Oracle Arena

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ORACLE ARENA

Introduction/Motivation

The goal of this project is to develop an intuitive and visually appealing web application that delivers:

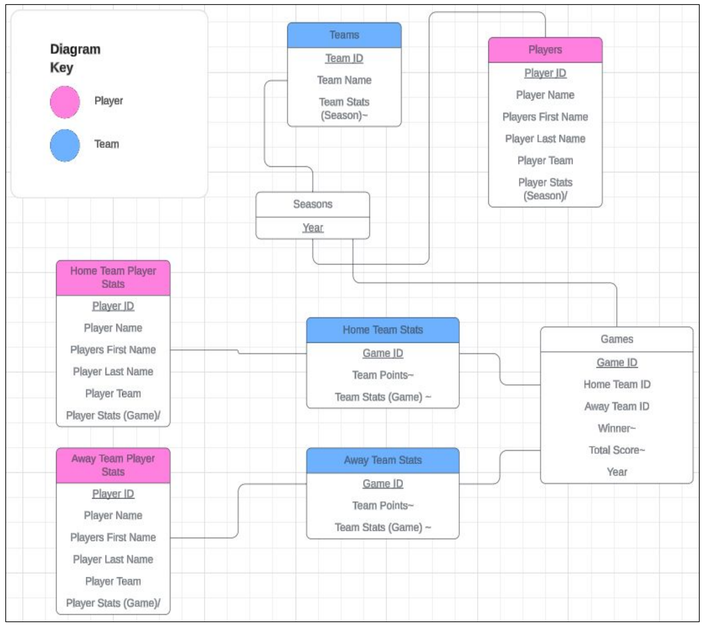
- An clean interface that displays the score of NBA games on a given day.
- Machine learning model predictions for the winner and total score of each NBA game.
- Up-to-date NBA player statistics by season and from recent games.

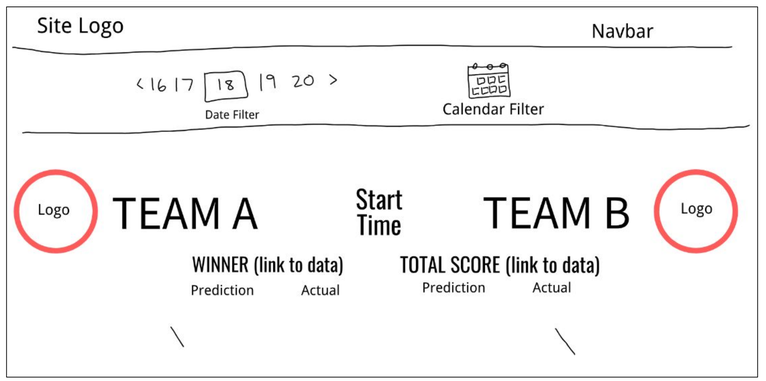
Web Application and UI/UX

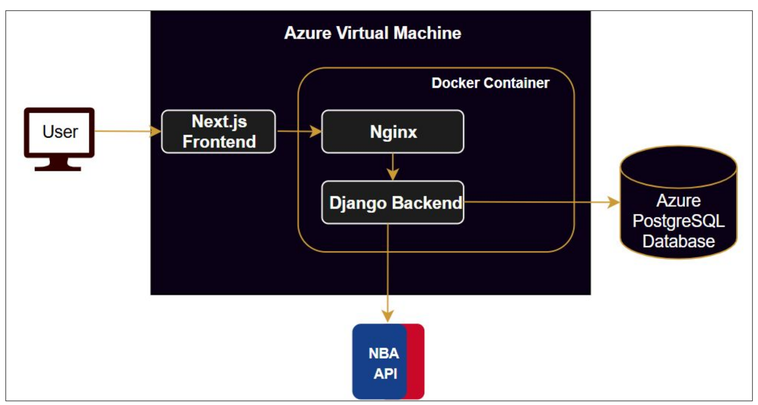
Built with Typescript and CSS

Consists of three main sections:

1. Landing Page: Displays past and upcoming NBA games alongside predictive analysis for each matchup.
2. Statistics Page: Offers comprehensive visualizations of player metrics organized by team for deeper statistical insights.
3. About Page: Highlights the project's goals and introduces the development team.







Prediction Models

- NBA Game Predictions:
  - Winner
    - Model: Logistic Regression
      - Accuracy: 72%
      - F1 Score: 0.72
  - Total Score
    - Model: Linear Regression
      - MSE: 289
      - R2 Score: 0.30

The Backend and Data Collection

Backend Overview

- Stack: Python (Django), Nginx, hosted on Azure VM

- Core Functions:
  - Real-time NBA data processing
  - Machine learning predictions (game outcomes, score totals)
  - Data collection & database queries

- Database: PostgreSQL on Azure
  - Supports relational & non-relational data
  - Scalable for future expansion

Conclusion

This project is positioned to enhance the presentation of NBA statistics while catering to both casual fans and data enthusiasts. By combining machine learning with sleek design principles, we aim to create a platform that is both powerful and accessible.