

## **Project Title:**

NFL Sports Betting Assistant

## **Project Summary:**

The NFL Sports Betting Assistant is a web-based application designed to help users make informed decisions about NFL sports betting. The app will utilize various data sources, including game statistics, historical player performance, and betting odds, to provide users with predictions and recommendations. Users can interact with the platform to access detailed insights, receive betting tips, and analyze past performance data for more informed betting strategies.

## **Detailed Description of the Application:**

Our web app will assist users in making educated bets by analyzing NFL games and offering betting insights based on past performance and data. It will address the common problem of users making uninformed decisions based purely on intuition or incomplete information. By aggregating data from multiple sources and offering tailored recommendations, the app provides a data-driven approach to betting.

Key Features:

- **Historical analysis:** Users will be able to view historical performance data of teams and players, helping them make predictions based on past trends.
- **Betting recommendations:** The app will use machine learning algorithms to analyze trends and recommend betting strategies based on a user's betting history and preferences.

## **Creative Component:**

The creative component will be the use of data analysis combined with interactive visualization of game statistics. The app will allow users to simulate betting outcomes based on different strategies and historical patterns.

Another challenging feature will be integrating multiple APIs, including those that provide game data, betting odds, and historical performance metrics, and presenting all of this in a seamless, user-friendly interface.

## **Usefulness:**

This app will be useful for sports betting enthusiasts who want to improve their chances by using data-driven strategies. While there are other betting apps that offer odds, ours stands out by providing an in-depth analysis of past performance, player stats, and trends. Users will be

able to compare the recommendations against their gut feelings or other sources, helping them make more informed betting decisions.

## Realness (Data Sources):

- **NFL Game Stats API:** Provides historical game data stats.
  - If we want to include real-time stats we will use SportsData.io, which is an API that offers real-time updates for games
    - API Format: JSON
    - Data Provided: Real-time game stats, player information, schedules, scores, etc
- **Betting Odds API:** Provides up-to-date betting odds for ongoing and upcoming games.
  - **The Odds API:** This API provides up-to-date betting odds for various sports, including NFL.
    - API Format: JSON
    - Data Provided: Current and historical odds, sportsbook comparisons.
- **NFL Individual Game Stats-1966-2024**
  - [https://www.kaggle.com/datasets/tobycrabbtree/nfl-scores-and-betting-data?select=spreaddspoke\\_scores.csv](https://www.kaggle.com/datasets/tobycrabbtree/nfl-scores-and-betting-data?select=spreaddspoke_scores.csv)
  - In csv format with Cardinality = 14000, Degree = 41.
  - Description from Kaggle: "NFL football games since the 1966 season with game results and descriptive info including a playoff game, played at a neutral site, and weather information if available. Data set was built from publicly available NFL data, weather provided by the NOAA, and betting data from a variety of sources but cross referenced with Pro Football Reference."
- **NFL Stats - 1999-2022**
  - <https://www.kaggle.com/datasets/philiphyde1/nfl-stats-1999-2022>
  - Collection of player and team weekly and yearly statistics
  - Can be used to see player trends and used to calculate/predict

We'll aggregate data from two or more APIs, offering betting insights, odds comparisons, and recommendations. Data formats will include JSON for API data and CSV for historical datasets.

## Functionality:

Users will be able to:

- **Analyze historical performance** data of teams and players.
- **Receive betting recommendations** based on analysis of game data and trends.
- **Compare betting strategies** and visualize potential outcomes based on different approaches.
- **Create an account**, track their betting history, and save preferences for future recommendations.

## Low-Fidelity UI Mockup:

### NFL Sports Betting Assistant

Your data-driven guide to NFL sports betting

#### Betting Recommendations

Get personalized betting recommendations based on your preferences and history.

[View Recommendations](#)

#### Historical Performance Analysis

##### Teams

View team performance trends over time.

##### Players

Analyze individual player stats and performance.

##### Simulations

Simulate outcomes based on betting strategies.

[Analyze Data](#)

#### Your Account

Username

Password

[Login](#)

#### Your Betting History

Track your previous bets and results.

[View History](#)

## Project Work Distribution:

- **Frontend (UI/UX):** Aarush - responsible for designing the user interface and ensuring a smooth user experience. Experienced with Flask, ReactJs
- **Backend (Data Processing, API Integration):** Abhay - responsible for handling API calls, and processing data. Experience with: WebScraping, APIs, Backend
- **Data Analysis/Prediction Models:** Nishk Patel - responsible for developing algorithms that predict betting outcomes based on historical data and trends. Experience with: Machine Learning
- **Database creation:** Ethan Mathew - responsible for testing the application and deploying it on a cloud platform. Experience with: SQL, Database Design