The Gridiron Fantasy Football
User's Manual
CSCI-P 565/465 (Software Engineering I)

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1. Product Overview

The Gridiron is a fully featured fantasy football game that allows users to compete with one another in leagues. It includes a fully customizable scoring formula for each league and a schedulable serpentine draft system. Users can even talk to each other in site-wide or league-wide chatrooms. Each week, users will put their coaching abilities to the test by creating a starting lineup of their favorite NFL players before going head to head with an opponent. The victorious team is determined entirely by the scoring formula and the performances of the NFL players in their games for that week. If a player gets injured - or is simply underperforming - they can be dropped and a new player can be added to the team from the free agent market. One can even watch highlights for their players without ever leaving the website! After the season is over, in week 17, one player in each league will be crowned the victor of that league based on his or her record throughout the season. Then the whole league can be started again when the next NFL season starts.

2. System Requirements

Core i3 or equivalent

Windows 7 (or above) or OSX 10.9 (or above)

128 MB RAM

Google Chrome 36 (or above) or Mozilla Firefox 38 (or above)

3. Product Installation

Before Gridiron can be configured several applications and modules must be installed first. We will be begin the installation process with installing the needed software and then the scripts to configure the data and application will be run.

Python

Python is used to update the player statistics from the NFL games. Our Python scripts are written in Python 2.7. The installation page for Python 2.7 can be found [here](#). We also use several Python modules in our scripts. We use [csv](#) and [math](#), which are installed when Python is installed. We also use Pandas, which is a statistics package. Pandas can be downloaded [here](#). The API to update the NFL statistics is nflgame. Nflgame can be downloaded [here](#).

Node.js

The primary development language in Gridiron is Node.js. A pre-built installer for Node.js can be found [here](#). Now the package management client needs to be installed. We used yarn for the package management and it can be downloaded from [here](#). The compiler Babel needs to be installed to run the most recent Javascript. Babel can be installed from [here](#).

Front End Technology

The primary technology we used for our front-end development is the React library. The library can be downloaded from [here](#). The state management library Redux also needs to be installed. It can be installed by running 'npm install --save react-reduct' and then 'npm install --save-dev redux-devtools' in the command line. React-Router is used to route the components. It can be installed by running 'npm install --save react-router' in the command line. Immutable.js is used to create persistent data-structures. It can be installed by running Npm install immutable. Create-react-app is a scaffolding tool to build the react system. It can be installed by typing 'npm install -g create-react-app' in the command line. The last Node.js module is the css-module to develop style sheets. It can be installed by running 'npm install react-css-modules' in the command line. Further instruction on how to install packages with npm can be found [here](#).

Back End Technology

Express.js is needed to run the RESTful API for the game. It can be installed by running 'npm install express --save' in the command line; further instructions for installation can be found [here](#). Passport needs to be installed for the DUO authentication. It can be install by running 'npm install passport' in the command line. MongoDB 3.4 is the database management system to store the game's

data. It can be installed [here](#). To manage the database we used a package called GraphQL. It can be installed by running 'npm install -save graphql'.

Configuration Process.

Once all of the applications and the packages are installed. The install scripts are ready to be run to configure the game. First the instance of MongoDB must be running. To start the database, navigate to MongoDB\Server\3.4\bin and run the command 'mongo.exe'. Now the MongoDB application is running.

Now the dataset needs to be configured. Within your installation of nflgame run script update_sched.py by running the command 'python update_sched.py'. This will update your installation of nflgame to use the most recent NFL data. The Gridiron files include the csv file that includes the most recent NFL statistics data. Every Tuesday morning the dataset must be updated to get the most recent data. The update can be achieved by running 'python updatestats.py' in the scripts folder of Gridiron. Now all of the data for the game needs to be imported. To import the data, run the command 'node importfixture.js' in the scripts folder. This script only needs to be run once at the initial installation.

4. Product Operation

First, log into the website by creating an account or via Google Oauth. Once logged in, you will see page with links to the news sites for each NFL team, as well as navigation to leagues, players, or the main chat room.
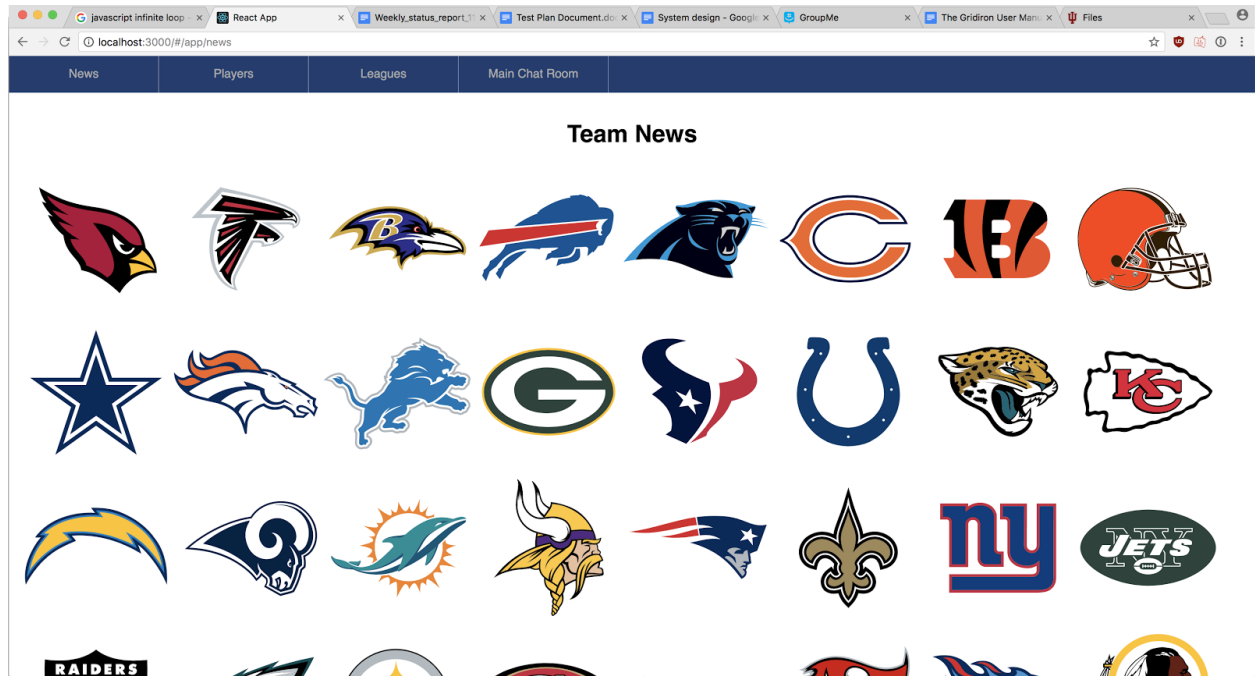
In the main chat room, you can chat with all other players on the website like so:
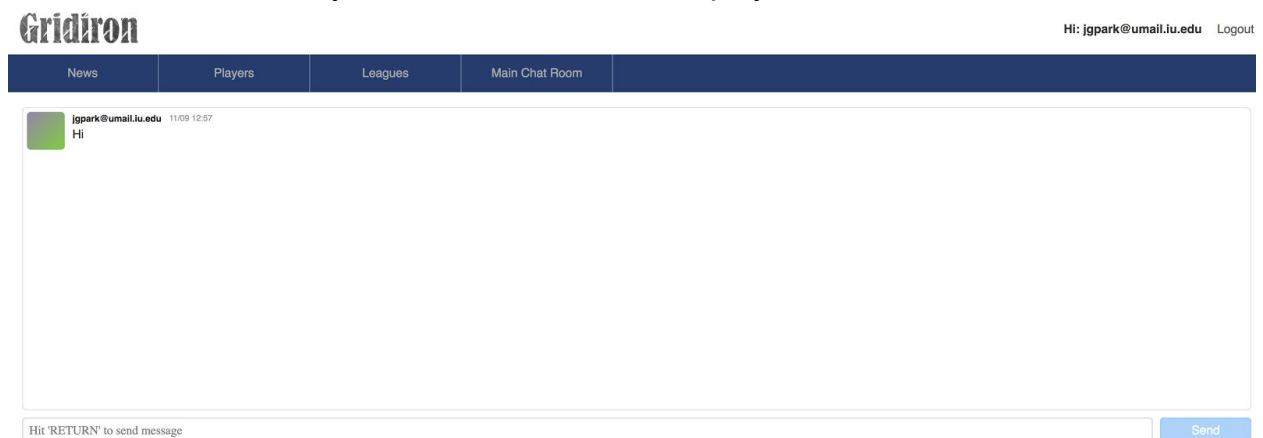
The player page lists all active players in the NFL, along with their stats so far in the current NFL season. The players can be filtered by offense, defense, or special teams and sorted by their performances in each of the statistical categories. By default, players are sorted by their fantasy rank, computed based on their performances in each game so far in the season. There is also a search feature included.

Gridiron

| News | Players | Leagues | Main Chat Room |

Search by Name

[Offense] [Defense] [Special]

Name	Position	Passing Yds	Rushing Yds	Receiving Yds	Passing Tds	Rushing Tds	Receiving Tds	Interceptions Thrown	Kickoff Return Tds	Punt Return Tds
D. Watson	QB	1699	269	0	19	2	0	0	0	0
A. Smith	QB	1839	154	0	13	1	0	0	0	0
C. Newton	QB	1630	205	0	10	3	0	0	0	0
T. Brady	QB	2292	23	0	14	0	0	0	0	0
C. Wentz	QB	1795	140	0	15	0	0	0	0	0
K. Hunt	RB	0	676	277	0	4	2	0	0	0
D. Prescott	QB	1335	142	0	11	2	0	0	0	0

Clicking on a player's name will take you to a page with the player's details, including a photo, highlights, and all statistical categories.

| News | Players | Leagues | Main Chat Room |

[‹ Back to List]

Name
A. Rodgers

Position
QB

Team
GB

Fantasy Rank
10

Aaron Rodgers 2009 Pro Bowl Highlights

Passing Yds	Rushing Yds	Receiving Yds	Passing Tds	Rushing Tds	Receiving Tds	Interceptions Thrown	Interceptions	Forced Fumbles
1385	83	N/A	13	N/A	N/A	N/A	N/A	N/A

Sacks	Blocked Kicks	Blocked Punts	Safeties	Kickoff Return Tds	Punt Return Tds	Defensive Tds	Extra Points	Made Field Goals
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Missed Field Goals	Punts Inside 20	Punting Yards
N/A	N/A	N/A

The League page is where the game is actually played. This is what a page with many created leagues looks like:

If you have created a league, you can join it yourself, invite friends to join, or both. If you want to invite a friend, the Invite Friends button will send an email to the email address you provide inviting your friend to play in the league. If you have not created a league, you can click the create league button to do so. That will take you to the league creation page.

This page allows you to specify the number of players in the league, the name of the league, and a custom formula if you desire. After doing this, your league will be created on the league's page, and you can specify a draft start time - assuming you are the league creator - once the league is full. This will begin the draft.

		Pick your player									
Search by Name											

Offense Defense Special

Name	Position	Passing Yds	Rushing Yds	Receiving Yds	Passing Tds	Rushing Tds	Receiving Tds	Interceptions Thrown	Kickoff Return Tds	Punt Return Tds	
D. Watson	QB	1699	269	0	19	2	0	0	0	0	Select
A. Smith	QB	1839	154	0	13	1	0	0	0	0	Select
C. Newton	QB	1630	205	0	10	3	0	0	0	0	Select
T. Brady	QB	2292	23	0	14	0	0	0	0	0	Select

On the draft page, the top table displays the pick order. Since I am the only player in this league, I get every pick. By default, I get 120 seconds to make my pick. The timer is displayed above the top table. I can select my player via the player table at the bottom, which has the same functionality as the player page. Below that is a league chat room so users can talk to their friends during the draft. Once the draft is complete, the season begins! But before you can play a game, you have to pick your starters.

Starters

Your Team

Name	Position	Action
G. Zuerlein	K	Release Player
D. Lawrence	DE	Release Player

On this screen, you can pick a subset of your players to start in a certain week. These are the players whose performances actually matter for your fantasy score. In this game, you select one running back, one quarterback, one tight end, two wide receivers, one kicker, one punter, and five defensive players. Below that interface, you have the

ability to release players from your team as long as they are not currently in your starting lineup. On the same page, you can pick up players that are not currently on a fantasy team as long as your team is not full. Once your starting lineup is finalized, it's time to find out if you won!

This is the league schedule page. It displays my team on the left, and since I am the only user in this league, no other team is displayed. Above that, you will see the standings of the league. To the right of that is the schedule, or the games that will be played in the current week. The button on the top calculates the scores for all matches in the current week based on the scoring formula and the players' performances. It is just there for demo purposes, as the game will just calculate this automatically every Tuesday.

5. Known Defects

1. Sometimes, the starter at a certain position is not saved correctly. Reloading solves this issue.

2. If a player does not have a photo, the default photo is given to both that player and the quarterback.

6. Revision History

Using semantic versioning 2.0

Revision	Date	Change Description
0.1.0	9/24/17	Added basic skeleton and login functionality

0.1.1	10/01/17	Fixed issue with login session
0.2.0	10/08/17	Finished retrieving NFL data and ability to create league
0.3.0	10/15/17	Finished player list, including sorting and searching
0.3.1	10/18/17	Fixed issue with sorting correctly
0.4.0	10/22/17	Added punters to the data set and added custom scoring
0.5.0	10/29/17	Added ability to draft players
0.6.0	11/05/17	Added chat functionality
0.7.0	11/12/17	Added the ability to choose starting lineup
0.7.1	11/19/17	Made some visual improvements to lineup creation
0.7.2	11/22/17	Made more sweeping visual improvements
0.8.0	11/26/17	Added the ability to determine winners
0.8.1	11/29/17	Added the ability to pick up players in free agency
1.0.0	12/03/17	Finished draft mechanism, improved visuals