Pocket Fantasy Football Analytics

CS 411 Project Proposal - Fall 2022

Team # 032 - MangoDB

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1. Project Summary

Fantasy Football is a game that allows users to be the owner, GM and coach of your very own football team. Users draft a team made up of real NFL players; based on their on-field performance in a given game, users score points. Points are awarded to users based on various events in a game for a player: amount of rushing/receiving yards, touchdowns or field-goals scored, defensive turnovers and so forth. What makes fantasy sports so captivating is the flexibility of a user's lineup. Fantasy Football allows users to trade players with one another, and also pick up free-agents of the waivers (players that don't belong to any team). With the game of football being so violent, these tools are crucial when a users team suffers injuries or aren't performing up to standard. Our project aims to help fantasy users take advantage of players of this fluid system, and make the best player choices for their teams.

Pocket Fantasy Football is a web application that aims to aid users' fantasy football team performance with personalized recommendations. Users can enter their current teams, receive guidance on their strengths/weaknesses with positional recommendations, and also view key statistics and other information relevant to helping users achieve their goals.

2. Application Description

Every year there are millions of fantasy football owners that have a tough time deciding who to start on their fantasy team. This decision can be very difficult as you never know what players will perform well due to various factors. Our application will be utilized to improve user fantasy football teams and ensure each team has the best player available for each position. The user must simply input the players on their team on our application. Then, we will analyze the team and provide recommendations for specific positions that can be improved by suggesting trending players or additional players with better upside for the future. Additionally, the user may filter specific positions to see the best performing players to target. This allows the user to upgrade their fantasy football team with specific players that have a greater chance of performing well. Seeing as there are many people that play fantasy football, this has a lot of upside in the number of people that might be interested in a tool that will help them win in their leagues.

3. Usefulness

In 2021 alone, the market size for the fantasy sports sector in the United States was $8.86B USD. Fantasy sports have become a staple source of entertainment for many across the country and globe. Many people, like us students and faculty, enjoy playing a league with our friends during

sports seasons. Additionally, individuals now can earn money from the performance of their teams through gambling websites such as DraftKings.

Within fantasy sports, the most popular sector lies within American Football. The National Football League, which accounts for 75 of the top 100 most-watched US broadcasts, saw its viewership increase by 10% YoY.

With interest in football viewership and fantasy apps increasing, creating an application that can provide personalized position recommendations would easily garner interest. Unlike other services out there, we provide users direct analysis on what team positions are performing the best/worst, and players to fill those needs. Other major fantasy apps provide general analysis on players, but don't give personalized recommendations to teams.

4. Realness

There are a lot of different sources from where we can acquire our data. Our data is going to relate to the NFL, and specifically to fantasy football. It should contain information about how a player/team is performing, strength of schedules, injury history, recent trends, etc. We will then use this data to analyze how good a user's team is, and which players could potentially improve their team. We plan on receiving some data from the user such as who the players on their team are. After doing some research, we found an API that seems like it has all of the data that we will need to get our project working, this is the Sportradar NFL v7 API. There were a few other APIs such as the Yahoo Fantasy Sports API but we found that the documentation for these was kind of hard to follow. For the Sportradar NFL v7 API on the other hand, there is ample documentation to where we can feel comfortable understanding and coding up what is necessary for our application. This API is one that also has multiple versions and comes from a credible company so we felt that this is a good place to get our data from. The link to the documentation for the Sportradar API is https://developer.sportradar.com/docs/read/american_football/NFL_v7.

5. Functionality

5.1 Data -

There are two sources of data. The first of which is the user input; users will input their team by position. The second source of data is the Sportradar NFL API we are using. More on this, such as which fields of data we would be using is included in Section 4: Realness.

5.2 Functionality Description -

- Users can input their fantasy team, and receive analysis on their strengths, weaknesses, and areas of improvement in the form of a numerical score for position (0-100)
    - Player recommendations will be given by recent/trending performance over the past weeks, opponent matchup and defense, injuries to the player or related personnel, and potential future upside or sleeper picks
- Users can view positional player recommendations for their teams' analyzed weaknesses, with a drop down of the recommended players key statistics and information.
- Users can access a list and filter the top set of players for each position, and information about those players will be provided as well.

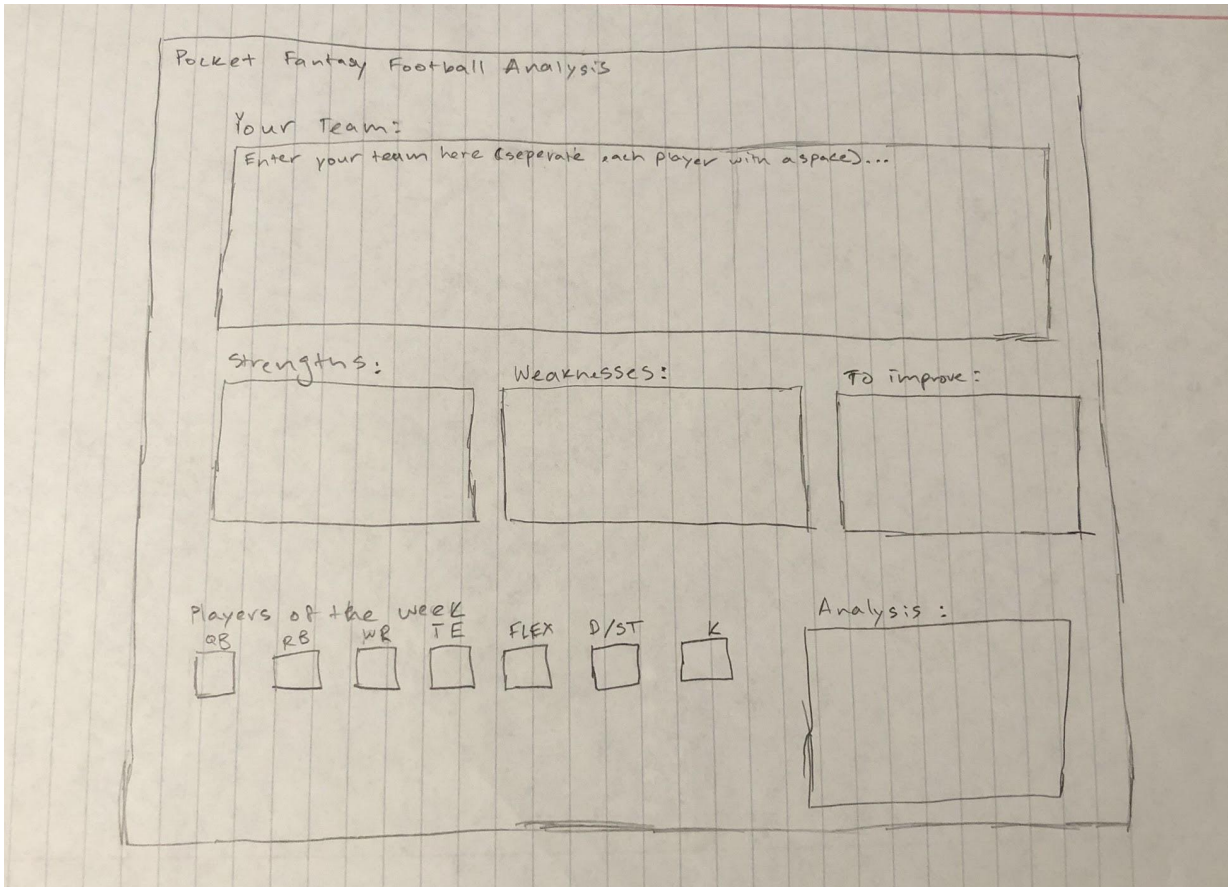
5.3 Creative Component -

- Players of the Week:
    - When the player is selected, we will have a dropdown/popup giving a list of player recommendations that can improve the specific position. At the top of this list, we will include the player of the week for the position that outperformed all of the rest.

5.4 Technical Component -

- Backend:
    - Using the Sportradar NFL v7 API to get the data that we need, this will be done with Python as the main backend language.
    - We will be storing the data in a database through using SQL.
    - We will need a Lambda function as a scheduler so that we can pull information from the API into our database frequently.
- Frontend:
    - We will be using React in order to develop the Frontend web application.

6. Low Fidelity UI Mockup



7. Project Work Distribution

- Create Data Model Schema (ALL)
    - Understand API, and structure of data
- Create High Fidelity UI Designs on Figma (Adish, Sid)
- Front End Development (Adish, Sid)
    - Build out the UI designs
    - Connecting to Backend
- Backend End Development (Neehar, Rohit, Sid)
    - Lambda Function API Call to gather data, and feed it into the database
    - Data Analysis and Calculations
- Database
    - Create SQL database with determined structure (Rohit, Neehar)
    - Determine SQL queries (ALL)