**Intro:**

Football is one of the most popular and most violent sports in the United States. On every level of competition be it high school, collegiate, or professional, football brings in more money and more attention in the United States than any other sport. The NFL or the National Football League is the biggest football organization in the world. With each team in the organization averaging around 2.86 billion dollars in net worth and each game pulling in over 158 million viewers with the Superbowl reaching around 100 million; the NFL is a monster of an association.

Football is played on a grass field that spans 120 yards with ten of those yards at each end representing the endzone for each team. At any given time in a game, there are eleven people from each team taking turns playing offence or defense with the goal of moving the ball to the other teams endzone or stopping the opposition from doing the same thing. There are many different positions on the offensive and defensive sides but the most important position by far is the quarterback. The quarterback is the leader of the offence and touches the ball every single play, because of this the quarterback has the most influence on the outcome of a game compared to all other positions which may only touch the ball a small percentage of the snaps. Generally, a quarterback can choose to either throw the ball to a receiver, run himself, or hand it off to a running back for a run. This means that the easiest way to compare quarterbacks is with stats such as passing yards or touch down to interception ratios because his main job is to throw the ball and when he hands it off someone else is doing the work. Throughout the course of a season sports analysists will look at these basic stats each game to determine how good a quarterback is playing, yet in the end, because a quarterback has so much to do with the outcome of a game, if a team does not make it to the playoffs and do well the brunt of the blame is places on him. Therefore, there are sometimes discrepancies between stats and championships, some QBs can put up numbers but their teams are not good enough to win while other QBs may put up worse stats but still win.

Sports in general tend to be a hard topic for data analytics because there are so many things that could affect the outcome of a game or how well a player performs. There are some players that do not put up good stats but have intangibles such as leadership or the ability to stay calm under pressure that may lead to them winning more games and are very hard to record and quantify. This leads to some players making you just believe in them or give you the feeling that they are good even if there is no real reason to think so.

The Pro Football Hall of Fame represents a list of all the best players determined by a committee of qualified individuals. When a player retires the commute reviews that players career and votes on whether they belong in the Hall of Fame. There are no specific rules or clear equation that results in a player getting the thumbs up or thumbs down from the committee; votes are cast based on whatever each member thinks are important. The goals of this project are to see if there are common trends that place a quarterback in the Hall of Fame and to be able to accurately determine if a player will eventually make it into the Hall of Fame.

Data was collected and merged from Pro Football Reference and a Kaggle data set called NFL-Statistics.