Union Rugby Match Result Prediction Model

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1 Introduction:

The ability to predict the future is one all human desire, especially when it comes to how their national rugby team will do this Sunday. Predicting match results has exploded with the proliferation of sports betting sites and greater global access to sports content, through online streaming. The demand for an all-seeing crystal ball has never been higher. Taking the first steps in meeting this demand, this project seeks to create a model capable of creating predictions for the results of one of the world's largest sport monoliths, Rugby.

2 Background:

Rugby is a popular two-team sport played across the World. Depending on the type of rugby being played, each team may have 7 or 15 individuals on the field. The goal is to get the ball to touch the ground in what is called the try zone, which is placed at each end of the field. Players may not pass forward, causing there to be room for strategy in plays. Rugby is a contact sport, meaning that players must tackle each other to get control of the ball. Points can be earned through a try, getting the ball to touch the try zone, a conversion kick, which is done after a try, a penalty kick, or a drop goal, where a player kicks the ball over the crossbar and between the goal posts.

Predicting team sport game outcomes is one of the fastest expanding areas of research in the machine learning community due to the large number of individuals who bet on the outcomes of these games. Researchers have attempted to use machine learning models to find the most accurate way to predict the conclusions of team sport games. For example, researchers at the University of Mumbai attempted to find the most accurate model to predict soccer match results. They found that the highest accuracies among various modeling ranges from around 63% to 68.44% [2]. For rugby, there are multiple different factors that we may want to examine to match or go beyond those percentages. According to the Pumukkale Journal of Sport Sciences, the amount of tries and conversions were the most significant factors [1]. We will use this research to find the most accurate model to predict the results of rugby matches.

3 The Problem:

The goal of this project is to create a model that is capable of receiving user input, containing the essential information of an upcoming match, and construct a reasonable prediction of the match's outcome. This prediction will be based on data from the Rugby Union Results database, with some modification to meet the program's specific needs. To chart the success of the model one would assume that one would simply need to check against the match's result. However, this would logistically unsound when evaluating matches days or weeks in advance. Instead, this project will measure its success based on how consistent it is with sports betting sites, who have a deeper and more nuanced understanding of the game.

References

[1] Tyshchenko V. Latyshev M. Kvasnytsya I. Kirsanov M. Plakhotniuk O. Kvasnytsya, O. and M. Buhaiov. Team performance indicators that predict match outcome in rugby union. *Pamukkale Journal of Sport Sciences*, 15:203–216, 2024.

[2] Anagha Patil, Yash Ajgaonkar, Kunal Bhoyar, and Jenil Shah. Prediction of winning team using machine learning, 2021.