FANTASY PREMIER LEAGUE

10.5.2019

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OVERVIEW

The objective of this system is to build a Database for the fantasy premier league game played by nearly 7 million users worldwide. Here, Users will have to choose a team/squad of 15 players every week. A squad consists of two goalkeepers, five defenders, five midfielders and three forwards. A maximum of three players can be chosen from anyone Premier League club. Each player has a different value based on his performance. The User whose team scores the most points at the end of the season (38 game weeks) is the winner. Our objective is to maintain this complex database and also provide player suggestions to users through Analytics and Business Intelligence.

DATABASE DESIGN AND SPECIFICATIONS

User:

Users must choose a starting 11 players from their 15-man squad before each Gameweek deadline. The formation includes one goalkeeper, at least three defenders, at least two midfielders and at least one forward. Every FPL team's points for the Gameweek will be scored by their 11 starting players but if a starting player does not feature for their club, the points scored by the first player on your bench will automatically be counted instead. User must choose a captain and a vice-captain for the Gameweek within the 11 players. A captain's score is doubled, but if the selected skipper does not play in the Gameweek then the vice-captain's score is doubled instead. The same process occurs if two or three starting players fail to appear for their teams. User should therefore rank their substitutes in order of preference, to ensure that their first-choice reserve player is first in line.

Leagues:

After entering their squad into the game, User can join and create leagues to compete with their friends and others across the world. There are two types of leagues namely: Private and Public leagues. Private leagues are where you compete against your friends by just creating a league and then send out the unique code to allow your friends to join in. A person can compete in up to 20 private leagues. There is no limit on the number of teams in a single league. User can also join a public league of 20 randomly assigned teams where a person can compete in up to three public leagues.

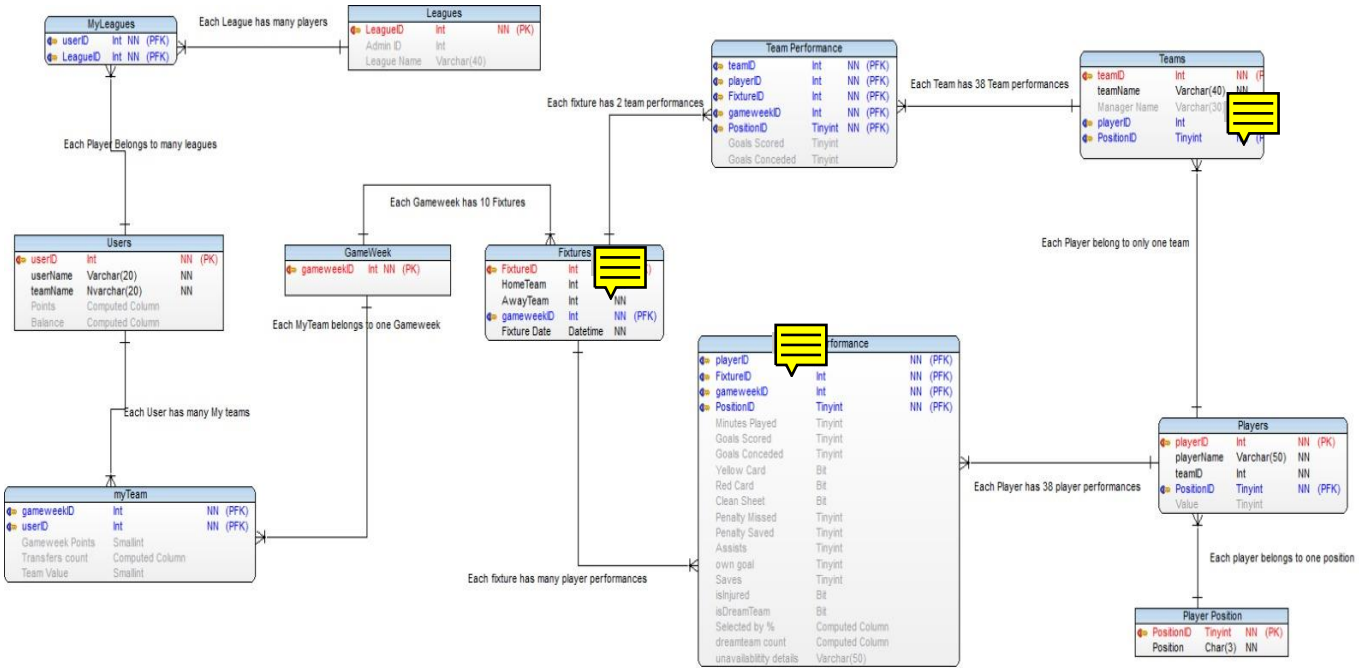
Transfers:

After the first deadline of the season has passed, User are given one free transfer for each Gameweek. This enables them to sign a player in exchange for a member of their 15-man squad, as long as the switch is within their budget. If User want to make additional transfers in a Gameweek, they will lose four points for each transfer. If User do not use their free transfer, they can carry it over and have two free transfers for the following Gameweek.

Player prices:

Every player price gets updated during the entire season depending on their popularity among all the User in the game. For example, a player whose initial price is £6.0m and is transferred into a significant number of teams could gradually rise to £6.5m, or even higher depending upon the popularity of that player. User who own the player while his price is increasing will make a profit if they sell him at the higher price. However, they must pay a sell-on fee of 50 per cent, rounded down to the nearest £0.1m. So, in the example of the player above who has risen from £6.0m to £6.5m, User would receive £6.2m when transferring him out.

ER DIAGRAM



ENTITIES

Leagues: League contains information about the number of leagues present in the FPL. League entity has LeagueID as its attribute which is used to identify the different leagues participating in FPL.

Myleagues: MyLeague contains information about the userID and LeagueID of the leagues that the users have participated in.

User: The entity user contains all the information about the users participating in the FPL. It has attributes like userID, userName and teamName.

Fixtures: Fixtures are all the matches scheduled in one season. It has all the information of the FPL matches which are going to take place in a league. Fixture entity has many attributes like FixtureID, HomeTeam, AwayTeam and FixtureDate.

MyTeam: MyTeam is a team that the user creates and it has attributes like UserId and GameWeekID .

Team: Team entity contains attributes like teamID, PlayerID. It also has information about the PostitonID of the player. Team ID is the primary key and this entity has 2 foreign keys (PlayerID and PositionID).

Team performance: Contains data about the performance of the player. It has attributes like teamID, playerID, fixtureID, userID, PositionID, gameweek().

Player: Contains about the PlayerID, PlayerName, teamID and positionID.

Player performance: It is used to calculate the performance of the player using attributes like PlayerID, PositionID, GameWeek(). This entity includes many attributes like minutes played, goals scored and conceded, penalties saved and missed etc.

PlayerPosition: It contains information about the position of the player like Goalkeeper, Defender, Mid-Fielder or Forward. Position ID is the Primary Key and every player position is assigned a unique ID.

GameWeek: Every team plays a match against another team in the league every GameWeek. Each MyTeam entity belongs to one GameWeek and each GameWeek has 10 fixtures. GameWeekID is the Primary Key.

ER diagram contains following relationships:

ENTITY1	Entity2	CARDINALITY
User	Leagues	1:M
User	MyTeam	1:M
Fixture	PlayerPerformance	1:M
Fixture	TeamPerformance	1:M
MyTeam	GameWeek	1:1
League	Players	1:M
Player	Team	1:1
Player	Position	1:1

Type of Binary relationship	Relationship in a system
One to One	a) Each player belong to one position b) Each Myteam belongs to one Gameweek c) Each player belong to one team only
One to Many	a) League has multiple leagues and one user can play any number of leagues. b) Each fixture has many player performance c) Player contains the position of the player and also how the player performance would be calculated after the match.

Comment Summary

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1. Normalize to 3NF
2. Should HomeTeam and AwayTeam be FKs to team?
3. Normalize to 3NF