

Fantasy Football League

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Group # 4

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Introduction

This document attempts to summarize the requirements, analysis, and design of a database system intending to support the needs of a fantasy manager/commissioner and their personal fantasy football league.

Statement of Objectives

This database system is to facilitate the needs of a fantasy manager or fantasy league, providing players with a centralized silo for all of their teams statistics, storing that information for all managers within the league, and providing the basic infrastructure for managers to query any historic data as they please for their team and their competition.

Requirements

The requirements list is as follows:

1. Our database must represent all basic fantasy positions for a standard league: Wide Receiver, Tight End, Running Back, Quarterback, Kicker, and Defense.
2. The database must contain NFL player information.
3. The database must contain manager/team relevant data.
4. The database must contain the player roster for a draft team(s).
5. Our database must be able to query any player name belonging to a fantasy manager.
6. Our database must be able to query the players in the league of a particular position (i.e. all QBs, all RBs, etc.).
7. Our database must have the ability to insert statistics and retrieve statistics for any week or combination of weeks within the fantasy season.
8. The database must have functionality to query statistics based on player position.
9. Our database must have the ability to query pertinent information for a fantasy manager.

Design (revisited)

We chose to implement a Single Role Key + Participation constraint from the Statistics table to the Player table, such that each statistic corresponds to exactly one player. This resulted in the combination of the HAS table with STATISTICS. We also added an Injured Reserve attribute to the Player table to increase the draft teams' real life representation. The final version contains a total of eight entity type tables and two relationship types.

Database Schema

The PLAYER entity includes fields for the player's name, the player's jersey number, their NFL team, the position they play, and whether or not the player is on injured reserve. The team name must be one of the 32 NFL teams which exist in professional football (see *Constraints*.) The position must be one of the six positions tracked for this project (see *Constraints*.) Injured reserve only takes a string of 'True' or 'False'. The primary key is a sequential integer value Player Id.

PLAYER (Id: INT, PlayerName: VARCHAR, PlayerNumber: INT, NFLteam: VARCHAR, Position: VARCHAR, InjuredReserve: VARCHAR)
Keys: {Primary:Id} {Unique: PlayerNumber, NFL Team}

The DRAFT TEAM entity contains the name of the draft team (which may be chosen by the manager), the draft team manager name, and integer values for wins, losses, current points, and the team's waiver priority. The primary key is the draft team name. As the waiver priority represents the hierarchy of when managers may choose players, that value must be unique.

DRAFT TEAM (DraftTeamName: VARCHAR, Wins: INT, Losses: INT, Points: INT, ManagerName: VARCHAR, WaiverPriority: INT)
Keys: {DraftTeamName} {Unique: WaiverPriority}

The PLAYS ON relationship type is implemented as a table representing the relationship between PLAYER and DRAFT TEAM. It only contains the attributes Player Id and DraftTeamName. There is a Single Role Key constraint from Player to DraftTeam, so that each player may be chosen for only one or zero draft teams. Therefore, the primary key of PLAYS ON is PlayerId which references Player, and foreign key DraftTeamName references Draft Team.

PLAYS ON (PlayerId: INT, DraftTeamName: VARCHAR)
Keys: {PlayerId}
Foreign Keys: {DraftTeamName REFERENCES DraftTeam(DraftTeamName)}

The STATISTICS entity type tracks the statistics common to all player positions, which are the integer values point total for a week and the week number. It is the superclass to the individual position tables (below). The primary key is the sequential integer value Statistic Id. Additionally, there is a Single Role Key + Participation constraint with the Player table, such that each statistic relates to exactly one player. This is implemented with the foreign key PlayerId referencing PlayerId in the Player table.

STATISTICS (StatisticId: INT, SingleWeekPointTotal: INT, PlayerId: INT, WeekNumber: INT)
Keys: {StatisticId}

Foreign Keys: {FOREIGN KEY (PlayerId) REFERENCES PLAYER(Id)}

Each of the following are entity type tables which track the statistics associated with the player positions in this project: PASSING, RUSHING, KICKER, RECEIVING, and DEFENSE. They are the subclasses to the supertype STATISTICS, therefore they share the same primary key (Statistic Id), which is also a foreign key referencing the supertype STATISTICS. The values of these tables are the ones appropriate to the positions (e.g., passing yards for PASSING, field goal attempts for KICKER, etc.)

PASSING STATISTICS (StatisticId: INT, PassTouchDowns: INT, PassYards: INT, PassAttempts: INT, Completions: INT)

Keys: {StatisticId}

Foreign Keys: {StatisticId REFERENCES Statistics(StatisticId)}

RUSHING STATISTICS (StatisticId: INT, RushTouchDowns: INT, RushYards: INT, RushAttempts: INT)
Keys: {StatisticId}

Foreign Keys: {StatisticId REFERENCES Statistics(StatisticId)}

KICKER STATISTICS (StatisticId: INT, XPointsMade:INT, XPointsAttempted: INT, FieldGoalsMade: INT, FieldGoalsAttempted: INT, FGsScored0-39: INT, FGsScored40-49: INT, FGsScoredOver50: INT)

Keys: {StatisticId}

Foreign Keys: {StatisticId REFERENCES Statistics(StatisticId)}

RECEIVING STATISTICS (StatisticId: INT, RecTouchDowns: INT, Receptions: INT, RecYards: INT)

Keys: {StatisticId}

Foreign Keys: {StatisticId REFERENCES Statistics(StatisticId)}

DEFENSE STATISTICS (StatisticId: INT, Sacks: INT, Fumbles: INT, Interceptions: INT, Safeties: INT, Touchdowns: INT)

Keys: {StatisticId} Keys: {StatId}

Foreign Keys: {StatisticId REFERENCES Statistics(StatisticId)}

Data Dictionary

The data dictionary has been updated to reflect the design changes.

PLAYER

Attribute	Data Type	Defines	Example
Id	INT	Key for a player	12

PlayerName	VARCHAR	Player's name	Josh Allen
PlayerNumber	PLAYERNUMBER	Player's number	10
NFLteam	NFLTEAM	NFL Team	Buffalo Bills
Position	POSITION	Player's position	Quarterback
Injured Reserve	VARCHAR	Player receives long term injury	Yes or No

DRAFT TEAM

Attribute	Data Type	Defines	Example
DraftTeamName	VARCHAR	Name of the draft team	Boy I Love Losing SuperBowls
Wins	INT	Total wins of each team	10
Losses	INT	Total losses of each team	10
Points	INT	Total points of each team	100
ManagerName	VARCHAR	Manager Name	Michael
WaverPriority	INT	Free agent pick priority	1

PLAYS ON

Attribute	Data Type	Defines	Example
PlayerID	INT	Key for a player	1
DraftTeamName	VARCHAR	Name of the draft team	Boy I Love Losing SuperBowls

STATISTICS

Attribute	Data Type	Defines	Example
StatID	INT	Key for each statistic	12
SingleWeekPointTotal	INT	Points for the player for the week	54
PlayerId	INT	Key for a player	4
WeekNumber	INT	Week Number	2

PASSING STATISTICS

Attribute	Data Type	Defines	Example
StatID	INT	Key for each statistic	13
PassTouchDowns	INT	Points for pass touch down.	100
PassYard	INT	Yardage gained by passing the ball	34
PassAttempts	INT	Number of attempts at passing the ball	12
Completions	INT	Total completions	33

RUSHING STATISTICS

Attribute	Data Type	Defines	Example
StatID	INT	Key for each statistic	2
RushTouchDowns	INT	Completed rushing touchdowns	5

RushYards	INT	Yardage gained by rushing the ball	100
RushAttempts	INT	Number of attempts at rushing the ball	20

KICKER STATISTICS

Attribute	Data Type	Defines	Example
StatID	INT	Key for each statistic	13
XPointsMade	INT	Number of extra points made	1
XPointsAttempted	INT	Number of extra points attempted	3
FieldGoalsMade	INT	Number of field goals made	5
FieldGoalsAttempted	INT	Number of field goals attempted	2
FGsScored0-39	INT	Number of field goals made within the range of 0 to 39 yards	3
FGsScored40-49	INT	Number of field goals made within the range of 40 to 49 yards	1
FGsScoredOver50	INT	Number of field goals made greater than or equal to 50 yards	1

RECEIVING STATISTICS

Attribute	Data Type	Defines	Example
StatID	INT	Key for each statistic	13
RecTouchDowns	INT	Number of touchdowns.	3
Receptions	INT	Number of receptions	8
RecYards	INT	Total Yards gained from receiving	65

DEFENSE STATISTICS

Attribute	Data Type	Defines	Example
StatID	INT	Key for each statistic	13
Sacks	INT	When the QB is tackled when attempting to pass the ball.	100
Fumbles	INT	When a player that has the football and loses control of the ball.	34
Interceptions	INT	When the Football is passed and a member of the opposite team catches the ball.	12
Safeties	INT	When an offensive player is tackled with the football within the other team's endzone.	33
Touchdowns	INT	When the football crosses the goal line.	33

Constraints:

The following custom domains are part of the solution:

PLAYERNUMBER: A player's jersey number must be an integer value from 0 to 99; and thus, the constraint on PLAYERNUMBER is an integer value from 0 to 99 inclusive of each bound.

POSITION: With regards to this iteration of Fantasy Football, a "player" can have a position of quarterback, running back, wide receiver, tight end, kicker, or defense. Thus, the constraint on POSITION is one of the values found in the set: {'QB', 'RB', 'WR', 'TE', 'Kicker', 'Defense'}

NFLTEAM: If a player plays on a team, it must be one of the 32 teams of the NFL; otherwise, the player is a free agent. Thus, the constraint on NFLTEAM is one of the values found in the set: {'Arizona Cardinals', 'Atlanta Falcons', 'Carolina Panthers', 'Chicago Bears', 'Dallas Cowboys', 'Detroit Lions', 'Green Bay Packers', 'Los Angeles Rams', 'Minnesota Vikings', 'New Orleans Saints', 'New York Giants', 'Philadelphia Eagles', 'San Francisco 49ers', 'Seattle Seahawks', 'Tampa Bay Buccaneers', 'Washington Commanders', 'Baltimore Ravens', 'Buffalo Bills', 'Cincinnati Bengals', 'Cleveland Browns', 'Denver Broncos', 'Houston Texans', 'Indianapolis Colts', 'Jacksonville Jaguars', 'Kansas City Chiefs', 'Las Vegas Raiders', 'Los Angeles Chargers', 'Miami Dolphins', 'New England Patriots', 'New York Jets', 'Pittsburgh Steelers', 'Tennessee Titans', 'Free Agent'}

WEEK: The fantasy league tracks player and team statistics from week 1 to week 17. Then, the WEEK constraint is an integer value from 1 to 17 inclusive of both bounds.

INJUREDRESERVE: The injured reserve attribute (IR) must be a string contained in {"True", "False"}.

For the DRAFTTEAM table, Losses and Wins must be greater than or equal to zero.

For the DRAFTTEAM table, WaiverPriority must not exceed the total number of DraftTeams.

Each DRAFTTEAM is allowed a maximum of 16 players total.

Each DRAFTTEAM is restricted to a maximum of 3 QB, 5 RB, 5 WR, 3 TE, 3 Kickers, and 3 Defenses.

For the DEFENSESTATISTICS table, Interceptions, Sacks, Fumbles, Touchdowns, and Safeties must be greater than or equal to zero.

For the RUSHINGSTATISTICS table, RushAttempts and RushTouchDowns must be greater than or equal to zero.

For the RECEIVINGSTATISTICS table, RecTouchdowns and Receptions must be greater than or equal to zero.

For the PASSINGSTATISTICS table, PassAttempts, PassTouchdowns, and Completions must be greater than or equal to zero.

For the KICKERSTATISTICS table, FGsScored40-49, FieldGoalsMade, FGsScored0-39, XPointsAttempts, XPointsMade, FGsScoredOver50, and FieldGoalsAttempts must be greater than or equal to zero.

For the PLAYER table, the combination of PlayerNumber and NFLteam must be unique.

All entities must have a unique primary key.

Queries:

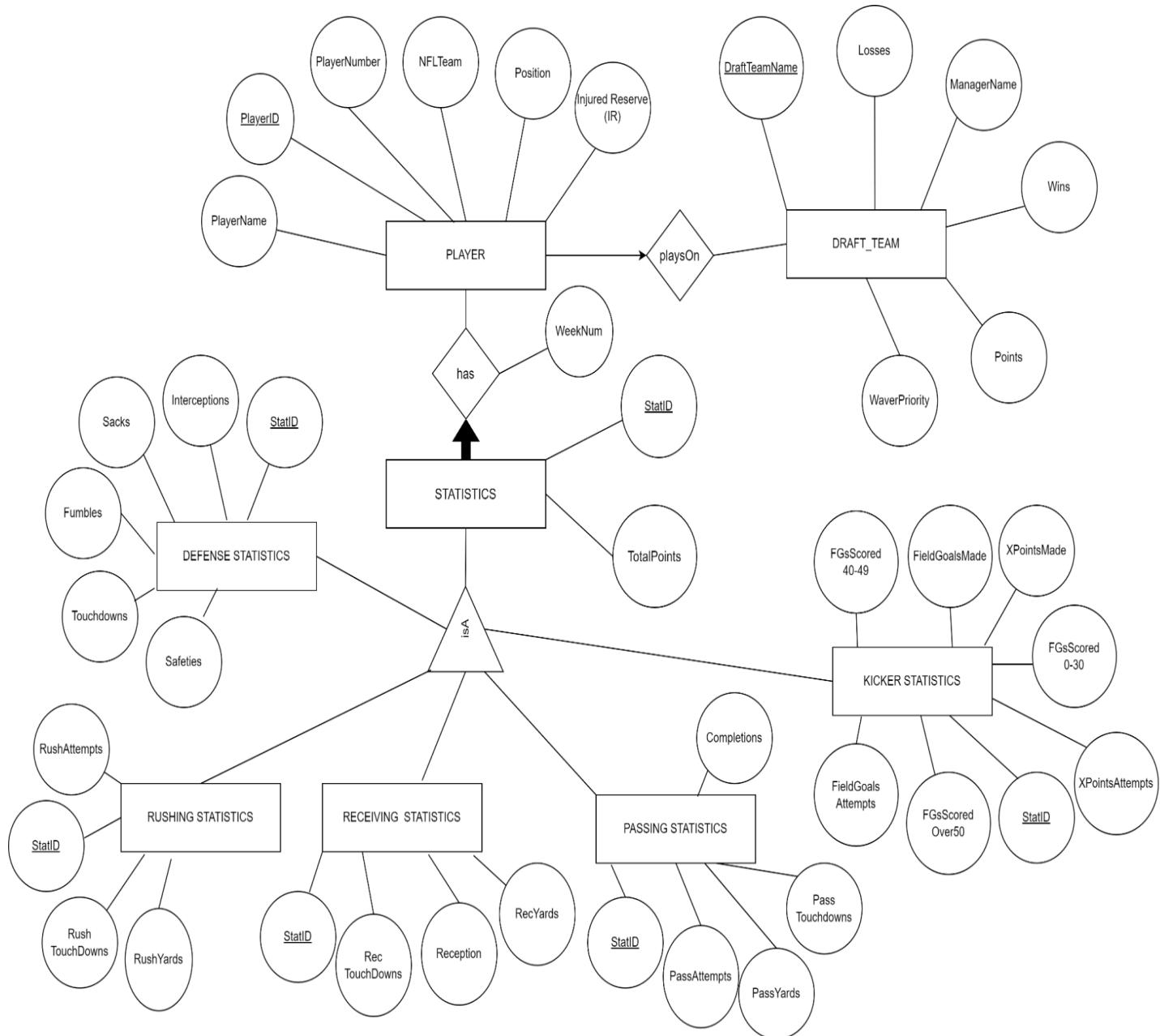
- 1) Create a player using attributes as per the Player schema.
- 2) Create a draft team using attributes as per the DraftTeam schema.
- 3) Add a player to a draft team.
- 4) Remove a player from a draft team.
- 5) Return all players playing on a specified draft team.
- 6) Return all players of a specified position.
- 7) Insert statistics data into the database.
- 8) Return player(s) statistics with respect to week, player position, playerId.
- 9) Return total points, wins and losses for manager(s).
- 10) Return waiver priority for manager(s) for strategic purposes.

Requirements Matrix

Query	Req 1	Req 2	Req 3	Req 4	Req 5	Req 6	Req 7	Req 8	Req 9
1	x	x							
2			x						
3				x					
4				x					
5		x		x	x				
6		x				x			
7							x	x	
8								x	
9									x
10									x

Entity-Relationship Diagram

The ER Diagram contains only the few changes made from the version in Part 1: the addition of the Injured Reserve attribute to the Player table, and a Single Role Key + Participation constraint added from Statistics to Player.



Implementation

For the actual implementation of the database, phpMyAdmin version 5.1.1 using mySQL version 8.0.28 was installed locally on a student-owned computer. This provided the advantage of not having to bother with permissions and security issues regarding creation, alteration, and dropping of tables or entire database. It was also necessary for supporting the Check constraints.

The screenshot shows the 'fantasy football' database structure in phpMyAdmin. The 'Tables' section contains the following tables:

- defense_statistics
- draft_team
- kicker_statistics
- passing_statistics
- player
- plays_on
- receiving_statistics
- rushing_statistics
- statistics

Below the table list is a detailed table showing the structure of each table, including columns, data types, and indexes:

Table	Action	Rows	Type	Collation	Size	Overhead
defense_statistics	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_0900_ai_ci	16.0 Kib	-
draft_team	Browse Structure Search Insert Empty Drop	2	InnoDB	utf8mb4_0900_ai_ci	32.0 Kib	-
kicker_statistics	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_0900_ai_ci	16.0 Kib	-
passing_statistics	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_0900_ai_ci	16.0 Kib	-
player	Browse Structure Search Insert Empty Drop	28	InnoDB	utf8mb4_0900_ai_ci	32.0 Kib	-
plays_on	Browse Structure Search Insert Empty Drop	14	InnoDB	utf8mb4_0900_ai_ci	32.0 Kib	-
receiving_statistics	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_0900_ai_ci	16.0 Kib	-
rushing_statistics	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_0900_ai_ci	16.0 Kib	-
statistics	Browse Structure Search Insert Empty Drop	83	MyISAM	utf8mb4_0900_ai_ci	208.0 Kib	0 B
9 tables	Sum					

Queries In SQL:

Tables W/ Triggers

```
CREATE TABLE PLAYER (
    Id INT PRIMARY KEY,
    PlayerName VARCHAR (255),
    PlayerNumber INT,
    NFLteam VARCHAR (255),
    Position VARCHAR (255),
    InjuredReserve VARCHAR(255),
```

```
CONSTRAINT Player_NFLTeam UNIQUE (PlayerNumber, NFLteam)
);
```

```
CREATE TABLE DRAFT_TEAM (
    DraftTeamName VARCHAR (255) PRIMARY KEY,
    Wins INT,
    Losses INT,
    Points INT,
    ManagerName VARCHAR(255),
    WaiverPriority INT,
);
```

```
CREATE TABLE PLAYS_ON (
    PlayerId INT,
    DraftTeamName VARCHAR(255),
    PRIMARY KEY (PlayerId),
    FOREIGN KEY(PlayerId) REFERENCES PLAYER(Id),
    ON DELETE CASCADE
    ON UPDATE CASCADE
    FOREIGN KEY(DraftTeamName) REFERENCES DRAFT_TEAM(DraftTeamName)
    ON DELETE CASCADE
    ON UPDATE CASCADE
);
```

```
CREATE TABLE STATISTICS (
    StatisticId INT PRIMARY KEY,
    PlayerId INT,
    WeekNumber INT,
    SingleWeekPointTotal INT,
    FOREIGN KEY (PlayerId) REFERENCES PLAYER(Id)
);
```

```
CREATE TABLE PASSING_STATISTICS (
    StatisticId INT PRIMARY KEY,
    PassTouchDowns INT,
    PassYards INT,
    PassAttempt INT,
    Completions INT,
    FOREIGN KEY (StatisticId) REFERENCES Statistics(StatisticId)
    ON DELETE CASCADE
    ON UPDATE CASCADE
);
```

```
CREATE TABLE RUSHING_STATISTICS (
    StatisticId INT PRIMARY KEY,
    RushTouchDowns INT,
```

```
RushYards INT,  
RushAttempts INT,  
FOREIGN KEY (StatisticId) REFERENCES STATISTICS(StatisticId)  
ON DELETE CASCADE,  
ON UPDATE CASCADE  
);
```

```
CREATE TABLE KICKER_STATISTICS (   
    StatisticId INT PRIMARY KEY,  
    XPointsMade INT,  
    XPointsAttempted INT,  
    FieldGoalsMade INT,  
    FieldGoalsAttempted INT,  
    FGsScored039 INT,  
    FGsScored4049 INT,  
    FGsScoredOver50 INT,  
    FOREIGN KEY (StatisticId) REFERENCES STATISTICS(StatisticId)  
    ON DELETE CASCADE  
    ON UPDATE CASCADE  
);
```

```
CREATE TABLE RECEIVING_STATISTICS (   
    StatisticId INT PRIMARY KEY,  
    RecTouchDowns INT,  
    RecYards INT,  
    FOREIGN KEY (StatisticId) REFERENCES STATISTICS(StatisticId)  
    ON DELETE CASCADE  
    ON UPDATE CASCADE  
);
```

```
CREATE TABLE DEFENSE_STATISTICS (   
    StatisticId INT PRIMARY KEY,  
    Sacks INT,  
    Fumbles INT,  
    Interceptions INT,  
    Safeties INT,  
    Touchdowns INT,  
    FOREIGN KEY (StatisticId) REFERENCES STATISTICS(StatisticId)  
    ON DELETE CASCADE  
    ON UPDATE CASCADE  
);
```

Constraints

The following constraints and triggers were used to implement the constraints listed in the design section of this report:

```
ALTER TABLE PLAYER  
ADD CONSTRAINT CHK_PlayerNumber CHECK (PlayerNumber > 0 AND PlayerNumber <= 99)
```

```
ALTER TABLE PLAYER  
ADD CONSTRAINT CHK_Position CHECK (Position IN ('QB', 'RB', 'WR', 'TE', 'Kicker', 'Defense'))
```

ALTER TABLE PLAYER
 ADD CONSTRAINT CHK_NFLteam CHECK (NFLteam IN ('Arizona Cardinals', 'Atlanta Falcons', 'Carolina Panthers', 'Chicago Bears', 'Dallas Cowboys', 'Detroit Lions', 'Green Bay Packers', 'Los Angeles Rams', 'Minnesota Vikings', 'New Orleans Saints', 'New York Giants', 'Philadelphia Eagles', 'San Francisco 49ers', 'Seattle Seahawks', 'Tampa Bay Buccaneers', 'Washington Commanders', 'Baltimore Ravens', 'Buffalo Bills', 'Cincinnati Bengals', 'Cleveland Browns', 'Denver Broncos', 'Houston Texans', 'Indianapolis Colts', 'Jacksonville Jaguars', 'Kansas City Chiefs', 'Las Vegas Raiders', 'Los Angeles Chargers', 'Miami Dolphins', 'New England Patriots', 'New York Jets', 'Pittsburgh Steelers', 'Tennessee Titans', 'Free Agent'))

ALTER TABLE STATISTICS
 ADD CONSTRAINT checkWeekNum CHECK (WeekNumber >= 1 AND WeekNumber <= 17)

ALTER TABLE PLAYER
 ADD CONSTRAINT checkInjRes CHECK (InjuredReserve IN ('True', 'False'))

ALTER TABLE DRAFT_TEAM
 ADD CONSTRAINT checkLosses CHECK (Losses >= 0)

ALTER TABLE DRAFT_TEAM
 ADD CONSTRAINT checkWins CHECK (Wins >= 0)

ALTER TABLE DEFENSE_STATISTICS
 ADD CONSTRAINT checkIntercepts CHECK (Interceptions >= 0)

ALTER TABLE DEFENSE_STATISTICS
 ADD CONSTRAINT checkSacks CHECK (Sacks >= 0)

ALTER TABLE DEFENSE_STATISTICS
 ADD CONSTRAINT checkFumbles CHECK (Fumbles >= 0)

ALTER TABLE DEFENSE_STATISTICS
 ADD CONSTRAINT checkTouches CHECK (Touchdowns >= 0)

ALTER TABLE DEFENSE_STATISTICS
 ADD CONSTRAINT checkSafeties CHECK (Safeties >= 0)

ALTER TABLE RUSHING_STATISTICS
 ADD CONSTRAINT checkRushAttempts CHECK (RushAttempts >= 0)

ALTER TABLE RUSHING_STATISTICS
 ADD CONSTRAINT checkRushTouchdowns CHECK (RushTouchdowns >= 0)

ALTER TABLE RECEIVING_STATISTICS
 ADD CONSTRAINT checkRecTouchdowns CHECK (RecTouchdowns >= 0)

ALTER TABLE RECEIVING_STATISTICS
 ADD CONSTRAINT checkReceptions CHECK (Receptions >= 0)

ALTER TABLE PASSING_STATISTICS
 ADD CONSTRAINT checkPassAttempts CHECK (PassAttempts >= 0)

ALTER TABLE PASSING_STATISTICS
 ADD CONSTRAINT checkPassTouchdowns CHECK (PassTouchdowns >= 0)

ALTER TABLE PASSING_STATISTICS
 ADD CONSTRAINT checkCompletions CHECK (Completions >= 0)

ALTER TABLE KICKER_STATISTICS
 ADD CONSTRAINT checkFieldGoalAttempted CHECK (FieldGoalAttempts >= 0)

ALTER TABLE KICKER_STATISTICS
 ADD CONSTRAINT checkXPointsAttempted CHECK (XPointsAttempted >= 0)

ALTER TABLE KICKER_STATISTICS
 ADD CONSTRAINT checkXPointsMade CHECK (XPointsMade >= 0)

```

ALTER TABLE KICKER_STATISTICS
ADD CONSTRAINT checkFieldGoalsMade CHECK(FieldGoalsMade >= 0)

ALTER TABLE KICKER_STATISTICS
ADD CONSTRAINT checkFieldGoalsScored0_39 CHECK(FieldGoalsScored0_39 >= 0)

ALTER TABLE KICKER_STATISTICS
ADD CONSTRAINT checkFieldGoalsScored40_49 CHECK(FieldGoalsScored40_49 >= 0)

ALTER TABLE KICKER_STATISTICS
ADD CONSTRAINT checkFieldGoalsScoredOver50 CHECK(FieldGoalsScoredOver50 >= 0)

```

Triggers

WaiverPriority After Delete Team: Reset all WaiverPriority values to NULL following deletion of team(s) from the league.

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0114 seconds.)

```

CREATE PROCEDURE ResetWaiverPriority() BEGIN UPDATE draft_team SET
WaiverPriority = NULL WHERE (true); END;;

```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0035 seconds.)

```

CREATE TRIGGER WaiverPriority_After_Delete_Team AFTER DELETE ON
draft_team FOR EACH ROW BEGIN IF EXISTS (SELECT * FROM draft_team WHERE
WaiverPriority IS NOT NULL) THEN SIGNAL SQLSTATE '50001' SET MESSAGE_TEXT
= 'Cannot perform team deletion. Please execute ResetWaiverPriority()
procedure first then retry.'; END IF; END;;

```

[Edit inline] [Edit] [Create PHP code]

WaiverPriority After Update Team: If an attempt is made to set WaiverPriority to a value greater than the number of teams in the league, reject.

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0036 seconds.)

```

CREATE TRIGGER WaiverPriority_After_Update_Team BEFORE UPDATE ON
draft_team FOR EACH ROW BEGIN IF NEW.WaiverPriority > (SELECT COUNT(*)
FROM draft_team) THEN SIGNAL SQLSTATE '50001' SET MESSAGE_TEXT = 'Waiver
Priority value invalid.'; END IF; END;;

```

[Edit inline] [Edit] [Create PHP code]

DRAFTTEAM: is restricted to a maximum of 3 QB, 5 RB, 5 WR, 3 TE, 3 Kickers, and 3 Defenses (one position shown here.)

Trigger `Chk_Number_QB_Before_Update` has been modified.

```

DROP TRIGGER IF EXISTS `Chk_Number_QB_Before_Update`;CREATE DEFINER='root'@'localhost' TRIGGER `Chk_Number_QB_Before_Update` BEFORE UPDATE ON `player` FOR
EACH ROW BEGIN IF EXISTS (SELECT Id FROM Player P WHERE NEW.Id = P.Id AND NEW.Position = 'QB' AND P.InjuredReserve = 'False') THEN IF EXISTS (SELECT
P1.DraftTeamName FROM plays_on P1 WHERE NEW.Id = P1.PlayerId AND EXISTS (SELECT P2.DraftTeamName FROM plays_on P2, player P3 WHERE (P2.PlayerId = P3.Id AND
P3.Position = 'QB' AND P3.InjuredReserve = 'False') GROUP BY P2.DraftTeamName HAVING COUNT(*) >= 3)) THEN SIGNAL SQLSTATE '45001' SET MESSAGE_TEXT = 'Cannot
update player from injured reserve to active and/or update player position to QB. Doing so exceeds maximum number of QBs on this team: 3'; END IF; END IF;
END

```

[Edit inline] [Edit] [Create PHP code]

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0521 seconds.)

```
CREATE TRIGGER Chk_Number_QB_Before_Insert BEFORE INSERT ON plays_on FOR EACH ROW BEGIN IF EXISTS (SELECT Id FROM Player P WHERE NEW.PlayerID = P.Id AND P.Position = 'QB') THEN IF EXISTS (SELECT P1.DraftTeamName FROM plays_on P1 WHERE P1.DraftTeamName = NEW.DraftTeamName AND EXISTS (SELECT P2.DraftTeamName FROM plays_on P2, player P3 WHERE (P3.Position = 'QB' AND P2.PlayerId = P3.Id) GROUP BY P2.DraftTeamName HAVING COUNT(*) >= 3)) THEN SIGNAL SQLSTATE '45001' SET MESSAGE_TEXT = 'Cannot add player to team. Doing so exceeds maximum number of QB on this team: 3'; END IF; END IF; END;
```

[Edit inline](#) [Edit](#) [Create PHP code](#)

Chk_Team_Size_After_Insertion: Prevents insertion into Draft_Team if 16 active players already exist in the table.

Trigger 'Chk_Team_Size_After_Insertion' has been modified.

```
DROP TRIGGER IF EXISTS `Chk_Team_Size_After_Insertion`;CREATE DEFINER='root'@'localhost' TRIGGER `Chk_Team_Size_After_Insertion` BEFORE INSERT ON `plays_on` FOR EACH ROW BEGIN IF EXISTS (SELECT Id FROM Player P WHERE NEW.PlayerID = P.Id AND P.InjuredReserve = 'False') THEN IF EXISTS (SELECT D.DraftTeamName, COUNT(*) FROM plays_on P1, draft_team D, player P2 WHERE (P1.DraftTeamName = D.DraftTeamName AND D.DraftTeamName = NEW.DraftTeamName AND P1.PlayerId = P2.Id AND P2.InjuredReserve = 'False') GROUP BY D.DraftTeamName HAVING COUNT(*) >= 16) THEN SIGNAL SQLSTATE '45001' SET MESSAGE_TEXT = 'Cannot add player to team. Doing so exceeds maximum number of players on this team: 16'; END IF; END IF; END;
```

[Edit inline](#) [Edit](#) [Create PHP code](#)

Chk_Team_Size_After_Update: Prevents status change of Injured Reserve to active if 16 active players already exist in the table.

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0043 seconds.)

```
CREATE TRIGGER Chk_Team_Size_After_Update_IR BEFORE UPDATE ON player FOR EACH ROW BEGIN IF EXISTS (SELECT P1.DraftTeamName FROM plays_on P1 WHERE NEW.Id = P1.PlayerId AND P1.DraftTeamName IN (SELECT P2.DraftTeamName FROM plays_on P2, player P3 WHERE (P2.PlayerId = P3.Id AND P3.InjuredReserve = 'False') GROUP BY P2.DraftTeamName HAVING COUNT(*) >= 16)) THEN SIGNAL SQLSTATE '45001' SET MESSAGE_TEXT = 'Cannot update player status to active from injured reserve. Doing so exceeds maximum number of player on this team: 16'; END IF; END;
```

[Edit inline](#) [Edit](#) [Create PHP code](#)

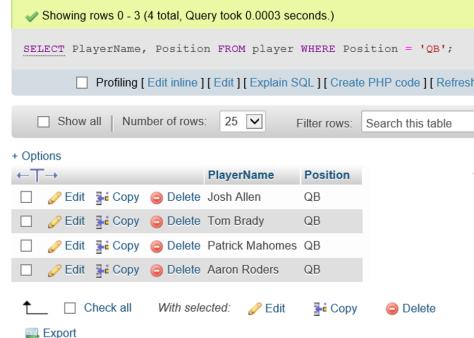
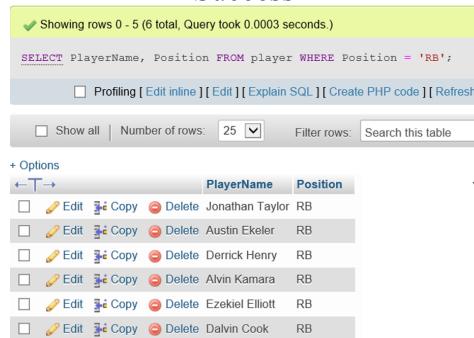
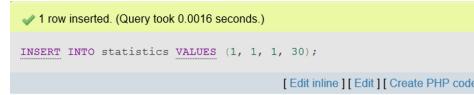
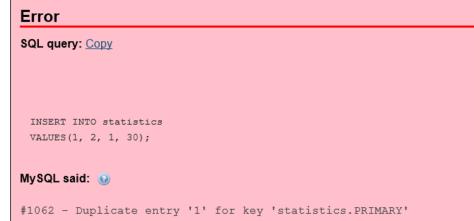
Updated Test Data/Procedure:

The following set of test data was used to test insertion, updating, and deletion of data in the database, as well as the behavior of constraints and triggers:

Test	Expected Result	Fulfils test of query #
Enter the following player record: Id: 1, PlayerName: Josh Allen, PlayerNumber: 17, NFLTeam: Buffalo Bills, Position: QB (Attempt to enter normal record) INSERT INTO PLAYER VALUES (1, "Josh Allen", 17, "Buffalo Bils", QB)	Success <p>1 row inserted (Query took 0.0006 seconds)</p> <pre>INSERT INTO player VALUES (1, "Josh Allen", 17, "Buffalo Bills", "QB", "False");</pre> <p>Edit inline Edit Create PHP code</p>	1
Attempt to enter duplicate record (Attempt to enter normal record) INSERT INTO PLAYER VALUES (1, "Josh Allen", 17, "Buffalo Bils", QB)	Error <p>Error</p> <pre>SQL query: COPY</pre> <pre>INSERT INTO player VALUES (1, "Josh Allen", 17, "Buffalo Bills", "QB", "False"); MySQL said: #1062 - Duplicate entry '1' for key 'player.PRIMARY'</pre>	1

<p>Enter the following player record: Id: 2, PlayerName: Tom Brady, PlayerNumber: 12, NFLTeam: Tampa Bay -> Should be ‘Tampa Bay Buccaneers’, Position: QB (Attempt to enter normal record)</p> <pre>INSERT INTO PLAYER VALUES (2, "Tom Brady", 12, "Tampa Bay", QB)</pre>	<p>Error</p> <p>Error</p> <p>SQL query: Copy</p> <pre>INSERT INTO player VALUES (2, "Tom Brady", 12, "Tampa Bay", "QB", "False"); MySQL said: #3819 - Check constraint 'chk_NFLTeam' is violated.</pre>	1
<p>Repeat with the PlayerNumber 100 INSERT INTO PLAYER VALUES (2, “Tom Brady”, 100, “Tampa bay Buccaneers”, QB)</p>	<p>Error</p> <p>Error</p> <p>SQL query: Copy</p> <pre>INSERT INTO player VALUES (2, "Tom Brady", 100, "Tampa Bay Buccaneers", "QB", "False"); MySQL said: #3819 - Check constraint 'chk_PlayerNumber' is violated.</pre>	1
<p>Try again with position as ‘Quarterback’ instead of ‘QB’ INSERT INTO PLAYER VALUES (2, “Tom Brady”, 12, “Tampa Bay Buccaneers”, “Quarterback”)</p>	<p>Error</p> <p>Error</p> <p>SQL query: Copy</p> <pre>INSERT INTO player VALUES (2, "Tom Brady", 12, "Tampa Bay Buccaneers", "Quarterback", "False"); MySQL said: #3819 - Check constraint 'chk_Position' is violated.</pre>	1
<p>Update Tom Brady’s team to ‘New England Patriots’ UPDATE PLAYER SET NFLTeam = “New England Patriots” WHERE Id = 2</p>	<p>Success</p> <p>✓ 1 row affected. (Query took 0.0497 seconds.)</p> <pre>UPDATE player SET NFLTeam = "New England Patriots" WHERE Id = 2;</pre> <p>[Edit inline] [Edit] [Create PHP code]</p>	1
<p>Remove Tom Brady from Player Table DELETE FROM PLAYER WHERE Id = 2</p>	<p>Success</p> <p>✓ 1 row affected. (Query took 0.0490 seconds.)</p> <pre>DELETE FROM player WHERE Id = 2;</pre> <p>[Edit inline] [Edit] [Create PHP code]</p>	1
<p>Enter the following Draft team: DraftTeamName: ‘Boy I Love Losing Superbowls’, Wins: 7, Losses: 6, Points: 100, ManagerName: ‘Michael Hess’, WaverPriority: 1 INSERT INTO draft_team VALUES (“Boy I Love Losing Superbowls”, 7, 6, 100, “Michael Hess”, 1)</p>	<p>Success</p> <p>✓ 1 row inserted. (Query took 0.0503 seconds.)</p> <pre>INSERT INTO draft_team VALUES ("Boy I Love Losing SuperBowls", 7, 6, 100, "Michael Hess", 1);</pre> <p>[Edit inline] [Edit] [Create PHP code]</p>	2
<p>Attempt to enter duplicate record INSERT INTO draft_team VALUES (“Boy I Love Losing Superbowls”, 7, 6, 100, “Michael Hess”, 1)</p>	<p>Error</p> <p>Error</p> <p>SQL query: Copy</p> <pre>INSERT INTO draft_team VALUES ("Boy I Love Losing SuperBowls", 7, 6, 100, "Michael Hess", NULL); MySQL said: #1062 - Duplicate entry 'Boy I Love Losing SuperBowls' for key 'draft_team.PRIMARY'</pre>	2

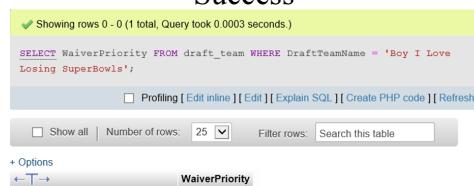
Update wins for ‘Boy I Love Losing Superbowls’ to 11 UPDATE draft_team set wins = 11 WHERE DraftTeamName = “Boy I Love Losing Superbowls”	<p>Success</p> <p>✓ 1 row affected. (Query took 0.0021 seconds.)</p> <pre>UPDATE draft_team SET Wins = 11 WHERE DraftTeamName = "Boy I Love Losing SuperBowls";</pre> <p>[Edit inline] [Edit] [Create PHP code]</p>	2																																																												
Delete the draft team ‘Boy I Love Losing Superbowls’ DELETE FROM draft_team WHERE DraftTeamName = “Boy I Love Losing SuperBowls”	<p>Success</p> <p>✓ 1 row affected. (Query took 0.0102 seconds.)</p> <pre>DELETE FROM draft_team WHERE DraftTeamName = "Boy I Love Losing SuperBowls";</pre> <p>[Edit inline] [Edit] [Create PHP code]</p>	2																																																												
Add player ‘Josh Allen’ to draft team ‘Boy I Love Losing Superbowls’ via Plays On table INSERT INTO plays_on VALUES (1, “Boy I Love Losing SuperBowls”)	<p>Success</p> <p>✓ 1 row inserted. (Query took 0.0036 seconds.)</p> <pre>INSERT INTO plays_on VALUES (1, "Boy I Love Losing SuperBowls");</pre> <p>[Edit inline] [Edit] [Create PHP code]</p>	3																																																												
Attempt to create duplicate player on draft team INSERT INTO plays_on VALUES (1, “Boy I Love Losing SuperBowls”)	<p>Error</p> <p>Error</p> <p>SQL query: Copy</p> <pre>INSERT INTO plays_on VALUES (1, 'Boy I Love Losing SuperBowls');</pre> <p>MySQL said: #1062 - Duplicate entry '1' for key 'plays_on.PRIMARY'</p>	3																																																												
Update ‘Josh Allen’ to team ‘Patriots Fly High’ UPDATE plays_on SET DraftTeamName = “Patriots Fly High” WHERE PlayerId = 1	<p>Success</p> <p>✓ 1 row affected. (Query took 0.0017 seconds.)</p> <pre>UPDATE plays_on SET DraftTeamName = 'Patriots Fly High' WHERE PlayerId = 1;</pre> <p>[Edit inline] [Edit] [Create PHP code]</p>	3																																																												
Remove ‘Josh Allen’ from team ‘Patriots Fly High’ DELETE FROM plays_on WHERE PlayerId = 1	<p>Success</p> <p>✓ 1 row affected. (Query took 0.0089 seconds.)</p> <pre>DELETE FROM plays_on WHERE PlayerId = 1;</pre> <p>[Edit inline] [Edit] [Create PHP code]</p>	4																																																												
Look up players on ‘Boy I Love Losing Superbowls’ SELECT P1.Id, P1.PlayerName, P1.Position FROM player P1, plays_on P2 WHERE P2.DraftTeamName = “Boy I Love Losing SuperBowls” AND P1.Id = P2.PlayerId	<p>Success</p> <p>Showing rows 0 - 13 (14 total, Query took 0.0004 seconds.)</p> <pre>SELECT P1.Id, P1.PlayerName, P1.Position FROM player P1, plays_on P2 WHERE P2.DraftTeamName = "Boy I Love Losing SuperBowls" AND P1.Id = P2.PlayerId;</pre> <p>[Profiling] [Edit] [Explain SQL] [Create PHP code] [Refresh]</p> <p>[Show all] Number of rows: 25 Filter rows: Search this table</p> <p>+ Options</p> <table border="1"><thead><tr><th></th><th>Id</th><th>PlayerName</th><th>Position</th></tr></thead><tbody><tr><td><input type="checkbox"/></td><td>1</td><td>Josh Allen</td><td>QB</td></tr><tr><td><input type="checkbox"/></td><td>3</td><td>Patrick Mahomes</td><td>QB</td></tr><tr><td><input type="checkbox"/></td><td>5</td><td>Jonathan Taylor</td><td>RB</td></tr><tr><td><input type="checkbox"/></td><td>6</td><td>Austin Ekeler</td><td>RB</td></tr><tr><td><input type="checkbox"/></td><td>11</td><td>Cooper Kupp</td><td>WR</td></tr><tr><td><input type="checkbox"/></td><td>12</td><td>Deebo Samuel</td><td>WR</td></tr><tr><td><input type="checkbox"/></td><td>13</td><td>Ja'Marr Chase</td><td>WR</td></tr><tr><td><input type="checkbox"/></td><td>17</td><td>Travis Kelce</td><td>TE</td></tr><tr><td><input type="checkbox"/></td><td>18</td><td>George Kittle</td><td>TE</td></tr><tr><td><input type="checkbox"/></td><td>21</td><td>Chris Boswell</td><td>Kicker</td></tr><tr><td><input type="checkbox"/></td><td>22</td><td>Justin Tucker</td><td>Kicker</td></tr><tr><td><input type="checkbox"/></td><td>25</td><td>Bills</td><td>Defense</td></tr><tr><td><input type="checkbox"/></td><td>26</td><td>Steelers</td><td>Defense</td></tr><tr><td><input type="checkbox"/></td><td>27</td><td>Packers</td><td>Defense</td></tr></tbody></table>		Id	PlayerName	Position	<input type="checkbox"/>	1	Josh Allen	QB	<input type="checkbox"/>	3	Patrick Mahomes	QB	<input type="checkbox"/>	5	Jonathan Taylor	RB	<input type="checkbox"/>	6	Austin Ekeler	RB	<input type="checkbox"/>	11	Cooper Kupp	WR	<input type="checkbox"/>	12	Deebo Samuel	WR	<input type="checkbox"/>	13	Ja'Marr Chase	WR	<input type="checkbox"/>	17	Travis Kelce	TE	<input type="checkbox"/>	18	George Kittle	TE	<input type="checkbox"/>	21	Chris Boswell	Kicker	<input type="checkbox"/>	22	Justin Tucker	Kicker	<input type="checkbox"/>	25	Bills	Defense	<input type="checkbox"/>	26	Steelers	Defense	<input type="checkbox"/>	27	Packers	Defense	5
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<p>Look up players with the position ‘QB’</p> <p>SELECT PlayerName, Position FROM Player WHERE Position = ‘QB’</p>	<p>Success</p>  <pre>SELECT PlayerName, Position FROM player WHERE Position = 'QB'; + Options + T-+ PlayerName Position Josh Allen QB Tom Brady QB Patrick Mahomes QB Aaron Rodgers QB + Options</pre>	6
<p>Look up players with the position ‘RB’</p> <p>SELECT PlayerName, Position FROM Player WHERE Position = ‘RB’</p>	<p>Success</p>  <pre>SELECT PlayerName, Position FROM player WHERE Position = 'RB'; + Options + T-+ PlayerName Position Jonathan Taylor RB Austin Ekeler RB Derrick Henry RB Alvin Kamara RB Ezekiel Elliott RB Dalvin Cook RB + Options</pre>	6
<p>Create statistic for ‘Josh Allen’</p> <p>INSERT INTO statistics VALUES (1, 1, 1, 30)</p>	<p>Success</p>  <pre>INSERT INTO statistics VALUES (1, 1, 1, 30); + Options</pre>	7
<p>Attempt to duplicate statistic with with ‘Tom Brady’ as the player</p> <p>INSERT INTO statistics VALUES (1, 2, 1, 30)</p>	<p>Error</p>  <pre>SQL query: Copy INSERT INTO statistics VALUES (1, 2, 1, 30); MySQL said: Duplicate entry '1' for key 'statistics.PRIMARY'</pre>	7
<p>Insert passing statistics for “Josh Allen” for week 1</p> <p>INSERT INTO passing_statistics VALUES (1, 2, 300, 35, 25)</p>	<p>Success</p>  <pre>INSERT INTO passing_statistics VALUES (1, 2, 300, 35, 25); + Options</pre>	7
<p>Attempt to duplicate passing statistics above</p> <p>INSERT INTO passing_statistics VALUES (1, 2, 300, 35, 25)</p>	<p>Error</p>  <pre>SQL query: Copy INSERT INTO passing_statistics VALUES (1, 2, 300, 35, 25); MySQL said: Duplicate entry '1' for key 'passing_statistics.PRIMARY'</pre>	7

Look up all statistics from Week 1
SELECT (*) FROM STATISTICS WHERE WeekNumber = 1;

Success

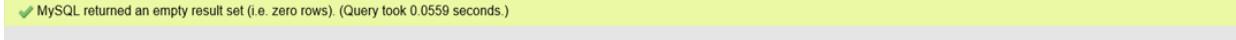
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Look up Wins for ‘Boy I Love Losing SuperBowls’ SELECT Wins FROM draft_team WHERE DraftTeamName = ‘Boy I Love Losing SuperBowls’	 <p>Showing rows 0 - 0 (1 total, Query took 0.0004 seconds.)</p> <pre>SELECT Wins FROM draft_team WHERE DraftTeamName = 'Boy I Love Losing SuperBowls';</pre> <p>Profiling Edit inline Edit Explain SQL Create PHP code Refresh</p> <p>Show all Number of rows: 25 Filter rows: Search this table</p> <p>+ Options  Wins</p> <p><input type="checkbox"/> Edit  Copy <input type="checkbox"/> Delete 7</p>	9
Look up Losses for ‘Boy I Love Losing SuperBowls’ SELECT Losses FROM draft_team WHERE DraftTeamName = ‘Boy I Love Losing SuperBowls’	 <p>Showing rows 0 - 0 (1 total, Query took 0.0005 seconds.)</p> <pre>SELECT Losses FROM draft_team WHERE DraftTeamName = 'Boy I Love Losing SuperBowls';</pre> <p>Profiling Edit inline Edit Explain SQL Create PHP code Refresh</p> <p>Show all Number of rows: 25 Filter rows: Search this table</p> <p>+ Options  Losses</p> <p><input type="checkbox"/> Edit  Copy <input type="checkbox"/> Delete 6</p>	9
Look up Points for ‘Boy I Love Losing SuperBowls’ SELECT Points FROM draft_team WHERE DraftTeamName = ‘Boy I Love Losing SuperBowls’	 <p>Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)</p> <pre>SELECT Points FROM draft_team WHERE DraftTeamName = 'Boy I Love Losing SuperBowls';</pre> <p>Profiling Edit inline Edit Explain SQL Create PHP code Refresh</p> <p>Show all Number of rows: 25 Filter rows: Search this table</p> <p>+ Options  Points</p> <p><input type="checkbox"/> Edit  Copy <input type="checkbox"/> Delete 100</p>	9
Look up Waiver Priority for ‘Boy I Love Losing SuperBowls’ SELECT WaiverPriority FROM draft_team WHERE DraftTeamName = ‘Boy I Love Losing SuperBowls’	 <p>Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)</p> <pre>SELECT WaiverPriority FROM draft_team WHERE DraftTeamName = 'Boy I Love Losing SuperBowls';</pre> <p>Profiling Edit inline Edit Explain SQL Create PHP code Refresh</p> <p>Show all Number of rows: 25 Filter rows: Search this table</p> <p>+ Options  WaiverPriority</p> <p><input type="checkbox"/> Edit  Copy <input type="checkbox"/> Delete 1</p>	10

Views:

The end of season leaderboard is a simple view containing the top three draft team managers at the end of the season.

End of Season Leaderboard

 <p>MySQL returned an empty result set (i.e. zero rows). (Query took 0.0559 seconds.)</p> <pre>CREATE VIEW Team_Leaderboard(ManagerName, DraftTeamName, Points) AS SELECT ManagerName, DraftTeamName, Points FROM draft_team WHERE Points IN (SELECT Points FROM draft_team ORDER BY Points DESC) ORDER BY Points LIMIT 3;</pre> <p>Edit inline Edit Create PHP code</p>
--

Showing rows 0 - 2 (3 total, Query took 0.0019 seconds.)

```
SELECT * FROM `team_leaderboard`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

+ Options

ManagerName	DraftTeamName	Points
Michael Hess	Boy I Love Losing SuperBowls	100
Mark	Patriots Fly High	95
Dummy	Dummy1	50

Show all | Number of rows: 25 Filter rows: Search this table

Running Backs on All Teams is another simple view containing all running backs from all draft teams.

Running Backs On All Teams

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0023 seconds.)

```
CREATE VIEW RunningBacksOnTeams AS SELECT P1.PlayerName, P2.DraftTeamName FROM player P1, plays_on P2 WHERE P1.Id = P2.PlayerId AND P1.Position = 'RB';
```

[Edit inline] [Edit] [Create PHP code]

+ Options

← T →	PlayerName	DraftTeamName
<input type="checkbox"/>  Edit	 Copy	 Delete Jonathan Taylor Dummy1
<input type="checkbox"/>  Edit	 Copy	 Delete Austin Ekeler Patriots Fly High
<input type="checkbox"/>  Edit	 Copy	 Delete Derrick Henry Boy I Love Losing SuperBowls
<input type="checkbox"/>  Edit	 Copy	 Delete Alvin Kamara Dummy1
<input type="checkbox"/>  Edit	 Copy	 Delete Ezekiel Elliott Patriots Fly High
<input type="checkbox"/>  Edit	 Copy	 Delete Dalvin Cook Boy I Love Losing SuperBowls

Quarterback Leaderboard is a more complex view which sums the weekly point totals to yield total points for each quarterback player and lists the top three in descending order.

Quarterback Leaderboard(Top 3) by Points

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0027 seconds.)

```
CREATE VIEW QBLleaderBoard AS SELECT DISTINCT(Player.Id), PlayerName, PlayerNumber, Position, QBPoints.totalPoints FROM Player, (SELECT P.Id, SUM(S.SingleWeekPointTotal) AS totalPoints FROM Player P, Statistics S WHERE P.Id = S.PlayerId AND P.Position = "QB" GROUP BY P.Id ORDER BY totalPoints desc LIMIT 3) QBPoints WHERE Player.Id = QBPoints.Id ORDER BY QBPoints.totalPoints desc;
```

[Edit inline] [Edit] [Create PHP code]

Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

Id	PlayerName	PlayerNumber	Position	totalPoints
4	Aaron Rodgers	12	QB	43
1	Josh Allen	17	QB	40
3	Patrick Mahomes	15	QB	35

Show all

Number of rows:

25



Filter rows:

Search this table

Tight End Leaderboard is another more complex view which sums the weekly point totals to yield total points for each tight end player and lists the top three in descending order.

Tight End Leaderboard(Top 3) by Points

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0030 seconds.)

```
CREATE VIEW PositionLeaderBoardTightEnds AS SELECT DISTINCT(Player.Id),  
PlayerName, PlayerNumber, Position, TEPoints.totalPoints FROM Player, (SELECT  
P.Id, SUM(S.SingleWeekPointTotal) AS totalPoints FROM Player P, Statistics S  
WHERE P.Id = S.PlayerId AND P.Position = "TE" GROUP BY P.Id ORDER BY  
totalPoints desc LIMIT 3) TEPoints WHERE Player.Id = TEPoints.Id ORDER BY  
TEPoints.totalPoints desc;
```

[Edit inline] [Edit] [Create PHP code]

Id	PlayerName	PlayerNumber	Position	totalPoints
19	Mark Andrews	89	TE	12
17	Travis Kelce	87	TE	10
18	George Kittle	85	TE	9

Appendix

Fantasy Football Project Specification

Customer Name: Fantasy Manager/Commissioner X

Summary of Need: With the rise of popularity of fantasy football and the legalization of online sports betting in certain areas within the United States, the need for personalized databases for tracking historic data for small to medium sized fantasy leagues is present.

Motivation or Reason for Need: With the sheer amount of fantasy information available through various resources, managers are pushing themselves further and further to find an advantage to help them win their league. Managers looking for an advantage purchase subscriptions to websites, listen to hours of podcasts and read numerous articles. What do fantasy players do with this information? A lot of managers use this content to make their own rankings, develop draft strategies, and/or use it to identify fantasy-relevant statistics. Also, players who want to integrate their own personal data and combine real life statistics often lack the knowledge to do so. These methods usually involve scraping and SQL insertions. The average player typically does not possess these skills and end up resorting to spreadsheet data entry which can be very time consuming.

Nature of Business: The purpose of a personal fantasy football database is to allow managers to store and query data about their team and or league, allowing them to formulate strategies to gain an edge against their opponents. At present, managers must take to scrolling websites and their fantasy application to look at their players' stats and to look at legacy data. These can be time consuming tasks, especially in the case of looking at legacy fantasy data. Developing and implementing a personal database can solve most if not all of these issues.

Present System: In regards to a personal fantasy football database, the current system involves managers researching statistics about a certain player through various resources on the internet such as ESPN or NFL's website. For fantasy statistics about your league, managers must navigate through whatever fantasy application that the fantasy league uses. The lack of integration between personal fantasy data and real life statistics brings about the need to create a personal fantasy database.

Statement of Customer-Perceived Requirements: The fantasy football database would be hosted on either a specific manager's server/computer or the commissioner's device, and should provide functions for querying data about a specific manager's team or any data specific data about the league in general. The system should also have the capability of providing statistics about Specific NFL players starting with data from the 2021-2022 season.