* A **solution statement** — the solution proposed for the problem given;
* A **benchmark model** — some simple or historical model or result to compare the defined solution to;
* A set of **evaluation metrics** — functional representations for how the solution can be measured;
* An outline of the **project design** — how the solution will be developed and results obtained.

**Background**

Professional American Football is one of the most popular sports in the United States. The National Football League was established early in the 20th century [1]. Every week of the NFL season (September through February) millions of people tune in to watch the sport played by the best athletes in the world, wondering who will win the game for a given week. This presents ideal opportunities for bookmakers in Las Vegas to establish betting lines for people looking to make wagers on who will win the game, how much will they win by, and what the final score might be. The most popular wagers that people make are whether a team will win by greater than or equal to a certain amount of fixed points determined by the bookmakers (the spread) and whether the total combined score of both teams will be over or under a certain amount (The over/under). Usually the odds strive to be close to 50% for whatever outcome is selected.

**Problem Statement**

Using historical game data and supervised machine learning techniques, determine the outcome of whether the favorite team will cover the spread.

**Datasets and Input**

Game matchup data consisting of information such as:

1. Game info
   1. Wins/losses for each team
   2. Home or away
   3. Interdivisional matchup
   4. Week in season
2. Team game stats (split on three categories, run, short pass, deep pass) based on a metric called “skillpoints” which is based on how fantasy football points are calculated
   1. Total rank
   2. Average weekly rank
   3. Average defensive performance
3. Odds stats (split by each team) to assess accuracy of bookmakers
   1. # of games team has played where the spread has been covered
   2. # of games team has played where spread has not been covered
4. Whether there has been a change in starting quarterback

**Solution Statement**