1. Project Title

Soccer Matches Management System

2. Project Description

A database is created which records the information about many soccer teams, their members, the captain and coach of the team, the matches they participated, the result of the matches, the championships they received.

The data requirements for this database are summarized as follows:

- We store name, date of birth, number of the player (marked on their shirt), and picture of each team member. Every team member has a role in each match that can be different from match to match. We store number of goals scored by a team member in each match.

- Every team has a coach. We store, name, data of birth and start and end time of coaching for each. We also store in which matches that person has been coach of the team.

- For each match we store the location of the match, date, time, two teams that played against each other, the result of the match (e.g. 0-5, or 2-4,…)

- If a team won a championship, we store the date and the name of championship and the medal that they won (gold, silver…or 1st place, 2nd place…)

- Teams may have sponsors that pay the team for a specific match to advertise for them. If there was a sponsor (a team may not have a sponsor for some of its matches), we store the name of the sponsor (the company) and the match which the sponsor supported the team.

3. Assumptions about Cardinality and Participation

- THERE ARE MANY SPONSORS FOR 1 TEAM AND ONE COMPANY CAN SPONSOR MORE THAN 1 TEAM

- 1 TEAM MAY OR MAY NOT HAVE ANY SPONSOR AND 1 COMPANY MAY OR MAY NOT SPONSOR ANY TEAM

- NOT ALL TEAMS WILL WIN THE CHAMPIONSHIP

4. ER-Model Mapping to Database Relational Schema

Team(<u>teammate</u>)

TeamMember(<u>PID</u>, name, date of birth, number, picture)

Coach (<u>CID</u>, name, date of birth)

Game (<u>Year, date, time, location</u>)

Sponsors (<u>company name</u>)

Championship(<u>name, date</u>)

Match In Championship(**<u>MDate, MLocation, MTime</u>**, ChName, ChDate)

Team members belong team (**<u>PID, name</u>**)

Team members lead match(**<u>PID, date, location, time</u>**, captain<u>)</u>

Team members play match (**<u>PID, date, location, time</u>**, role, score)

Coach at team (**<u>teamname, CID</u>** , start time, end time)

Coach advice match(**<u>CID, time, location, date</u>**)

Team won championship (**<u>teamname, date, name</u>**, medal)

Team_sponsors_match(**<u>name, companyname, time, location, date</u>**)

Team_play_match (**<u>teammate, date, location, time</u>** ,score)

5. Normalization

Coach at team
1NF

CID	Teamname	Cname	CDOB	starttime	endtime

2NF 3NF BCNF

CID	Teamname	starttime	Endtime

CID	Cname	CDOB

Coach advise match
1NF

CID	time	location	date	Cname	CDOB

2NF 3NF BCNF

CID	Cname	CDOB

Team_sponsors_match
1NF 2NF 3NF BCNF

teamname	companyname	time	location	date

Team_play_match
1NF 2NF 3NF BCNF

teamname	score	time	location	date

Team_won_championship
1NF 2NF 3NF BCNF

teamname	chaname	chadate

Match In Championship
1NF 2NF 3NF BCNF

time	location	date	chaname	chadate

Team members play match
1NF

time	location	date	role	score	PID	Pname	PDOB	number	picture

2NF 3NF BCNF

time	location	date	role	score	PID

PID	Pname	PDOB	number	picture

Team members lead match
1NF

time	location	date	captain	PID	Pname	PDOB	number	picture

2NF 3NF BCNF

time	location	date	captain	PID

PID	Pname	PDOB	number	picture