Fantasy Football Client

Ron Weber & Asheq Ahmed

What is Fantasy Football?

Fantasy Football is a predictive game that follows professional football in the US

At the beginning of the football season, a group of people will arrange a Fantasy Football league, in which they each form a team made up of NFL players.

Points for your fantasy team are based in the game statistics of the players on it.

Each week, each fantasy team will go up against a different fantasy team.

What is Fantasy Football?

Many clients available online

Large Market

In the news: DraftKings & FanDuel with billions in dollar transactions.

Who doesn't enjoy a predictive game?

It's kind of like the Stock market, except much more meaningless

Fantasy Team

```
mysql> select * from FantasyTeam;
+-------------+-----------------+
| userName    | email           |
+-------------+-----------------+
| Asheq       | ara47@case.edu  |
| Tekin       | gxo3@case.edu   |
| Connamacher | hsc21@case.edu  |
| Kamil       | kxt147@case.edu |
| Lewicki     | msl88@case.edu  |
| Mehmet      | mxk331@case.edu |
| Meral       | mxo2@case.edu   |
| Rabinovich  | mxr136@case.edu |
| Ron         | rdw62@case.edu  |
| Liberatore  | vxl11@case.edu  |
+-------------+-----------------+
```

Fantasy Team

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| Ron         | rdw62@case.edu   |
| Liberatore  | vxl11@case.edu   |
+-------------+------------------+
```

Teams compete against another team in a **Matchup** once a week.

week	userName1	score1	userName2	score2
1	Asheq	0.00	Ron	0.00
1	Tekin	0.00	Meral	0.00
1	Connamacher	0.00	Kamil	0.00
1	Lewicki	0.00	Mehmet	0.00
1	Rabinovich	0.00	Liberatore	0.00

Fantasy Team

```
mysql> select * from FantasyTeam;
+-------------+-----------------+
| userName    | email           |
+-------------+-----------------+
| Asheq       | ara47@case.edu  |
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| Rabinovich  | mxr136@case.edu |
| Ron         | rdw62@case.edu  |
| Liberatore  | vxl11@case.edu  |
+-------------+-----------------+
```

Teams compete against another team in a **Matchup** once a week.
Scores populate at the end of the NFL week.

```
+------+-------------+--------+------------+--------+
| week | userName1   | score1 | userName2  | score2 |
+------+-------------+--------+------------+--------+
|    1 | Asheq       |  84.00 | Ron        |  96.20 |
|    1 | Tekin       |  91.00 | Meral      | 101.50 |
|    1 | Connamacher |  86.00 | Kamil      |  98.00 |
|    1 | Lewicki     | 120.00 | Mehmet     |  91.00 |
|    1 | Rabinovich  | 100.00 | Liberatore |  94.00 |
+------+-------------+--------+------------+--------+
```

Fantasy Roster

NFL (National Football League) consists of 32 professional teams, 53 players each.

Prior to the season, each Fantasy Team selects a roster of 15 players from the pool of professional players belonging to positions of **Quarterback**, **Running Back**, **Wide Receiver** & **Tight End**. (QB, RB, WR, TE)

~50 QB's, ~150 RB's, ~150 WR's, ~80 TE's of consequence.

A fantasy roster may start a maximum of 1 QB, 2 RB's, 3 WR's and 1 TE. The rest are *bench* players. You may interchange them if need be.

Players

playerID int(4) not null, is the primary Key
lastName varchar(20) not null,
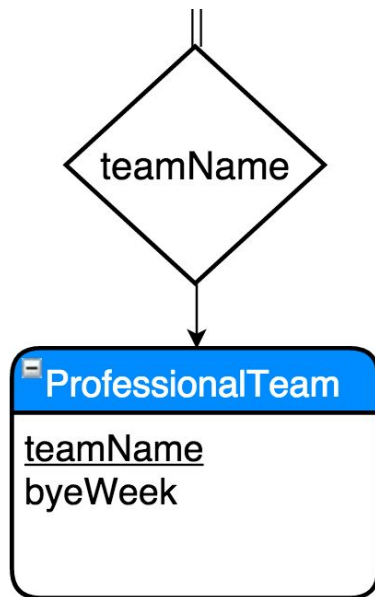**firstName** varchar(20) not null
position enum('QB', 'RB', 'WR','TE')

playerID ➜ (lastName, firstName, position)

Players come from ProfessionalTeams

teamName varchar(30) Primary Key
byeWeek int(2) not null

teamName ➡ (byeWeek)

Roster players for your *own* team!

FantasyTeam
userName varchar(20) Primary Key
email varchar(30) NOT NULL

userName ➡(email)
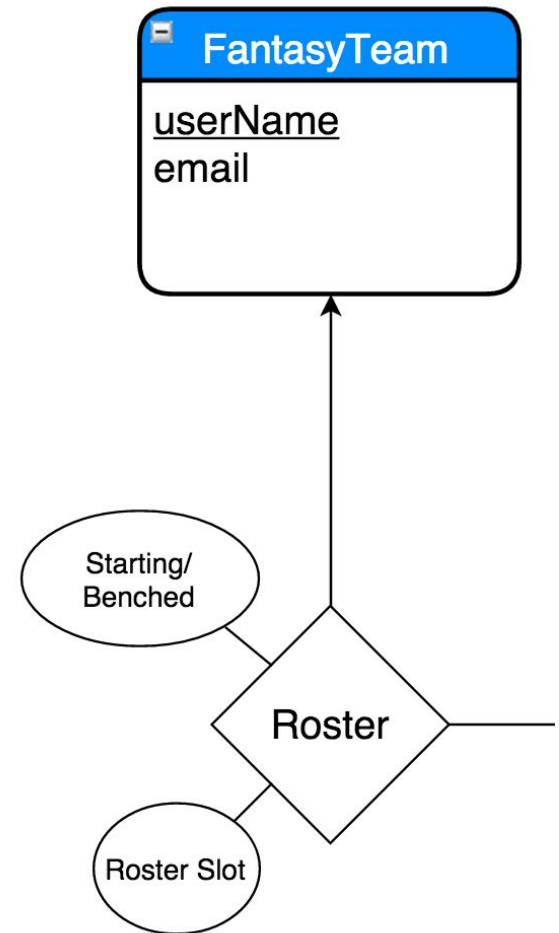
Rostered
start int(1) between 0 and 1
rosterSlot enum ('QB','RB1','RB2','WR1','WR2','TE1',
'FLEX','BN1','BN1','BN1','BN1','BN1','BN1','BN1','BN1')
Primary Key (playerID)
Foreign Key **playerID** REFERENCES Player(playerID)
Foreign Key **userName** REFERENCES FantasyTeam
(userName)

playerID ➡ start, rosterSlot, userName

Example Roster (Ron's Fantasy Team)

```
+-------+------------+----------+----------+
| start | rosterSpot | playerID | userName |
+-------+------------+----------+----------+
|     1 | RB         |    14691 | Ron      |
|     1 | TE         |    67281 | Ron      |
|     1 | WR         |    62547 | Ron      |
|     1 | WR         |    94447 | Ron      |
|     1 | WR         |    43142 | Ron      |
|     1 | QB         |    38776 | Ron      |
|     1 | RB         |    24505 | Ron      |
|     0 | RB         |    33269 | Ron      |
|     0 | RB         |    51980 | Ron      |
|     0 | RB         |    31240 | Ron      |
|     0 | RB         |    89067 | Ron      |
|     0 | TE         |    89354 | Ron      |
|     0 | QB         |    44066 | Ron      |
+-------+------------+----------+----------+
```

Example Roster (Ron's Fantasy Team)
Natural Join with Player name/ID

start	**lastName**	**firstName**	rosterSpot	**playerID**	userName
1	Blount	LeGarrette	RB	14691	Ron
1	Ertz	Zach	TE	67281	Ron
1	Hopkins	DeAndre	WR	62547	Ron
1	Brown	Antonio	WR	94447	Ron
1	Diggs	Stefon	WR	43142	Ron
1	Carr	Derek	QB	38776	Ron
1	Johnson	Chris	RB	24505	Ron
0	Forte	Matt	RB	33269	Ron
0	Starks	James	RB	51980	Ron
0	West	Charcandrick	RB	31240	Ron
0	Mathews	Ryan	RB	89067	Ron
0	Barnidge	Gary	TE	89354	Ron
0	Dalton	Andy	QB	44066	Ron

Matchup

week int(2) not null,
userName1 varchar(20) not null
userName2 varchar(20) not null
Score1 numeric(5,2) not null
Score2 numeric(5,2) not null
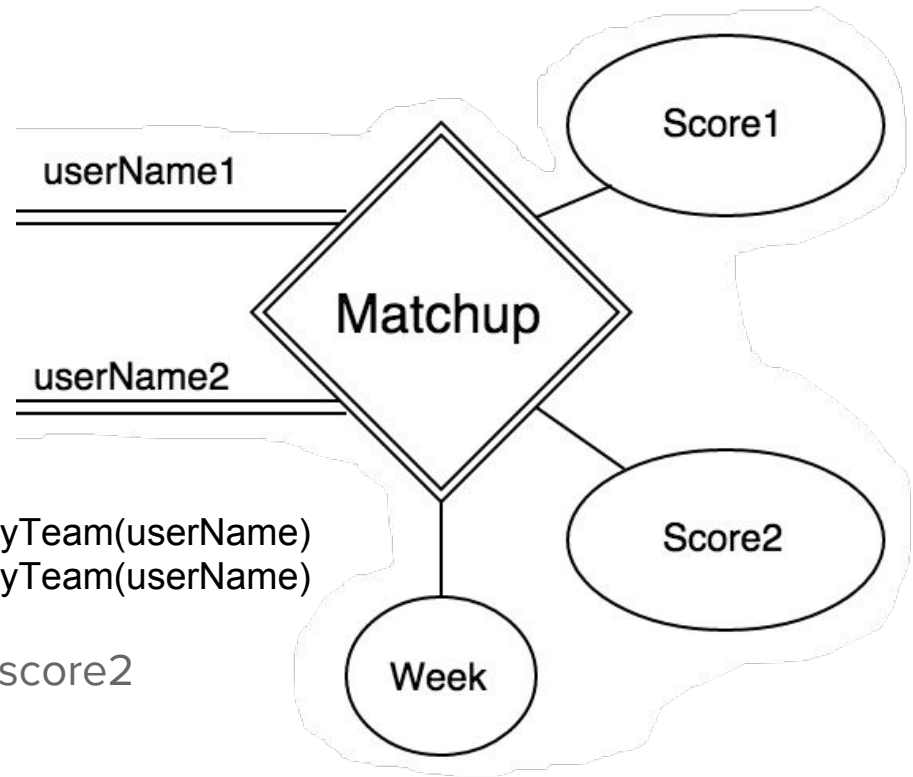
Primary Key(**week**, **userName1**)
Foreign Key **userName1** REFERENCES FantasyTeam(userName)
Foreign Key **userName2** REFERENCES FantasyTeam(userName)

week, userName1 ➜ score1, userName2, score2

Score is produced by compiling statistics scored by starting players on the corresponding roster.

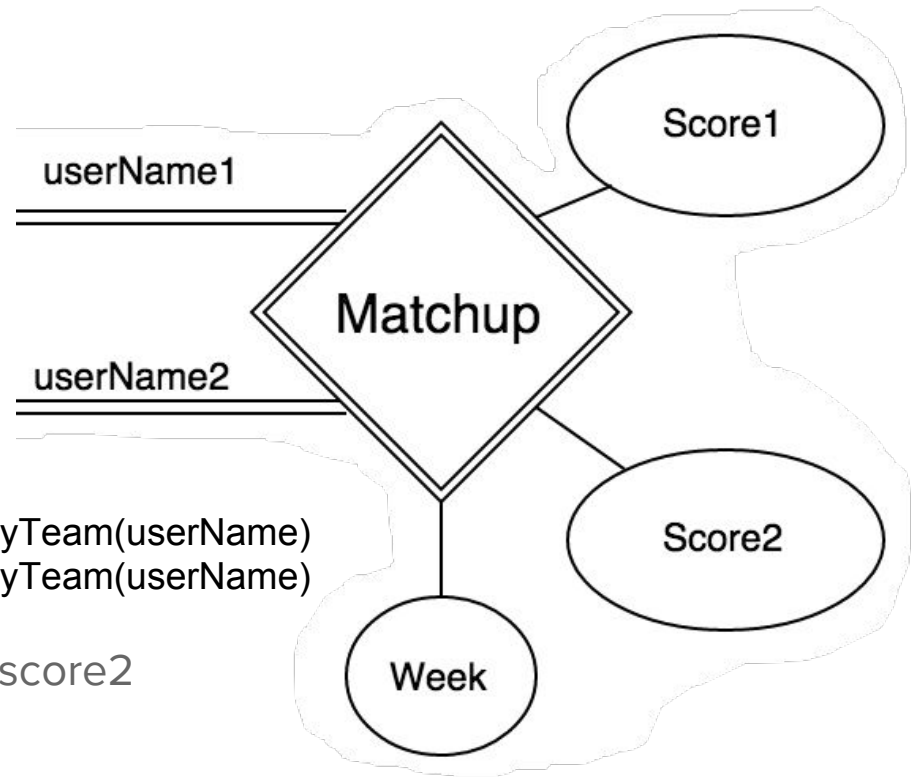*Score formula is determined by a setting in the Java Client.*

Matchup

week int(2) not null,
userName1 varchar(20) not null
userName2 varchar(20) not null
Score1 numeric(5,2) not null
Score2 numeric(5,2) not null

Primary Key(**week**, **userName1**)
Foreign Key **userName1** REFERENCES FantasyTeam(userName)
Foreign Key **userName2** REFERENCES FantasyTeam(userName)

week, userName1 ➡ score1, userName2, score2

```
+------+-------------+--------+-----------+--------+
| week | userName1   | score1 | userName2 | score2 |
+------+-------------+--------+-----------+--------+
|    1 | Asheq       |  84.00 | Ron       |  96.20 |
|    1 | Tekin       |  91.00 | Meral     | 101.50 |
|    1 | Connamacher |  86.00 | Kamil     |  98.00 |
|    1 | Lewicki     | 120.00 | Mehmet    |  91.00 |
|    1 | Rabinovich  | 100.00 | Liberatore |  94.00 |
+------+-------------+--------+-----------+--------+
```
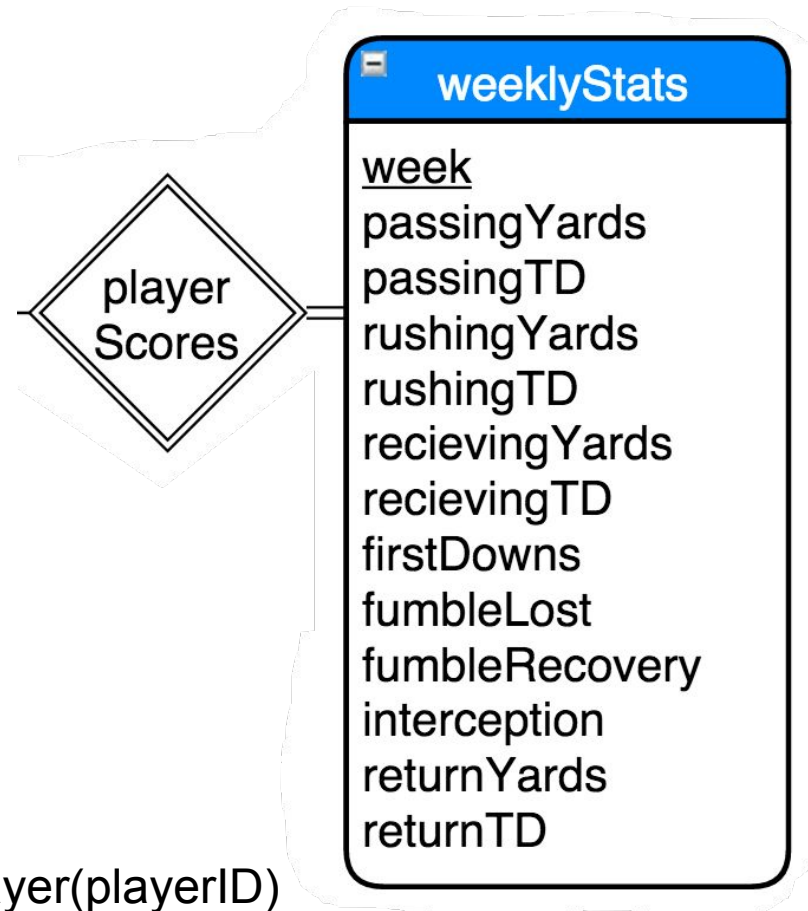
Statistics

playerID int(5) not null
week int(2) not null
passingYards numeric(4,1) a
rushingYards numeric(4,1) b
recievingYards numeric(4,1) c
returnYards numeric(4,1) d
passingTD int(1) e
rushingTD int(1) f
recievingTD int(1) g
returnTD int(1) h
interception int(1) i
firstDown int(1) j
fumbleLost int(1) k
fumbleRecovery int(1) l

Primary Key (**playerID**, **week**)
Foreign Key **playerID** REFERENCES Player(playerID)

playerID, week ➡ a, b, c, d, e, f, g, h, i, j, k, l

player Scores

weeklyStats

week
passingYards
passingTD
rushingYards
rushingTD
recievingYards
recievingTD
firstDowns
fumbleLost
fumbleRecovery
interception
returnYards
returnTD

Some Queries

Find the Leader in Week 1 Passing Yards

```
SELECT lastName, firstName, passYds
From Player Natural Join playerScores
WHERE passYds IS NOT NULL
AND week=1
ORDER BY passYds DESC
LIMIT 1;
```

```
+----------+-----------+---------+
| lastName | firstName | passYds |
+----------+-----------+---------+
| Rivers   | Philip    |     403 |
+----------+-----------+---------+
```

List the winning teams from week 1.

```
SELECT userName1 as winner, score1 as winScore
FROM Matchup
WHERE week=1 AND score1>score2
UNION
    (SELECT userName2, score2
    FROM Matchup
    WHERE week=1 AND score2>score1)
```

```
+------------+----------+
| winner     | winScore |
+------------+----------+
| Lewicki    |   120.00 |
| Rabinovich |   100.00 |
| Ron        |    96.20 |
| Meral      |   101.50 |
| Kamil      |    98.00 |
+------------+----------+
```

```
+------+------------+--------+-----------+--------+
| week | userName1  | score1 | userName2 | score2 |
+------+------------+--------+-----------+--------+
|    1 | Asheq      |  84.00 | Ron       |  96.20 |
|    1 | Tekin      |  91.00 | Meral     | 101.50 |
|    1 | Connamacher|  86.00 | Kamil     |  98.00 |
|    1 | Lewicki    | 120.00 | Mehmet    |  91.00 |
|    1 | Rabinovich | 100.00 | Liberatore|  94.00 |
+------+------------+--------+-----------+--------+
```

Which professional teams are Ron's players from? How many belong to each team?

SELECT teamName, COUNT(teamName)

FROM (FantasyTeam NATURAL JOIN Rostered NATURAL JOIN Player)

WHERE userName='Ron'

GROUP BY teamName

ORDER BY count(teamName) DESC;

```
+----------+------------------+
| teamName | COUNT(teamName)  |
+----------+------------------+
| PHI      |                2 |
| NWE      |                1 |
| PIT      |                1 |
| ARI      |                1 |
| KAN      |                1 |
| CHI      |                1 |
| OAK      |                1 |
| MIN      |                1 |
| CIN      |                1 |
| GNB      |                1 |
| HOU      |                1 |
| CLE      |                1 |
+----------+------------------+
```

Find Ron's Opponent's Roster for Week 1

```
SELECT playerID, position, lastName, firstName
FROM (Player P NATURAL JOIN Rostered R), FantasyTeam Opponent, Matchup M
WHERE M.userName1 = 'Ron' AND
    M.userName2 = Opponent.userName AND
    Opponent.userName = R.userName AND
    M.week = 1
UNION
    (SELECT playerID, position, la
    FROM (Player P NATURAL JO
    Matchup M
    WHERE M.userName2 = 'Ron
        M.userName1 = Oppone
        Opponent.userName = F
        M.week = 1);
```

+----------+----------+----------+-----------+
| playerID | position | lastName | firstName |
+----------+----------+----------+-----------+
11117	QB	Luck	Andrew
32207	RB	Woodhead	Danny
46913	RB	Spiller	C.J.
51729	TE	Bennett	Martellus
62811	WR	Tate	Golden
64066	WR	Crabtree	Michael
68795	RB	Sproles	Darren
69879	WR	Robinson	Allen
75762	RB	Stewart	Jonathan
87515	RB	Anderson	C.J.
92584	WR	Cooks	Brandin
95972	QB	Smith	Alex
+----------+----------+----------+-----------+

Find Ron's Opponent's Starting Roster

```
SELECT playerID, position, lastName, firstName
FROM (Player P NATURAL JOIN Rostered R), FantasyTeam Opponent, Matchup M
WHERE M.userName1 = 'Ron' AND
    M.userName2 = Opponent.userName AND
    Opponent.userName = R.userName AND
    M.week = 1 AND start=1
UNION
    (SELECT playerID, position, la
    FROM (Player P NATURAL JO
    Matchup M
    WHERE M.userName2 = 'Ron
        M.userName1 = Opponer
        Opponent.userName = R
        M.week = 1 AND start=1);
```

```
+----------+----------+----------+-----------+
| playerID | position | lastName | firstName |
+----------+----------+----------+-----------+
|    32207 | RB       | Woodhead | Danny     |
|    51729 | TE       | Bennett  | Martellus |
|    62811 | WR       | Tate     | Golden    |
|    64066 | WR       | Crabtree | Michael   |
|    69879 | WR       | Robinson | Allen     |
|    75762 | RB       | Stewart  | Jonathan  |
|    95972 | QB       | Smith    | Alex      |
+----------+----------+----------+-----------+
```

Find players who scored statistically

select firstName, lastName, passYds, rushYds, recYds, retYds, passYds + rushYds + recYds + retYds as totalYds from playerScores Natural Join Player where week=11 AND passYds IS NOT N
   -> UNION
   -> (select firstName, la
rushYds + recYds + retY
week=11 AND rushYds IS
   -> UNION
   -> (select firstName, la
rushYds + recYds + retY
week=11 AND recYds IS
   -> UNION
   -> (select firstName, la
rushYds + recYds + retY
week=11 AND retYds IS

firstName	lastName	passYds	rushYds	recYds	retYds	totalYds
Derek	Carr	169	8	NULL	NULL	NULL
Andy	Dalton	315	34	NULL	NULL	NULL
Alex	Smith	253	33	NULL	NULL	NULL
Chris	Johnson	NULL	63	2	NULL	NULL
Charcandrick	West	NULL	16	48	NULL	NULL
Danny	Woodhead	NULL	7	9	NULL	NULL
James	Starks	NULL	14	30	NULL	NULL
Golden	Tate	NULL	2	73	48	NULL
Jonathan	Stewart	NULL	102	12	NULL	NULL
C.J.	Anderson	NULL	59	13	NULL	NULL
Stefon	Diggs	NULL	NULL	66	NULL	NULL
Martellus	Bennett	NULL	NULL	26	NULL	NULL
DeAndre	Hopkins	NULL	NULL	118	NULL	NULL
Michael	Crabtree	NULL	NULL	50	NULL	NULL
Zach	Ertz	NULL	NULL	12	NULL	NULL
Darren	Sproles	NULL	NULL	38	6	NULL
Allen	Robinson	NULL	NULL	113	NULL	NULL

Next: Scrape Data from the Internet

Details

MySQL Server version: 5.6.26 MySQL Community Server (GPL)
Copyright © 2000, 2015, Oracle and/or its affiliates. All rights reserved.

Client developed using **Java** Version 1.8.0_20, Copyright © 2015 Oracle and/or its affiliates. All rights reserved.

Scraping API developed using Selenium ChromeDriver 2.20, Chromium project.

Ran on this 13" Macbook Pro with Retina Display, running **Mac OS X 10.10.5**.