

Assignment 1: Database design (1st specification)

Background

A database is to be created to maintain data and information pertaining to a soccer league. Some of data to be stored corresponds to teams, matches and results. More complex data is also maintained pertaining to players' positions during games.

The first assignment focuses on designing a database to store the data pertaining to the matches; we are not concentrating on the more complex player position data.

The following requirements have been obtained from the client.

The data to be stored relates to a set of games. Each game is played between two teams. Each game is played at one the team's home grounds. Each pair of teams plays each other twice.

Each time has 11 players on the pitch at any given time. Each team may substitute any player (up to 5 substitutions). All players playing are recorded and any substitution time.

Players may be sent off; these events should all be recorded.

Each team has a name, home venue, manager and a set of players (squad). Each player has a name and a squad number.

For each game the result is stored (win, loss, draw). The winning team is awarded three points, the losing team zero points and for a draw teams are awarded a point.

The time and the number of each scorer is recorded for each goal.

For each game a separate file is maintained which stores the (x,y) coordinate of each player (for both teams) and the football. A record is stored 10 times a second. These are stored in heap files; one for each game. For the initial design you just need to link these files to each game so the files can be retrieved.

Assignment:

Design

Propose a suitable design for the database. Specify the relations, the keys and any foreign keys.

Identify any redundancy or issues that exist.

State any assumptions you make.

Query Design

Specify queries (in SQL) for the following information needs:

1. *List all players playing for a given team.*
2. *List all players who have scored in a given game.*
3. *List the top five goals scorers in the league.*
4. *List all teams and the amount of points they have so far.*

To submit:

Schema and explanation

Queries

Discussion of design choices

Questions welcome; discussion session next Thursday in class