Requirement Document for Project2

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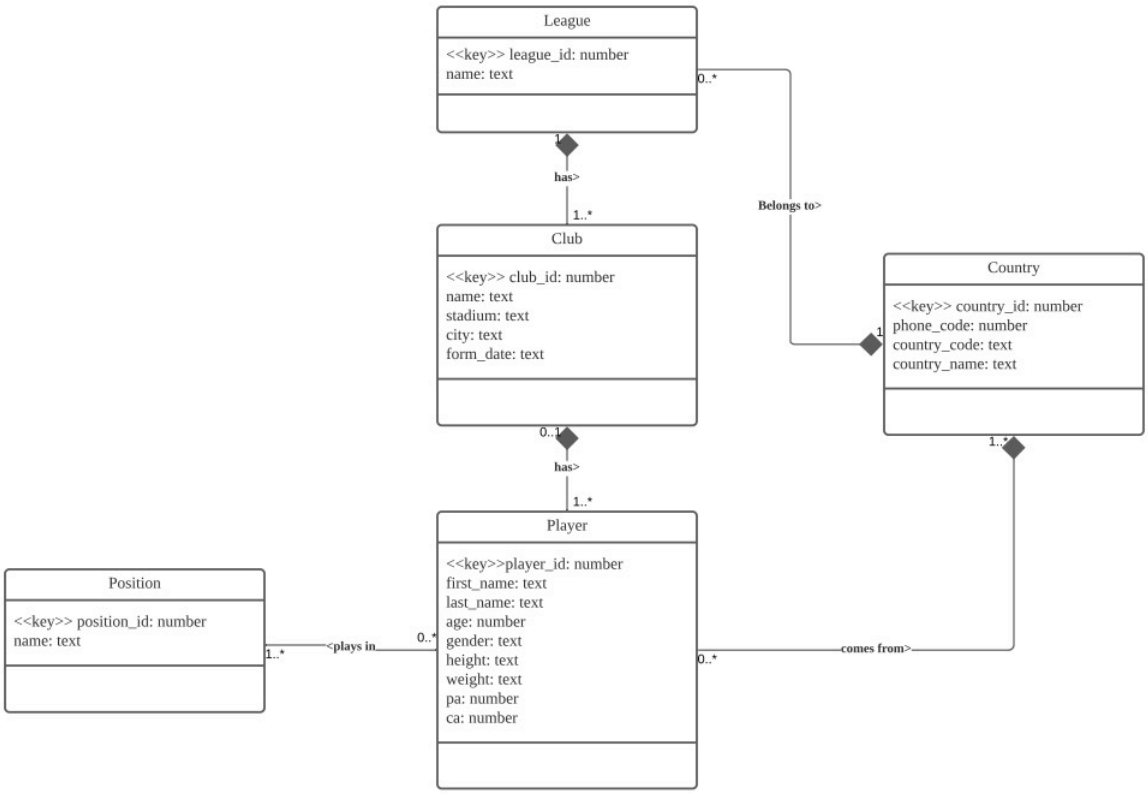
The European Cup and copa America is hot recently. The PM from your company want to bring up with a new sport product for the football fans all over the world. And generally speaking, this product need a database for clients to look up information that they are interested in. For example, sometimes when the fans are watching football games, they want to know the details of a specific player or country, which club is the player from and so on. So this product will be a web application where you can search information about clubs, countries, and players. And this website should support multiple conditions to look up.

For entities, we should have leagues, clubs, players, positions and countries as the basic information. And by using different combinations of conditions of the entities, we should get the records that we want.

Players in the national teams belong to different clubs of different leagues. However, they have to be from the same country. Each country could have multiple leagues with different levels. For example, England has FA Premier League, Football League Championship, Football League One and so on. And each league has a bunch of clubs(usually 20 for most leagues). A specific club could only belong to 1 league. Players could have none or at most 1 club, and 1 club should have more than 1 players. Most players should have a best position on the field. However, there might be some players good at multiple positions at the same time. Plus, players should have a nationality. Some players have multiply nationalities.

Above is the general description of the requirement for the database and web application for us. And now it’s time for us to get started.

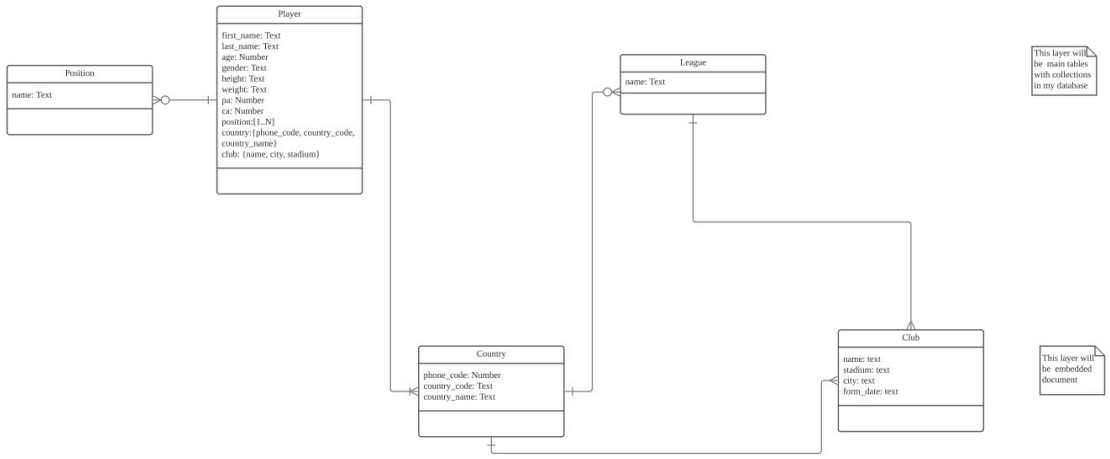
1. Conceptual Model



For this project, I select player to cache in in-memory key-value storage. Any players that you edit or search in the search bar will be added to the list of hottest players, which is cache in redis.

The link of the above picture is :
https://lucid.app/lucidchart/f2c92d96-fa2e-4cea-81b6-bed7d03b6e26/edit?invitationId=inv_6763ed10-9e41-4c67-9df0-9defee87d82e

2. Logical Model



To implement abovementioned hottest player list. I will use a Redis sorted set with key “hot” to implement it.

The link is:

https://lucid.app/lucidchart/invitations/accept/inv_88fb90aa-e824-4bea-95f0-e03237c8a373

3. JSON examples


```
player: {
      _id: new ObjectId("6104dfa5d335ccd66fdffe91"),
      first_name: 'Kary',
      last_name: 'Emmitt',
      age: 34,
      gender: 'Non-binary',
      height: 79,
      weight: 13,
      pa: 57,
      ca: 97,
      club: {
         name: 'Voolia',
         stadium: 'Linkbridge',
         city: 'Antigonish',
         form_date: '10/28/2020',
         league: 'Feedbug',
         country_name: 'Canada'
      },
      countries: [ [Object], [Object] ],
      position: [ 'Goldenrod' ]
 }
```