SMARTSCORE FUNCTIONAL SPECIFICATION

4th Year Project Software Development

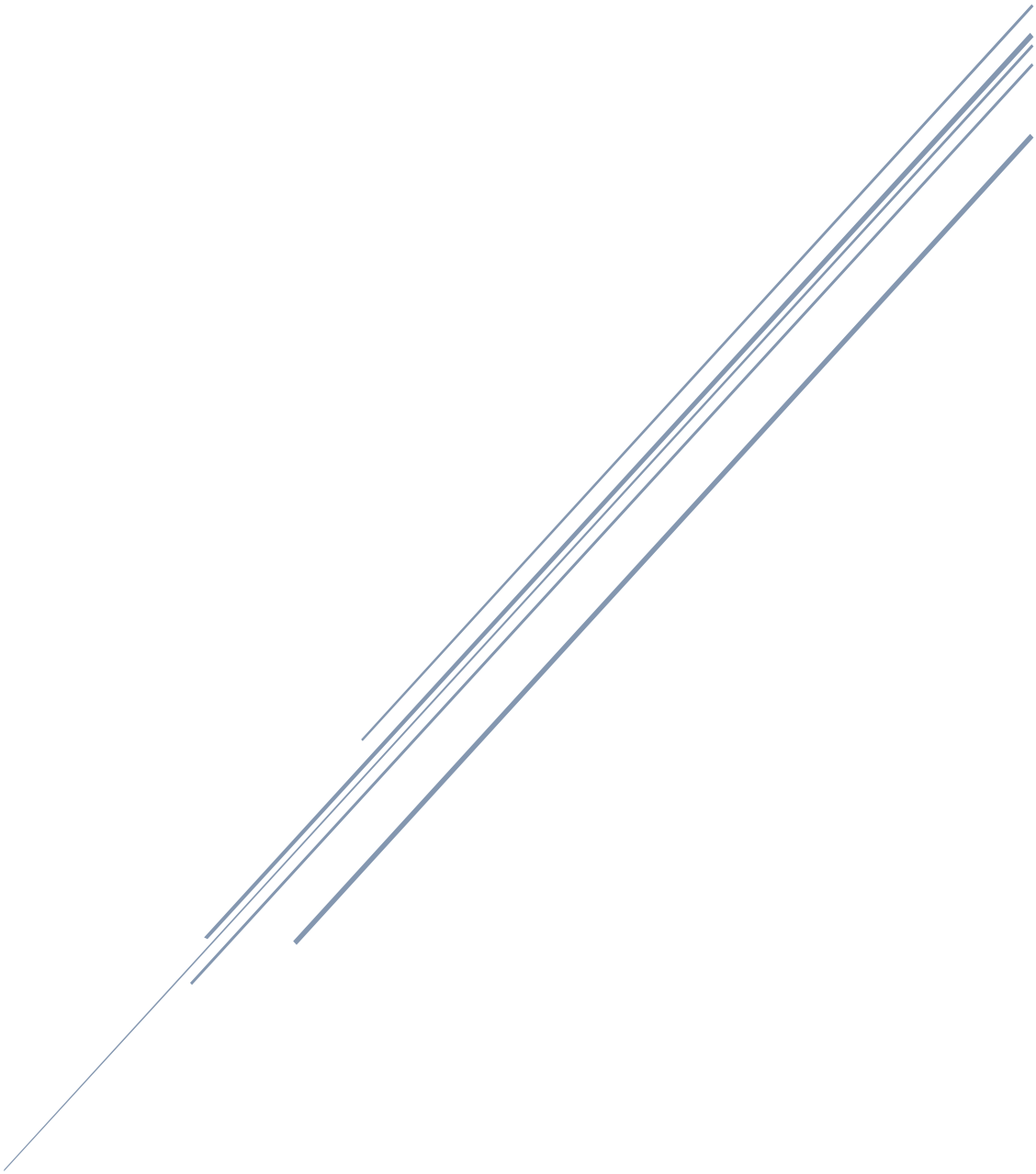

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Table of Contents

Introduction 2

Project Overview 3

Target Audience 3

Target Platforms 4

Challenges To Overcome 4

Use Case Diagram 5

Brief Use Cases 5

Introduction

The aim for this specification is to outline some of the functionalities of my project. My project SmartScore is an AI focused fantasy football web application. The main aim for this application is to aid fantasy football managers on their weekly decisions using AI powered by statistics to give them recommendations for the upcoming week. Some of the features that will aid users on their decisions will be recommended transfers, player comparisons, team selection information. This specification aims to explain these features and describe the technologies to be used and the target audiences for the application.

Project Overview

The aim of this project is for the user to have a more informed idea of what they can do every game week in fantasy football and to allow for a new way to play fantasy football using statistics powered AI rather than the traditional scoring methods allowing for more fun and creative ways to play.

Some of the main features that I am looking to add to the application include:

- AI recommended transfers
- AI team selections
- Custom league rules
- Predicted points per week
- In-depth player comparisons

These features will allow users to make more educated decisions on their teams of a weekly basis.

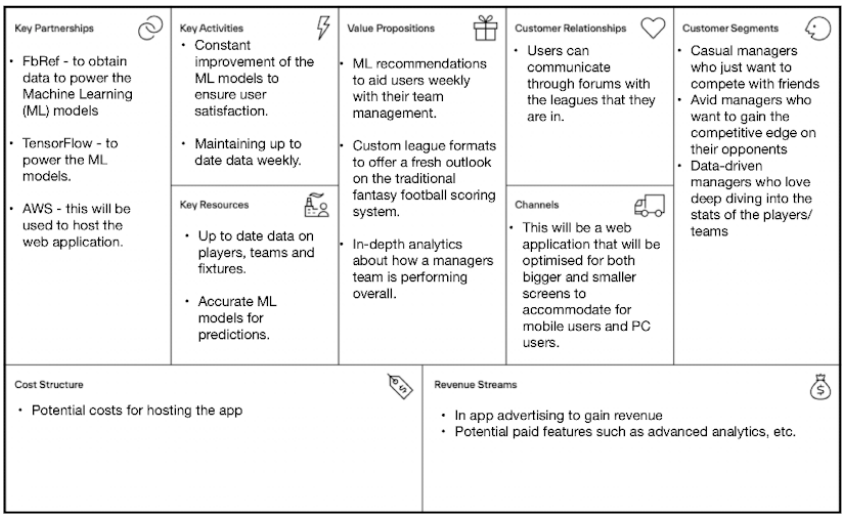

Fig 1. Business Model Canvas

Target Audience

For this application there are two primary types of user that SmartScore is targeted towards:

1. Casual fantasy football managers - SmartScore appeals to the casual manager as a big problem can be that they can feel out of their depth if they are in a league with friends who take it very seriously which leads to them abandoning the app after the first few game weeks due to feeling like they can't keep up

2. Avid fantasy football managers – SmartScore also aims to appeal to the managers who take fantasy football extremely seriously as the features provided in the app can give them the edge that they need to win in their competitive leagues with other knowledgeable managers.

Target Platforms

The target platform for this application will be a web based application. A web app will be used for SmartScore as it means that everyone can access the app without any downloads. This will also be optimised for both bigger and smaller screens so that it can be used on mobile when on the go or on a laptop/PC when at home.

Challenges To Overcome

One of the biggest obstacles that I will have to overcome is obtaining the data and structuring it correctly for the machine learning (ML) models.

I will have to make a data scraper using Python to go through the FBref website to get the data on players and teams so that I can use this to build out my models. Once this data is obtained it will have to be cleansed as it will not be in the correct structure for a ML model to use in its training.

Another big obstacle that I will face will be drawing users away from the Fantasy Premier League (FPL) app.

The FPL app is by far the biggest fantasy football application in the world with over 10 million players in the 2024/2025 season alone. I aim to do this by promoting the fact that SmartScore will be the only fantasy football application out there that combines both the game of fantasy football and AI recommendations for managers to help them with their team. Another alluring factor to SmartScore is the custom league rules feature which no other fantasy football application is using, this allows the users to have a fresh league structure rather than being forced to use the classic fantasy football scoring system which leads to some fun new ways to play the game.

Use Case Diagram

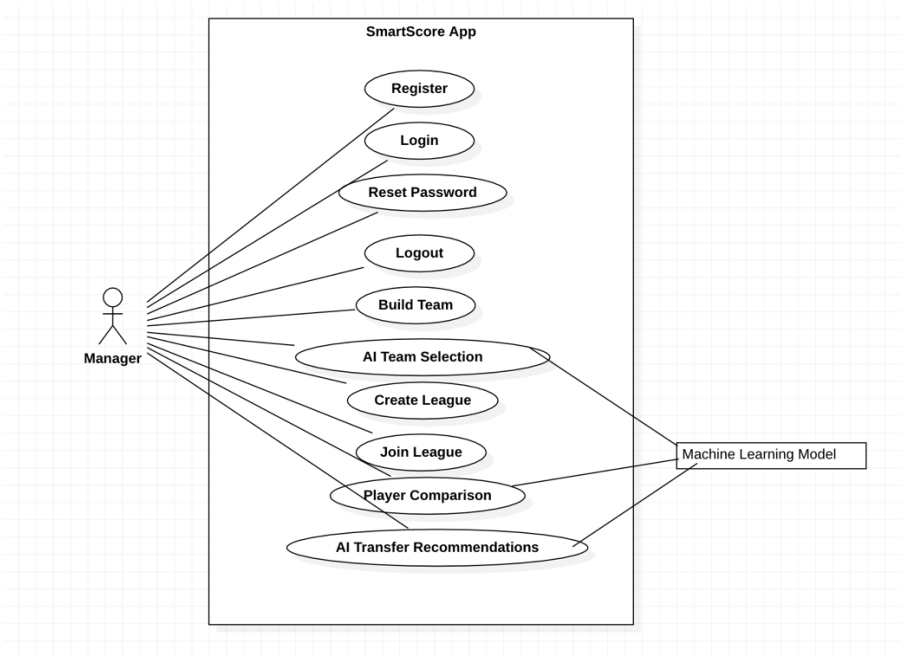

Fig 2. Use Case Diagram

Brief Use Cases

Use Case Name: Register
Actor: Manager
Description: This use case begins when the manager loads into the web app. They then proceed to select a username, email and password and the system stores this into the database.

Use Case Name: Login
Actor: Manager
Description: This use case begins when the manager loads into the web app. They then proceed to enter their selected username and password and the system verifies the login is correct and logs the manager into the app.

Use Case Name: Reset Password
Actor: Manager
Description: This use case begins when the manager loads into the web app. They then select the forgot password button on the login screen. They then enter their email and they can enter the new password they wish to use. The system then updates the managers information in the database.

Use Case Name: Logout
Actor: Manager
Description: This use case begins when the manager logs into the web app. They then select the logout button on the screen. The app then logs the user out of the site.

Use Case Name: AI Team Selection
Actor: Manager, ML model
Description: This use case begins when the manager views their team, they can then click the recommendations button. This calls the ML model which analyses their starting 11 and bench players and recommends the best squad possible for the upcoming week.

Use Case Name: Create League
Actor: Manager
Description: This use case begins when the manager loads into the web app. They then select the create league button. This then brings them to the league setup screen where they can select custom league rules and get given a unique league code to give to friends so that they can join

Use Case Name: Join League
Actor: Manager
Description: This use case begins when the manager loads into the web app. They then select the join league button, this is where they will be prompted to enter the league code to join their desired league.

Use Case Name: Player Comparison
Actor: Manager, Machine Learning Model
Description: This use case begins when the manager selects the player comparison button on their squad. They then enter both players that they want to select. These two selections are given to the model which determines which player is a better fit for the upcoming game week and tells the user who to select.

Use Case Name: AI Transfer Recommendations
Actor: Manager, Machine Learning Model
Description: This use case begins when the manager loads into their current team. They can then select a player and click the transfer recommendation button. This is passed to the ML model so that it can determine the best player to transfer in for the upcoming gameweek.

Detailed Use Cases

Use Case Name: Register
Actors: Manager
Brief Description: This happens when a manager loads the app up and selects register
Main Success Scenario: 1. Manager selects register 2. Manager enters username, email & password 3. System validates the inputs 4. System stores them in the database and logs them in with the new information Alternatives: 3a. The details are in an invalid format 1. The manager is brought back to the register page 2. There is an error message displayed detailing the correct format 3b. The details are already in use 1. The manager is brought back to the register page 2. There is an error message displayed detailing that these details are already in use.

Use Case Name: Login
Actors: Manager
Brief Description: This happens when a manager loads the app up and selects login
Main Success Scenario: 1. Manager selects login 2. Manager enters username & password 3. System validates the inputs 4. System logs them in and brings them to the home page Alternatives: 3a. The details are incorrect. 1. The manager is brought back to the login page 2. There is an error message displayed saying that the details entered weren't correct

Use Case Name: Reset Password
Actors: Manager
Brief Description: This happens when a manager wishes to reset their password
Main Success Scenario: 1. Manager selects reset password 2. Manager enters their email 3. System requests a new password 4. Manager enters a new password 5. System updates password and logs the user in to the home page Alternatives: 3a. The same password is entered again. 1. The manager is brought back to the reset password page 2. There is an error message displayed saying the same password cant be used again

Use Case Name: Register
Actors: Manager
Brief Description: This happens when a manager loads the app up and selects register
Pre Conditions:
Main Success Scenario: 5. Manager selects register 6. Manager enters username, email & password 7. System validates the inputs 8. System stores them in the database and logs them in with the new information Alternatives: 3a. The details are in an invalid format. 3. The manager is brought back to the register page 4. There is an error message displayed detailing the correct format 3b. The details are already in use. 3. The manager is brought back to the register page 4. There is an error message displayed detailing that these details are already in use.
Post Conditions: