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CMPE232 – Relational Databases

Phase 2

-------------------- **SPECIFICATION OF THE DOMAIN** --------------------

Firstly, our Football Club design has

-Strong Entities

- Football Club
- Players
- Coaches
- Managers
- Trainers
- Sportive Director
- Facilities
- Transferrable Players (Transfer market)
- Coach Contract
- Player Contract
- Trainer Contract
- Sportive Director Contract

-Weak Entity

- Current Squad

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---- EXPLANATIONS OF THE CHANGES THAT WE MADE SINCE PHASE1 ----

➤ Although we have already designed major parts of our Database design in Phase1, when we looked into the details, we found out some minor mistakes especially on the Java implementation part. To make our Database more consistent we made some design decisions.

➤ There is a relationship between our three entities in database. These entities are Coach, Sportive Director and Players. This situation creates a ternary relationship between them. We figured the problem out by adding talented_id column in "Suggest" table. Also, we applied the changes to E-R diagram.

➤ First of all, We removed the single "Contract" table instead of it we add distinct contract table for each Object (Player,Trainer,S.Director, Coach). Indeed, storing four different foreign keys in a single contract table caused the contracts of different people that in our team (Coaches, Players, Trainer, Sportive Directors) to be displayed with the same contract ID. For instance, the case that the user attempted to add a trainer id foreign key(**t_id**) to contract which belongs to a player, it can lead to complication in our database. We decided to keep the contracts of individuals in separate tables because if a contract belongs to more than one person it would make the database inconsistent. By this way, our database become more useful and applicable.

-------------------- DEFINITIONS OF TABLES --------------------

Football Club: Football Club has a club name, establish year and color.

Players: Players have two status A-Team and U-19. Players are identified by a player id. Each players' name, uniform number, age, position, nation, player status and contact info are stored in database. Players trained by trainers according to their position. Also, U-19 players which are talented can be selected by Sportive Director to suggest Coach. Additionally, main team players can be selected for current squad by Coach.

Coaches: Coaches are identified by a coach id. Each coaches' name, age, nation, and contact info are stored in database. Coaches decides current squad by using selection for squad table and talented players who is suggested by sportive director.

Managers: Managers are identified by manager id. Each managers' name, age, nation, and contact info are stored in database.

Trainers: Trainers are identified by a trainer id. Each trainers' name, age, nation, position, and contact info are stored in database. Trainers trains players according to players' position and self-position.

Sportive Director: Sportive Director is identified by sportive director id. Sportive director' name, age, nation, and contact info are stored in database. Sportive director suggests talented U-19 players to coaches.

--------------------- DEFINITIONS OF TABLES ---------------------

Facilities: Facilities are identified by a facilities id. Each facility type, season and places are stored in database.

Transferrable Players (Transfer market): Transferable players are identified by a transfer market id. Each transferrable players' cost, player name, previous team, player nation, age and position are stored in database.

Coach Contract: *Coach* Contracts are identified by a coach contract id. Each contract's start date, end date, salary and status are stored in database. All coaches have contracts to provide connection between club and themselves.

Player Contract: Player Contracts are identified by a player contract id. Each contract's start date, end date, salary and status are stored in database. All players have contracts to provide connection between club and themselves.

Trainer Contract: Trainer Contracts are identified by a trainer contract id. Each contract's start date, end date, salary and status are stored in database. All trainers have contracts to provide connection between club and themselves.

Sportive Director Contract: Sportive Director Contracts are identified by a sportive director contract id. Each contract's start date, end date, salary and status are stored in database. All sportive directors have contracts to provide connection between club and themselves.

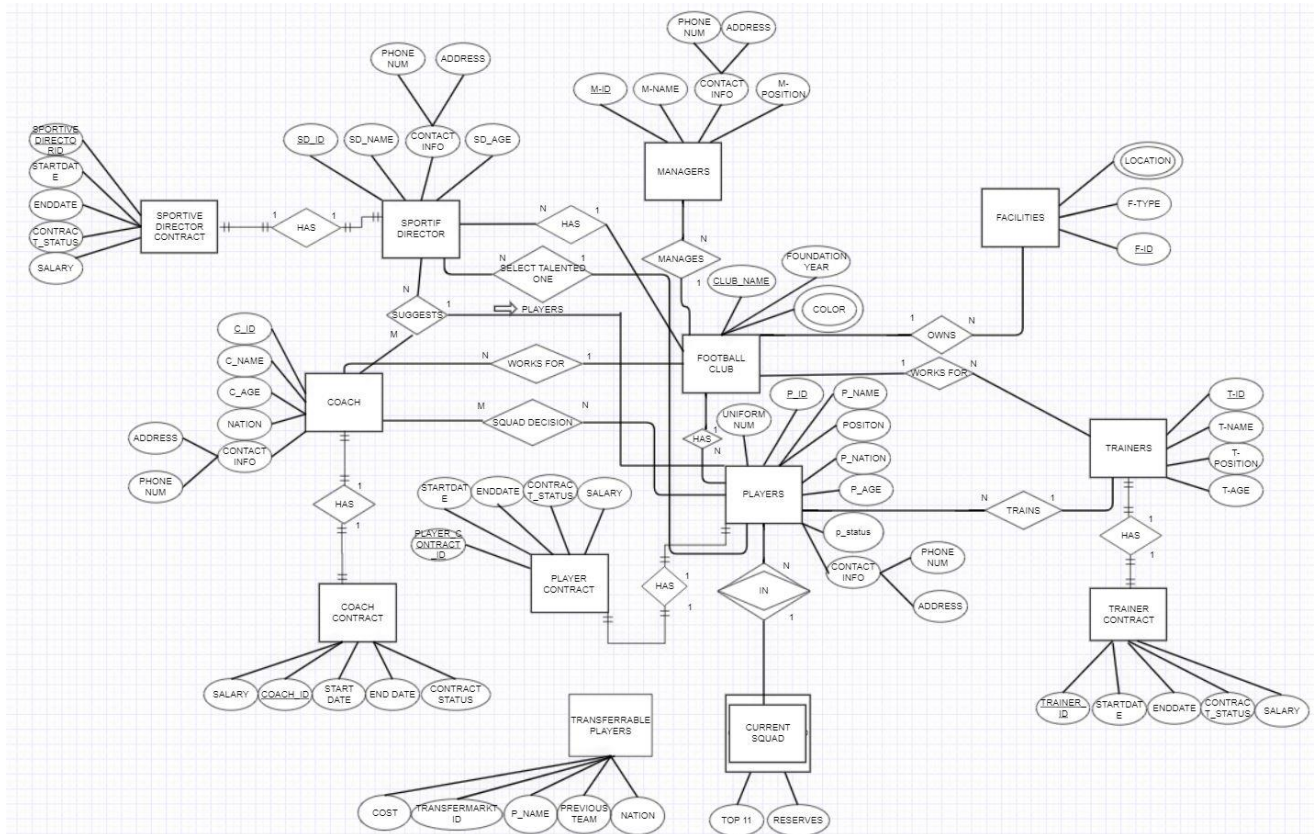## ------------------- JAVA CODE EXPLANATION -------------------

Instead of only creating a database model with three tables which is given in the instructions, we tried to enhance our database with more facilities in order to create more robust database model.

Firstly, we have an 'action' menu to reach user types. We separate each user's operands to different menus which are Manager, Coach, Trainer and Sportive Director. For example, if we want to sign a contract with a player, we need to use Manager interface. Additionally, we have 'monitoring' interface which is called unauthorized. When user select this interface, user can only monitor the information without modify them. The users except unauthorized needs a username and password to reach the DBMS.

Our code is capable of doing these tasks:

- Manager responsible from adding and deleting contracts of people in club and update self-information.

- Coach responsible from select players for current squad, make decisions about suggested players from Sportive Director and update self-information.

- Sportive Director responsible from determining the talented U-19 players, suggest talented U-19 players to coach and update self-information.

- Trainers responsible from assign a trainer to player and update self-information.

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------------------------ E-R DIAGRAM ------------------------

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------------------------- RELATIONAL SCHEMA -------------------------