

COM1025 Web and Database Systems

Coursework Assignment

Football Society

URN	6811162
Username	oe00304
Date	02/01/2024

1 Business Rules and Assumptions

You should state the business rules, assumptions and constraints you ascertained for your model. You can add more attributes to Student if you find it useful and more hobbies if you want in section 2.

1. A university offers courses and has two categories of students: undergraduates and postgraduates.
 - a. The university needs to store the following details about each student: name, date of birth, a phone number, and what course they are on.
 - b. A student must be a postgraduate or an undergraduate, but they cannot be both at the same time.
 - c. A student must be enrolled on one and only one course while a course can enrol no student or many students.
 - d. A course has a course code, name and enrolment (total number of students on the course)
2. The university also wants to keep data on hobbies of students if they wish to provide that information so that appropriate clubs and societies can be suggested to them.
 - a. A student can have no hobby or can have many hobbies.
 - b. A hobby can be related to no student or to many students.
 - c. The current list of hobbies include: reading, hiking, chess, Taichi, ballroom dancing, football, Tennis, Rugby, climbing, rowing.
3. The footballing society provides two types of memberships:
 - a. Standard allows only for team sessions, while Premium allows for team & private sessions. This is down to the coach's decision when creating a coaching plan/session.
 - b. A Student can sign up for a membership, and a membership must belong to only one student.
 - c. A team can provide 1 or more memberships, but a membership holder must belong to only one team.
 - d. A membership holder must at least be 18 years old.
 - e. There must be at least 11 membership holders to form a team.
4. A coach can coach 0 or more coaching sessions, for 1 or more membership holders.
 - a. A coach should have at least one qualification and can have more than one qualification at the same time.
 - b. A coaching session must be conducted by at least one coach but can be conducted by more coaches.
5. A team must play at least one game but can play more games.
 - a. Game time must be either at the hour, or half past the hour.

2 Extended Entity Relationship Diagram (EERD)

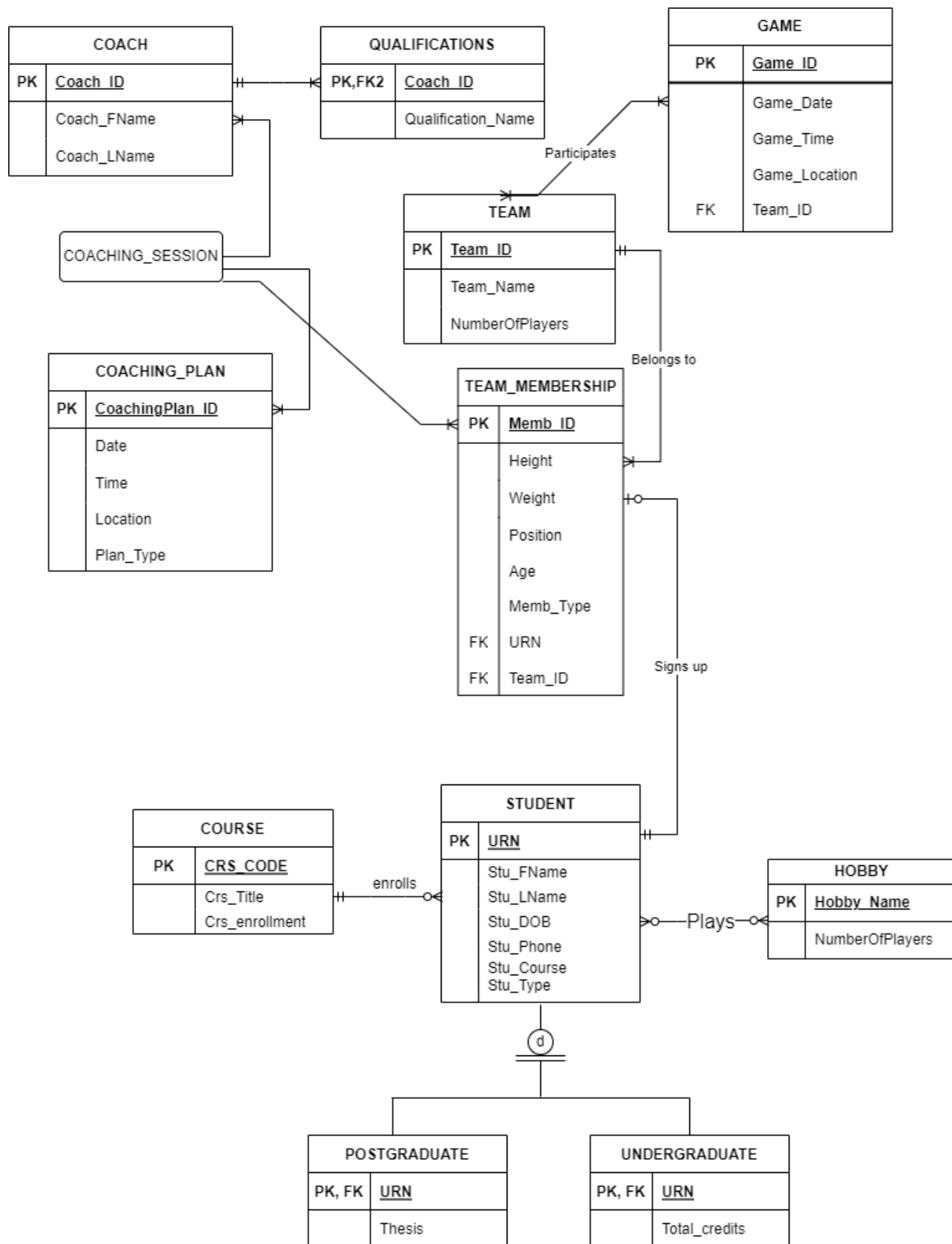


Figure 1- Entity-Relationship Diagram

3 Logical Relational Database Schema

COURSE(Crs_Code, Crs_Title, Crs_enrollment)

PRIMARY KEY: Crs_Code

STUDENT(URN, Stu_FName, Stu_LName, Stu_DOB, Stu_Phone, Stu_Course, Stu_Type)

PRIMARY KEY: URN

FOREIGN KEY: Stu_Course REFERENCES **COURSE**(Crs_Code)

POSTGRADUATE(URN, Thesis)

PRIMARY KEY: URN

FOREIGN KEY: URN REFERENCES **STUDENT**(URN)

UNDERGRADUATE(URN, Total_credits)

PRIMARY KEY: URN

FOREIGN KEY: URN REFERENCES **STUDENT**(URN)

HOBBY(Hobby_Name, NumberOfPlayers)

PRIMARY KEY: Hobby_Name

PLAYS(URN, Hobby_Name, FREQUENCY, LEVEL, PREFERENCE)

PRIMARY KEY: URN, Hobby_Name

FOREIGN KEY: URN REFERENCES **STUDENT**(URN), Hobby_Name REFERENCES

HOBBY(Hobby_Name)

TEAM_MEMBERSHIP(Memb_ID, Height, Weight, Position, Age, Memb_Type, URN, Team_ID)

PRIMARY KEY: Memb_ID

FOREIGN KEY: URN REFERENCES **STUDENT**(URN), Team_ID REFERENCES

TEAM(Team_ID)

TEAM(Team_ID, Team_Name, NumberOfPlayers)

PRIMARY KEY: Team_ID

GAME(Game_ID, Game_Date, Game_Time, Game_Location, Team_ID)

PRIMARY KEY: Game_ID

FOREIGN KEY: Team_ID REFERENCES **TEAM**(Team_ID)

PARTICIPATION(Team_ID, Game_ID, Scoreline, Outcome)

PRIMARY KEY: Team_ID, Game_ID

FOREIGN KEY: Team_ID REFERENCES **TEAM**(Team_ID), Game_ID REFERENCES

GAME(Game_ID)

COACH(Coach_ID, Coach_FName, Coach_LName)

PRIMARY KEY: Coach_ID

QUALIFICATIONS(Coach_ID, Qualification_Name)

PRIMARY KEY: Coach_ID, Name

FOREIGN KEY: Coach_ID REFERENCES **COACH**(Coach_ID)

COACHING_PLAN(CoachingPlan_ID, Date, Time, Location, Plan_Type)

PRIMARY KEY: CoachingPlan_ID

4 Website Working with MySQL Database

Public folder:

- footy-background.jpg: image that is displayed on the home page header
- styles.css: used to style the index.ejs file (homepage route)
- views.css: used to style every other ejs file

Views Folder:

- coaches.ejs: Used to view all the coaches with their corresponding qualifications. This also allows the user to create a new coach.
- games.ejs: Used to view all the games taking place (also referred to as game calendar)
- index.ejs(homepage route): This is the entry point of the website and is used to display a summary of relevant elements that make up a society and can be used to navigate through different parts of the website.
- students.ejs: Used to view all students (not necessarily part of the football society)
- team_members.ejs(view all route): Used to view all students that are part of the football society and displays different information to the ones stored about the in the students.ejs view.
- team_membership_edit.ejs(update one route): this is used to edit a team member's position and/or their membership type.
- team_membership_view.ejs(view one route): this is used to view one team member at a time and it displays other information about the team member that aren't shown on the view all route.
- teams.ejs: Used to show the information about all teams in the society.

5 Advanced Tasks

- Created a ternary relationship called COACHING_SESSION between the coach, coaching plan and the team_membership entities.
- Created a relevant many-to-many relationship between the GAME and TEAM entities by the help of a bridge entity called **PARTICIPATION**(This is found in section 3 of my report)
- I also attempted an“ ADD COACH” functionality using a form in my coaches.ejs view and stores the data to the relevant tables(COACH and QUALIFICATIONS).

Note: In the first EERD on page two, I included the COACHING_SESSION entity without its attributes in order to save space. Here is the full implementation with the entities it is connected to.

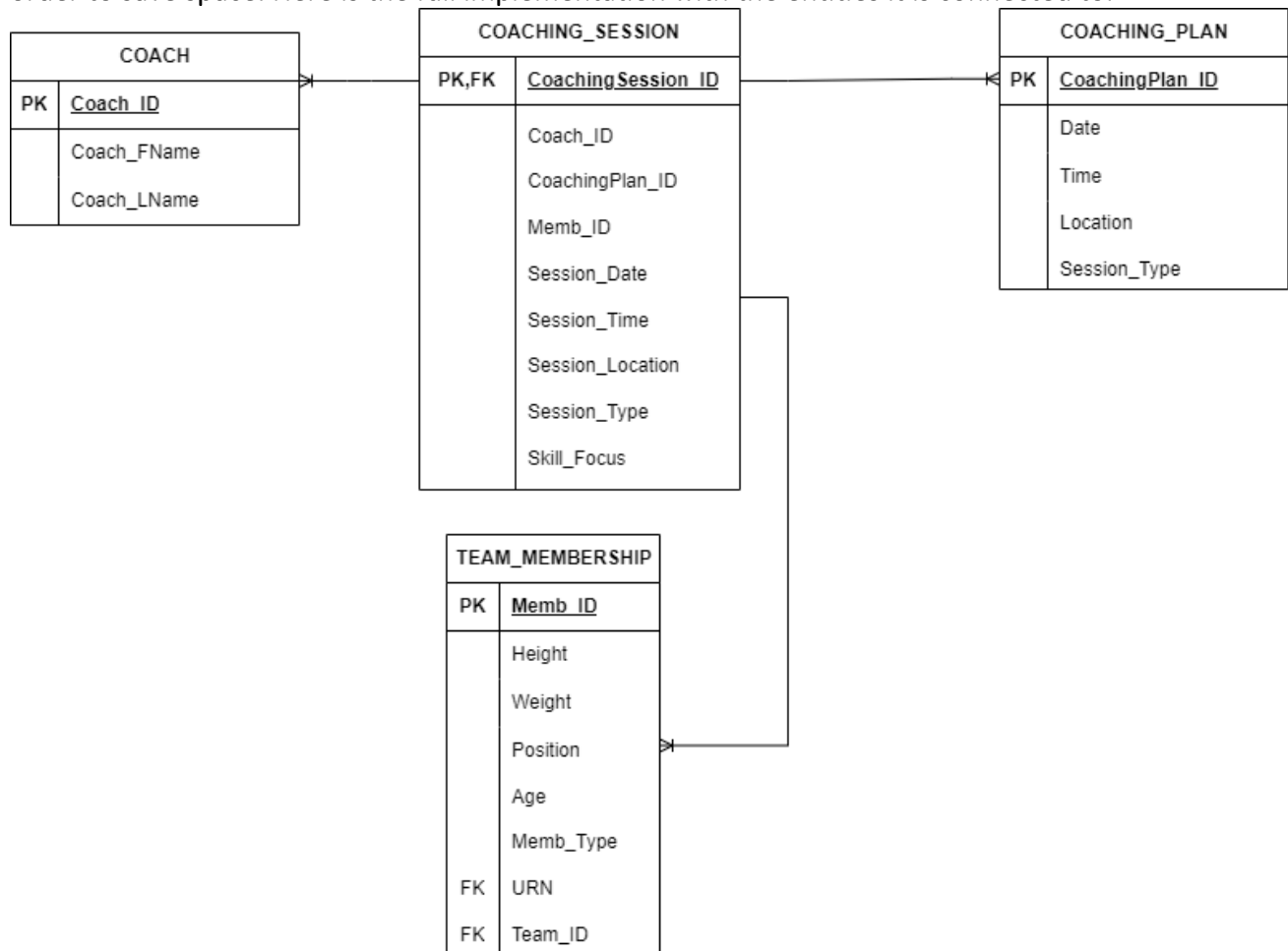



Figure 2- Advanced task

COACHING_SESSION(CoachingSession_ID, Coach_ID, CoachingPlan_ID, Memb_ID, Session_Date, Session_Time, Session_Location, Session_Type, Skill_Focus)
 PRIMARY KEY: CoachingSession_ID
 FOREIGN KEY: Coach_ID REFERENCES **COACH**(Coach_ID), CoachingPlan_ID REFERENCES **COACHING_PLAN**(CoachingPlan_ID), Memb_ID REFERENCES **TEAM_MEMBERSHIP**(Memb_ID)

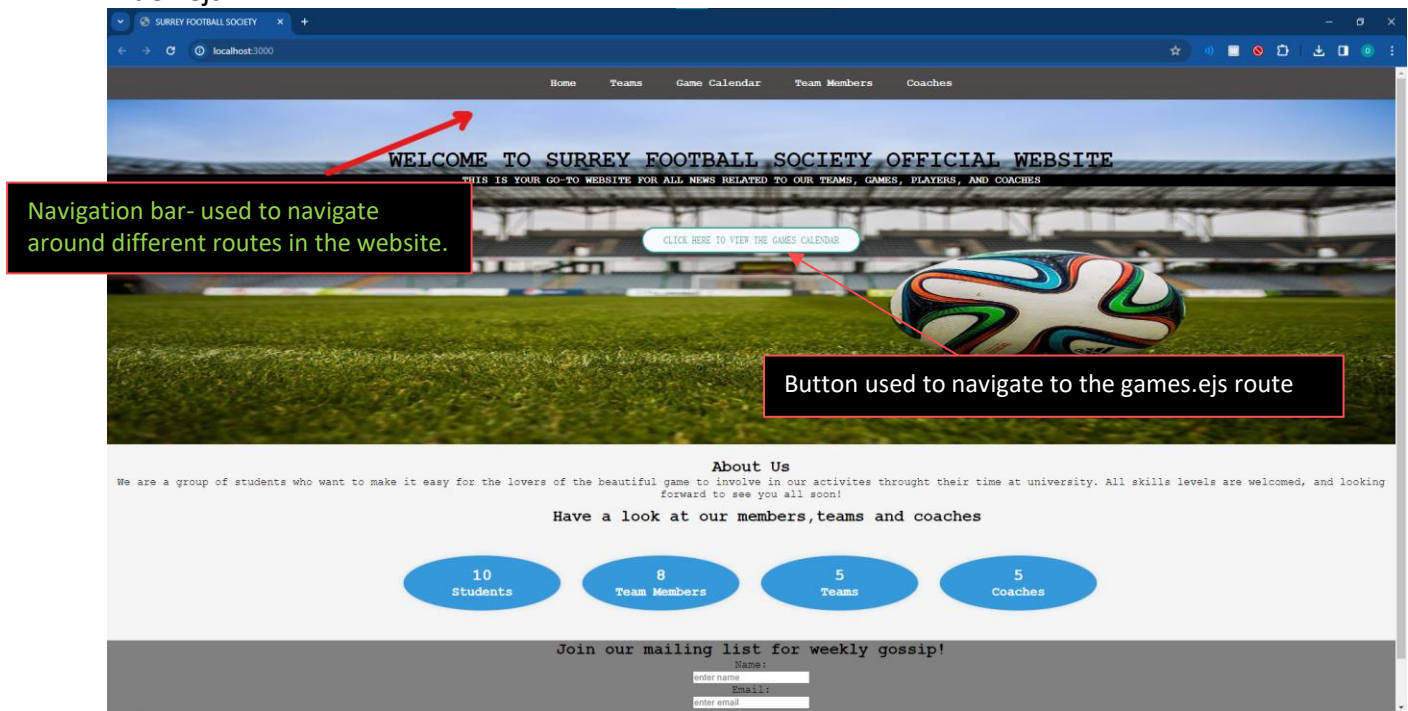
6 References

I used this website to generate my cta-buttons in my styles.css file.

 *CSS button generator / 2023 custom button CSS & Get code* (no date). <https://www.htmlcssbuttongenerator.com/css-button-generator.html#scarelargeCodeInsideID>.

7 Appendix: Screenshots of Website

Index.ejs



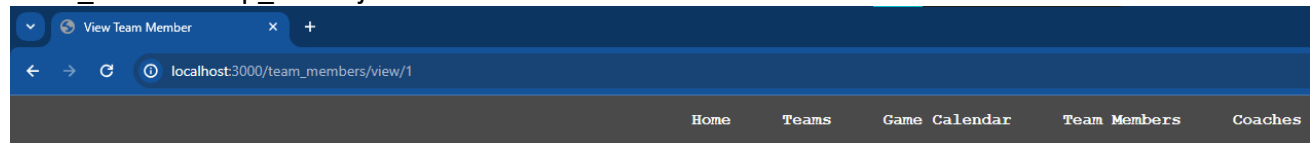
Appendix 1-Index.ejs(homepage)

team_members.ejs

TEAM MEMBERS									
Membership ID	First Name	Last Name	Age	Height	Weight	Position	Membership Type	Team Name	Actions
1	Sara	Rhan	20	1.75	70	Forward	Standard	Turkish De Ligt	Edit View
2	Yunli	Guo	21	1.78	68	Midfielder	Standard	Turkish De Ligt	Edit View
3	Costas	Spiliotis	21	1.76	72	Forward	Standard	Turkish De Ligt	Edit View
4	Tom	Jones	21	1.82	79	Midfielder	Standard	Turkish De Ligt	Edit View
5	Pierre	Gervais	21	1.68	65	Midfielder	Premium	Kinder Mbeumo	Edit View
6	Patrick	O'Hara	22	1.8	75	Defender	Standard	Who Ate Depays	Edit View
7	Iyabo	Ogunsola	23	1.85	80	Goalkeeper	Premium	Dunk Those Busquets	Edit View
8	Omar	Sharif	24	1.7	72	Forward	Standard	Borussia Teeth	Edit View

Appendix 2-team_members(view all)

team_membership_view.ejs



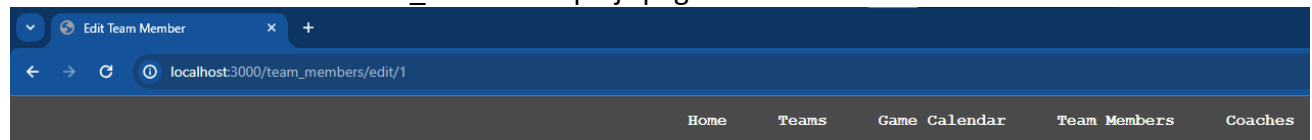
TEAM MEMBER: Sara Khan

Membership ID: 1
Age: 20
Height: 1.75
Weight: 70
Position: Forward
Membership Type: Standard
Team Name: Turkish De Ligt
URN: 612345
Phone: 01483112233

Appendix 3-team_membership_view.ejs(view one)

team_membership_edit.ejs

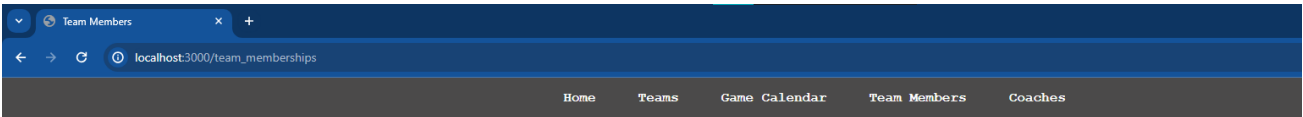
This message appears when the details of the team member is updated. This also updates the relevant attributes in the team_membership.ejs page.



EDIT TEAM MEMBER: Sara Khan

Team Member Updated!
Update Position:
Update Membership Type:

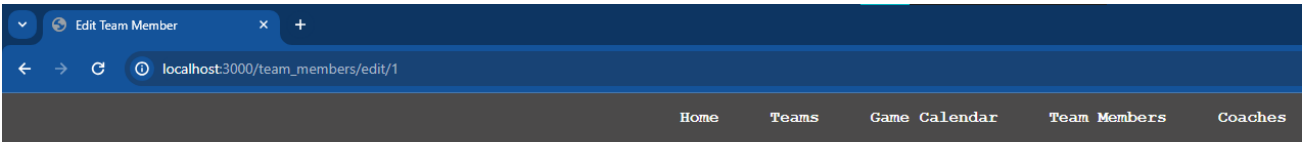
Appendix 4a-team_membership_edit.ejs(update one)



TEAM MEMBERS

Membership ID	First Name	Last Name	Age	Height	Weight	Position	Membership Type	Team Name	Actions
1	Sara	Khan	20	1.75	70	Midfielder	Premium	Turkish De Ligt	Edit View
2	Yunli	Guo	21	1.78	68	Midfielder	Standard	Turkish De Ligt	Edit View
3	Costas	Spiliotis	21	1.76	72	Forward	Standard	Turkish De Ligt	Edit View
4	Tom	Jones	21	1.82	79	Midfielder	Standard	Turkish De Ligt	Edit View
5	Pierre	Gervais	21	1.68	65	Midfielder	Premium	Kinder Mbeumo	Edit View
6	Patrick	O'Hara	22	1.8	75	Defender	Standard	Who Ate Depays	Edit View
7	Iyabo	Ogunsola	23	1.85	80	Goalkeeper	Premium	Dunk Those Busquets	Edit View
8	Omar	Sharif	24	1.7	72	Forward	Standard	Borussia Teeth	Edit View

Appendix 4b-Updated attributes in the view all route



EDIT TEAM MEMBER: Sara Khan

Invalid position! Please select one of: Forward, Midfielder, Defender, Goalkeeper

Update Position:

Update Membership Type:

Appendix 4c-Appropriate message displayed when invalid update takes place

Coaches

localhost:3000/coaches

HomeTeamsGame CalendarTeam MembersCoaches

COACHES

Coach ID	First Name	Last Name	Qualification Name
1	Josep	Gvardiola	FIFA Pro License,UEFA A License
2	Jurgen	Norbert	Level 3 Coaching Certificate
3	Thomas	Shelby	Masters in Sports Science
4	Micheal	Scofield	National Coaching Certification
5	Lincoln	Burrows	FIFA Pro License

First Name:

Gustavo

Last Name:

Fring

Qualification Name:

UEFAA License, UEFA B License

Add Coach

Appendix 5a- Add a coach function.

Coaches

localhost:3000/coaches

HomeTeamsGame CalendarTeam MembersCoaches

COACHES

1	Josep	Gvardiola	FIFA Pro License,UEFA A License
2	Jurgen	Norbert	Level 3 Coaching Certificate
3	Thomas	Shelby	Masters in Sports Science
4	Micheal	Scofield	National Coaching Certification
5	Lincoln	Burrows	FIFA Pro License
6	Gustavo	Fring	UEFA A License, UEFA B License

First Name:

Last Name:

Qualification Name:

Add Coach

Appendix 5b- Table view after coach has been added.

```
mysql> SELECT t.Team_Name, tm.Position, COUNT(*) AS 'Number of Players' FROM TEAM t INNER JOIN TEAM_MEMBERSHIP tm ON t.Team_ID = tm.Team_ID GROUP BY t.Team_Name, tm.Position;
```

Team_Name	Position	Number of Players
Turkish De Ligt	Forward	2
Turkish De Ligt	Midfielder	2
Kinder Mbeumo	Defender	1
Who Ate Depays	Defender	1
Dunk Those Busquets	Goalkeeper	1
Borussia Teeth	Defender	1

6 rows in set (0.00 sec)

Appendix 6a- Query 1 – shows the number of players per position in each team

```
mysql> SELECT *
-> FROM Game
-> WHERE Team_ID = (SELECT Team_ID FROM Team WHERE Team_Name = 'Kinder Mbeumo');
```

Game_ID	Game_Date	Game_Time	Game_Location	Team_ID
2	2023-12-22	16:00:00	Banda Metropolitano	2
6	2023-12-23	03:30:00	Camp Zoo	2

Appendix 6b- Query 2 - shows the game calendar of a team

```
mysql> SELECT CS.*, C.Coach_LName,M.Position
-> FROM Coaching_Session CS
-> JOIN Coach C ON CS.Coach_ID = C.Coach_ID
-> JOIN Team_Membership M ON CS.Memb_ID = M.Memb_ID;
```

CoachingSession_ID	Coach_ID	CoachingPlan_ID	Memb_ID	Session_Date	Session_Time	Session_Location	Session_Type	Skill_Focus	Coach_LName	Position
1	1	1	1	2023-12-20	14:00:00	Field A	Group	Passing Techniques	Gvardiola	Midfielder
2	2	2	2	2023-12-21	16:30:00	Stadium B	Private	Shooting Drills	Norbert	Midfielder
3	3	3	3	2023-12-22	10:00:00	Training Facility	Group	Defensive Strategies	Shelby	Forward
4	4	4	4	2023-12-23	11:30:00	Sports Complex	Private	Tactical Playbook	Scofield	Midfielder
5	5	5	5	2023-12-24	13:30:00	Arena C	Group	Fitness Training	Burrows	Midfielder

Appendix 6c- Query 3- displays the coaching sessions with the details of both the member and the coach.

SELECT

c.Coach_ID,

c.Coach_FName,

c.Coach_LName,

GROUP_CONCAT(DISTINCT q.Qualification_Name) AS Qualifications

FROM Coach c

JOIN Qualifications q ON c.Coach_ID = q.Coach_ID

GROUP BY c.Coach_ID

HAVING COUNT(*) > 1;

```
1 row in set (0.00 sec)
```

Coach_ID	Coach_FName	Coach_LName	Qualifications
1	Josep	Gvardiola	FIFA Pro License,UEFA A License

Appendix 7- Advanced Task-gets coaches with more than one qualification