

# **FOOTPRO: FOOTBALL LINE-UP AND WIN PREDICTOR**

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## Abstract

Football is one of the most played and watched sport around the world. Transformation of the capability of football players to engage with other teammates and to display good performance has always been based on each players style of play and their ability to combine with other players. Collecting information and selecting the most suitable line-up for a team to perform against different opponent was handled and managed by the manager of every football team. Due to the advancement in match techniques and the prior experience and knowledge recommended to even manage a football team, only skillful and professional managers are able to manage a team accordingly and guide them to perform well on field.

Sport match-results analysis has always been a trending subject for both researchers and the general public. Advanced data processing methods and techniques combined with strong computing power of computers allow researchers to predict the outcomes of the upcoming matches by implementing machine learning techniques and algorithms on the data sets collected.

Several different projects and models have been proposed in order to estimate the features and characteristics that leads a sport team to win, lose or draw a game, or to predict player performance and design an optimal team line-up for a specific team in many different sports. This dissertation is a result of the project to build a model to fulfil both the process of designing an optimal line-up for a team and to predict the outcomes of that team when against several opponents in the sport of football. The developed system, *FootPro* involves many key factors such as time series forecasting, predictions through regression and classification techniques and other different data analytical techniques. Efficient supervised machine learning algorithms along with forecasting techniques are used to enhance the architecture of the proposed system. The application system is evaluated and developed in a manner targeting football team managers and football fans, so that they can adequately spend their time on designing the optimal team line-up for a team based on the predicted stats of each active players and the outcomes for a match in the future.

**Keywords:** Optimal line-up, Match outcome prediction, Machine learning, Time series, Classifiers, Regressors, Forecasting.