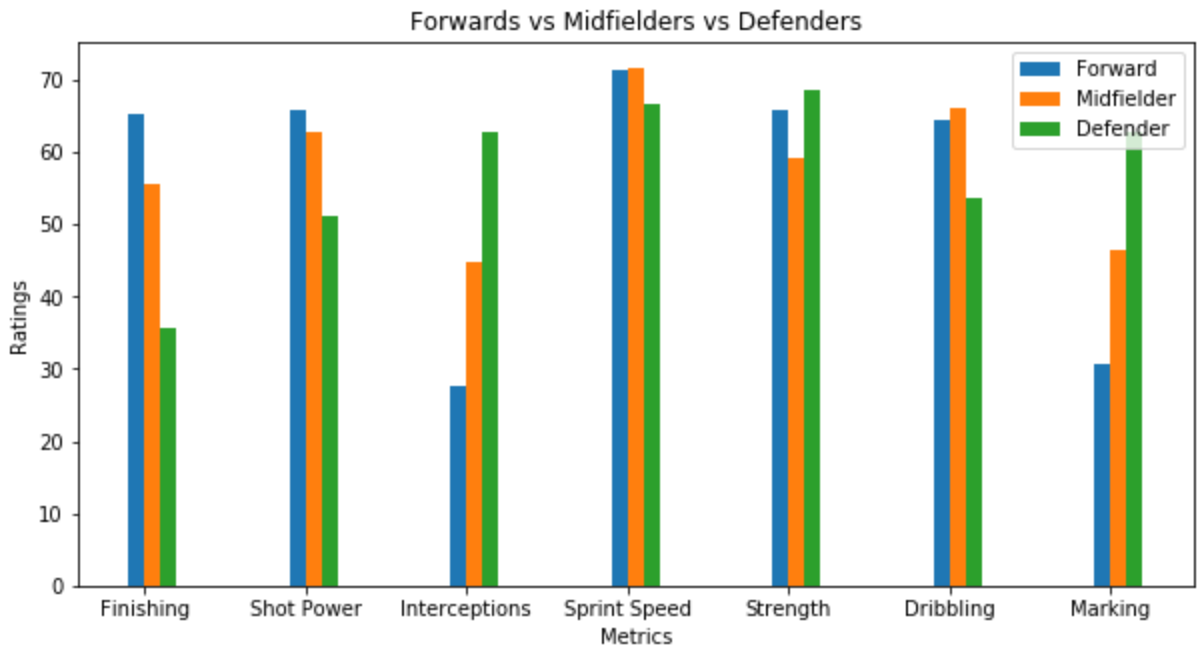
FIFA Data Visualization

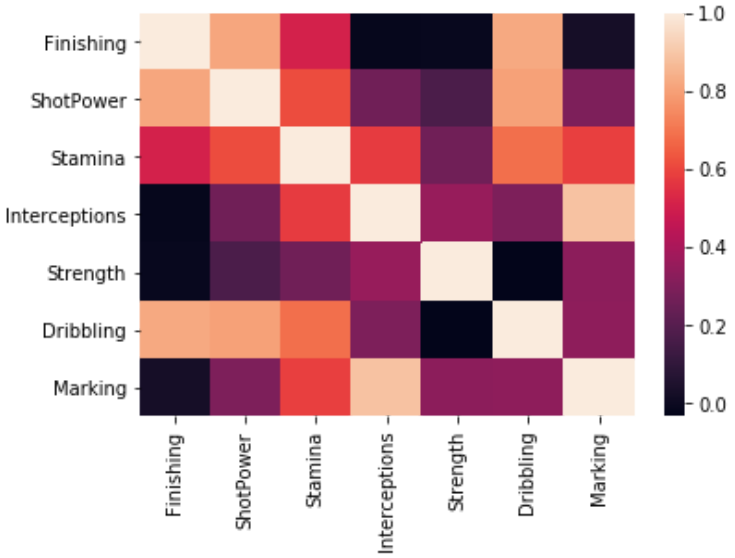
Introduction: This project analyzes the various attributes of soccer players that are essential to various positions on the pitch. A soccer team consists of 11 different players (10 outfield players and a goalkeeper). These players have different roles and are skilled in their respective positions. This is a classic 4-3-3 formation which represents the 4 defender 3 midfielder 3 forward formation. The defenders consist of 2 center backs, who hold the defensive line. They are aided by a right back and left back who both defend but also move the ball forward. The next region is the midfield consisting of 3 midfielders. It is designated as 3 central midfielders however the left and right midfielders are also designated as right and left midfielders. They dictate the passing and are critical to the transition from offense to defense and vice versa. Lastly, the forwards consist of a striker and two wingers. The striker generally scores the most goals, and the wingers assist in scoring as well. The purpose of this project is to identify what makes a good player in each position. Since there are numerous positions and similarities across them (A left winger will possess the same traits as a right winger except for their dominant foot.)



Methodology: I took a FIFA 19 (Soccer Video Game) data set from Kaggle.com, which contained players' position, and various attributes such as speed, strength, shooting, etc. Then I filtered the data to create 3 smaller data frames. The first was limited to Left Wingers, Right Wingers, and Strikers (LW, RW, ST). The second contained central, left, and right midfielders (CM, LM, RM). Lastly, the third data frame contained center, left, and right backs (CB, LB, RB). Then, I looked at the data, and picked seven attributes I felt was most essential to being a good soccer player regardless of position: Finishing (Player's ability to score when given a strong opportunity), Shot Power, Interceptions, Sprint Speed, Strength, Dribbling, Marking (Player's ability to stay with the assigned player on the opposite team.)



Insights: The bar chart is a strong representation of how each position values each attribute based on the mean rating of the attribute of all the players in that position. One major finding is that midfielders generally represent a balance of forwards and defenders. This makes sense as midfielders must learn how to gain the ball back when in defense and how to advance the ball forward in offense. Another major finding is that the skill sets that forwards excel at relies on more on-ball skills. For example, finishing, shot power, and dribbling are all associated with how a player effectively uses the ball to help their team score. Defenders, on the other hand, tend to excel at off-ball skills. Interceptions, Increased Strength, and Marking all require a defender to gain the ball back in possession. In addition to the bar chart, I made a correlation matrix using the same attributes shown below:



This matrix shows the correlation between the attributes. Some attributes are clearly unrelated to others. For example, one's ability to finish or score a goal from a given chance is not related to a player's ability to win the ball back by intercepting it. However, one's ability to finish is improved when they have a higher shot power as it gives them a better technique to score a goal.

Conclusion: This project shows the different needs of each position. As a player plays more of an attacking position, he or she is better off focusing on their technical skills such as dribbling and shooting. Whereas, a more defensive player should focus on winning possession back for their team by focusing on strength and marking. Additionally, several attributes are related to each other, so focusing on shot power for example can also help you increase your goal scoring percentage. I think one way to expand this project is by examining how midfield players vary through their attributes as there are much more variations such as a central attacking midfielder (CAM) or central defensive midfielder (CDM.)