Draft Queens' Fantasy Football Simulator

Gurjeevan Bains, Nishanth Dara, Charnpreet Singh, Luis Verastegui

Introduction

This application is our own spin on the American classic, Fantasy Football. In order to produce accurate stats, we use a detailed dataset of the 2015 NFL regular season. The user will select a team name and the difficulty of the AIs he will play against before proceeding to the draft. Once the user and AIs draft teams of 7 players, the season will begin. Points are calculated every week depending on how your players performed in a random week from the 2015 NFL season. Every week, the team who boasts the lowest cumulative point total will be eliminated. Last one standing is the winner.

Database Schema

Our database schema consists of the following 8 tables:

1. Game - This relation keeps track of all the games played in the regular season of the NFL in 2015.
    a. gid INT
    b. wk INT
    c. v CHAR(3)
    d. h CHAR(3)
    e. PRIMARY KEY(gid)
2. Play - This large relation contains thousands of tuples that track information of every individual play in every game.
    a. gid INT REFERENCES Game(gid)
    b. pid INT
    c. type CHAR(4)
    d. pts INT
    e. PRIMARY KEY (pid)
3. Player - The Player relation contains playerIds, names, and other miscellaneous stats about the player such as height and weight. We have narrowed down the player table to relevant offensive players of the 2015 season.
    a. player CHAR(7)
    b. fname VARCHAR(64)
    c. lname VARCHAR(64)
    d. pname VARCHAR(64)
    e. pos1 CHAR(5)
    f. height INT
    g. weight INT
    h. col VARCHAR(64)

    i. start INT
    j. cteam CHAR(5)
    k. jnum INT
    l. dcp INT
    m. PRIMARY KEY(player)
4. Rush - This is a subset of the Play relation that contains more detailed information about rushing plays. It includes the ball carrier and the yardage gained.
    a. pid INT REFERENCES Play(pid)
    b. bc CHAR(7) REFERENCES Player(player)
    c. yds INT
    d. PRIMARY KEY(pid)
5. Pass - This is a subset of the Play relation that contains more detailed information about completions. It includes the passer, receiver, and yardage gained.
    a. pid INT REFERENCES Play(pid)
    b. psr CHAR(7) REFERENCES Player(player)
    c. trg CHAR(7) REFERENCES Player(player)
    d. yds INT
    e. comp INT
    f. PRIMARY KEY(pid)
6. Td - The Td relation holds information about all touchdowns of the 2015 season.
    a. pid INT REFERENCES Play(pid)
    b. yds INT
    c. player CHAR(7) REFERENCES Player(player)
    d. type CHAR(4)
    e. PRIMARY KEY(pid)
7. Team - This relation is a representation of the team users and AIs have put together through the draft.
    a. id INT
    b. name VARCHAR(32)
    c. score FLOAT
    d. QB CHAR(7) REFERENCES Player(player)
    e. RB1 CHAR(7) REFERENCES Player(player)
    f. RB2 CHAR(7) REFERENCES Player(player)
    g. WR1 CHAR(7) REFERENCES Player(player)
    h. WR2 CHAR(7) REFERENCES Player(player)
    i. WR3 CHAR(7) REFERENCES Player(player)
    j. TE CHAR(7) REFERENCES Player(player)
    k. elim BOOLEAN DEFAULT FALSE

8. Leaderboard - The leaderboard holds scores and teams of all the players that have played the game.
    a. name VARCHAR(32)
    b. score FLOAT
    c. QB CHAR(7) REFERENCES Player(player)
    d. RB1 CHAR(7) REFERENCES Player(player)
    e. RB2 CHAR(7) REFERENCES Player(player)
    f. WR1 CHAR(7) REFERENCES Player(player)
    g. WR2 CHAR(7) REFERENCES Player(player)
    h. WR3 CHAR(7) REFERENCES Player(player)
    i. TE CHAR(7) REFERENCES Player(player)

Application/Database Interaction.

The GUI of our project relies heavily on various database interactions. Some of the highlights include:

- Calculating weekly player scores and team totals through using stats that the player put up during a given week.
- Generating random players for the AIs to draft based on the difficulty. AIs will also swap players based on difficulty through database interaction.
- Moving players from the waiver wire onto teams and dropping players.
- Grabbing all the players, weekly scores, and stats of a given team to display on the GUI.
- Arbitrary retrieval of various columns in our database to display on the GUI.

Database Operations

1. Populating initial database using raw CSV files such as Player, Play, Rush, Pass
2. Creating a new team at the start of the draft
3. Updating team cumulative point totals every week
4. Removing players from list of available players when drafted or added onto team
5. Deleting the necessary tuples to ensure that the game can restart