# Relational Schema

- User (username, password)
- Sports Association Manager (SA-ID, SA username, name)

Sports Association Manager.SA username references User

- Match (Match-ID, SA-ID, SA username, Stadium-ID, start time, end time, number of attendees)

Match.SA-ID references Sports Association Manager

Match.SA username references Sports Association Manager

Match.Stadium-ID references Stadium

- Club (Club-ID, admin username, name, location)

Club.admin username references Admin

- Club Representative (representative-ID, username, Club-ID, name)

Club Representative.username references User

Club Representative.Club-ID references Club

- Stadium (Stadium-ID, admin username, name, capacity, location, status)

Stadium.admin username references Admin

- Stadium Manager (SMID, username, Stadium-ID, name)

Stadium Manager.username references User

Stadium Manager.Stadium-ID references Stadium

- Fans (National ID, fan username, admin username, name, Birth date, address, phone number, status)

Fans.fan username references User

Fans.admin username references Admin

- Tickets (Ticket-ID, Match-ID, National ID, fan username, status)

Tickets.Match-ID references Match

Tickets.National ID references Fans

Tickets.fan username references Fans

- Admin (username)

Admin.username references User

- Attends (Match-ID, National ID, fan username)

Attends.Match-ID references Match

Attends.National ID references Fans

Attends.fan username references Fans

- Plays VS (Match-ID, Club1-ID, Club2-ID)

Plays VS.Match-ID references Match

Plays VS.Club1-ID references Club

Plays VS.Club2-ID references Club

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# ERD Report

The use of inheritance in our ERD:

-At the beginning and as mentioned that everyone who has access to the system is considered a **user**, So we made a superclass **User** who has two attributes username which is considered the
primary key and password.

- As subclasses for the User superclass, we have 5 classes:

1- **Fans** who have a national ID number which is considered the primary key ,name, birth date,
address, status, and phone number in addition to the attributes inherited from the super class.
2-**Sports Association manager** which has an SA ID which is considered the primary key and name in addition to the attributes inherited from the super class.
3-**Stadium manager** who has a name and SM ID which is considered the primary key in addition to the attributes inherited from the super class.
but the Stadium manager is also considered as a weak entity for the Strong entity Stadium which
we will mention later.
4-**Club Representative** with a name and Representative ID which is considered the primary key
in addition to the attributes inherited from the super class.
**but Club representative** is also considered as a weak entity for the Strong entity Club which we
will mention later.
5-**Admin** who is responsible for adding or deleting different entities to the system and it has attributes inherited from the superclass.

-In addition to these entities, we have other entities:

-**Club** which has a Club ID which is considered the primary key , name and location and the

**club** has a representative called club representative which is considered a weak entity for it as we
mentioned above.
-**Stadium** which has a Stadium ID which is considered the primary key , name, capacity, location
and status and the **Stadium** has a manager called Stadium manager is considered a weak entity
for it as we mentioned above.
-**Matches** which have a Match ID which is considered the primary key, starting time, ending time and number of attendees and the Matches have **tickets** is considered a weak entity for it.
-**Tickets** which have a Ticket ID which is considered the primary key and Status.

-Relations between entities:

1) Each match is managed by exactly one sports association manager, and a sports manager can manage 0 to many matches.
2) Each fan can attend 0 to many matches, and each match can be attended by 0 to many fans.
3) Each fan can buy 0 to many tickets, and each ticket can be bought by exactly one fan.
4) Each stadium has exactly one stadium manager, and each stadium manager is there for exactly one stadium.
5) Each stadium can host 0 to many matches, and each match can be hosted in exactly one stadium.
6) Each stadium has 0 to many tickets, and each ticket is there for exactly one stadium.
7) Each club has exactly one club representative, and each club representative is there for exactly one club.
8) Exactly one club can play a match vs another club. Moreover, each club can play many matches, and matches are played by exactly two clubs.
9) The System admin can alter(add or delete) 0 to many stadiums, fans, and clubs. A stadium, fan, or club can be altered by exactly one system admin.
10) System admin can temporarily block 0 to many fans, and one fan can be blocked by exactly one system admin.

-Note regarding the relational schema:
The ternary relation between club and match means that exactly two clubs can play a match together, and each club can play 0 to many matches. In the relational schema, there are two Club
IDs: Club1-ID and Club2-ID. Club1-ID references the first club playing the match, while Club2-ID references the second club playing the match. In short, each club id references a different club.