

SmartScore

Machine Learning Powered Fantasy Football Application



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# Introduction

This report will be outlining the overall result and process in the making of the machine learning powered web application SmartScore. This was made for my final year project, I wanted to do this as my project because I have been playing fantasy football for many years and there’s a lot of time and effort that goes into researching things such as form, injuries and fixtures every week. This project aimed to bridge the gap between casual and avid fantasy football players by providing machine learning powered recommendations to help aid managers in selecting their teams for the upcoming game weeks and compete against their friends in these leagues.

This is a web application that is written in Laravel PHP, Tailwind CSS, JavaScript and the machine learning was all written through Python and Jupyter notebooks. I chose this tech stack as I had used Laravel on my internship during third year and I really like how it was able to handle the full stack of a web application from using blade files on the front end to controllers in php on the backend. It was something I really wanted to further my knowledge on and doing this project has really allowed me to do so.

# Description of Project

SmartScore is a machine learning powered fantasy football web application that aims to help users in their decision making on a week-by-week basis with predictions and recommendations for their team.

Some of the core features and functionality in this application include:

* League Creation – Users can create leagues with their friends
* Team Selection – Users can pick their starting eleven and subs every week
* Player Transfers – Users can transfer 3 players a week in their team
* Points Per Week Predictions – Machine learning predictions for every game week
* Player Comparison Model – Users can ask AI who is the better choice of two players
* Transfer Recommendations – Users can ask this model who the best replacement is for a player in their team
* User Authentication – Users can create an account which has their team info and leagues saved

These were key as I wanted to keep the traditional fantasy football style of playing for familiar users and integrate this seamlessly with the machine learning to help them along the way.

League Creation:

A screenshot of a sports league

Description automatically generated

As can be seen in the screenshot above this is the leagues page for the user, I have a few leagues setup whilst I was creating this feature. This works by creating a league by giving it a name and then the app generates a random six-character string which is the league code which can be then given to friends and they can click join league, enter that code and they’re now in the league too. This format was inspired by the way Fantasy Premier League do their league system.

Team Selection:

A screenshot of a computer

Description automatically generated

As can be seen in the screenshot above this is the team selection screen. This is where users can select their starting eleven who will gain them points for the upcoming game week. This screen is initially empty, and users are given a 100m budget to build their team, every player has a price and the better the player is the higher the price is. This is a standard method of team building for fantasy football and I wanted to keep it like this because I want this application to still feel familiar to users who have been playing fantasy football for a long time but still easy to understand for a new user.

Player Transfers:

A screenshot of a phone

Description automatically generated

This screen style and design wise is virtually the exact same as the team selection screen except it has a different functionality. The transfers screen allows the user to transfer out up to three players a week for players that aren’t currently in their team. This is where the user can implement the changes that the AI has recommended for them.

Points Per Week Predictions:

A screenshot of a computer

Description automatically generated

As can be seen in the screenshot above this is the first of my models and the most complex of them the Points Per Week predictor. This model works by giving it a player and the team they are coming up against in the upcoming game week and it can accurately predict how many points they should get in that matchup. This is based off of a multitude of factors.

# Description of Conformance to Specification and Design

# Description of Learning

# Review of Project

# Acknowledgements