Project Idea

Our web-based application allows users to build and compare custom Premier League football lineups using real player data. It combines player statistics with interactive simulations to create a dynamic experience for football fans.

Features

1. Lineup Builder

2. Head-to-Head (H2H) Comparison

3. Match Simulation

Lineup builder

- Users select players for two custom teams in a classic 4-3-3 formation.

- Each position (GK, DF, MF, FW) is filled manually from a database of real players.

- Each lineup is stored using Flask sessions to persist across pages.

Head-to-Head (H2H) Comparison

- Once both lineups are selected, the site displays both teams:

    - Players shown in correct positional layout.

    - Each player includes name and nationality.

- A "General Team Stats" table compares:

    - **Goals (Gls)**

    - **Assists (Ast)**

    - **Average Age**

    - **Starts**

    - **Yellow Cards (CrdY)**

    - **Red Cards (CrdR)**

- Statistically better team values are highlighted in bold.

Match Simulation

- A 90-tick real-time simulation visualizes a fictional match between the two lineups.

- Events include goals, yellow cards, second yellow → red, straight red cards, or no action.

- The simulation logic:

    - Players' actual stats (goals, yellow/red cards) influence the probability of events.

    - Position weights increase scoring chances for forwards and decrease them for defenders/GKs.

    - Teams with more players (after red cards) have an advantage.

- The score updates live during the simulation.

- Results are shown in a styled scoreboard UI inspired by real Premier League broadcasts.

Data Source & Usage

- The player data is stored in an **SQLite database (`premier_database.db`)**, pulled from:

    https://www.kaggle.com/datasets/orkunaktas/premier-league-all-players-stats-2324

- Each row includes: `Player`, `Age`, `Pos`, `Team`, `Gls`, `Ast`, `Starts`, `CrdY`, `CrdR`. Among other things

- SQL queries are used to:

    - Fetch players by position.

    - Pull full player profiles for stat comparison.

    - Accumulate team stats during simulation setup.

E/R Model