

Capstone 1 Proposal - NFL Matchup Predictions

Through this project I intend to solve the problem of predicting the winner of an NFL football game before the game starts. In other words, based on the matchup of two teams I want to know which one has the advantage in a game.

This model would be valuable to a number of groups. In a very direct way anyone who wants to predict the outcome of a game could use this model to either increase the confidence of their decision or by helping to decide for them when they are unsure. This would apply to betting platforms, people using a betting platform, and sports analysts who predict games as part of their job. A second and more notable group that would benefit from the model are people who are trying to strengthen and manage a team of their own such as coaches, general managers, and owners. They wouldn't care directly about the predictions of the model but more so how the model is configured. By seeing what the model values in a successful team the managers will know where to invest their resources and by understanding the relationships between the features of the model teams can develop plans for taking advantage of an opponent's weaknesses or prepare by patching up weaknesses of their own.

My approach to this problem will utilize an NFL API in order to gather the data in a way that I can control. I will choose a large collection of features focusing on covering as many aspects of the game as possible while also leveraging my domain knowledge to select valuable statistics. Once I finalize the dataset I will focus on generating a model using common data science and machine learning techniques.

To complete the project, I will most importantly finalize a model which can predict an NFL matchup and expose the respective source code. I will also produce a PowerPoint slideshow which documents the process I followed as well as the insights and takeaways from the model.