# Milestone 1

## Team 69

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**Team #69**

# Database Report

First of all, we created a superclass “User” with the attributes (Name, ID, Username, and Password) of type disjoint and total participation. Class “User” has a Username as the primary key and has the entities (Fan, System Admin, Association Manager, Representative, and Stadium Manager) as its subclasses.

Entity Fan has its attributes (National ID, Phone Number, Birth Date, and Address).

Entities such as System Admin, Representative, Stadium Manager, and Association Manager have no additional attributes as they will inherit the attributes (Name, ID, Username, and Password) from the superclass “User”.

Entity Club has the attributes (Location, ID, and Name) with the attribute “ID” as its primary key.

Entity Matches has the attributes (Starting Time, Ending Time, ID, and No. of attendees) with the attribute “ID” as its primary key.

Entity Stadium has the attributes (name, ID, capacity, location, status) with also the attribute “ID” as the primary key.

We assumed that if the club or stadium got deleted, the stadium manager and the representative will stay recorded in the system and will still have access to the system for future employment. Therefore both entities will not be weak entities due to my assumption.

Lastly, we identified the entity “Tickets” having the attributes (ID, Status) as a weak entity due to its dependency on the entity match, as we assumed the primary key “ID” might not be sufficient enough as it might be repeated on different instances of matches. Therefore we use the entity “Matches” primary key as the identifier.

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# Relationships

- **Matches & Club**

  Ternary recursive relation

  Matches are played by exactly two clubs and the two clubs might play each other in at least one match.

- **Matches & Stadium**

  The stadium can host zero or many matches however the match will be hosted in one stadium.

- **Matches & Tickets**

  **IDENTIFYING RELATION FOR TICKETS**

  Matches can have one or many tickets but a Ticket is associated with only one match.

- **Tickets & Fan**

  A fan can buy zero or many tickets to different matches but a match ticket is bought by exactly one fan.

- **System Admin & Fan (1)**

  The system admin could delete or add zero or many fans however a fan could be added or deleted by only one system admin.

  We added the attribute “Action” for the System Admin to insert whether he will add or delete a fan.

- **System Admin & Fan (2)**

  The system admin could temporarily block zero or many fans however a fan could be temporarily blocked by only one system admin.

- **Association Manager & Matches**

  An association manager could manage one or many matches and a match managed by only one Association Manager.

  We added the attribute “Operation” for the Association Manager to insert whether he will create, edit, or delete a match.

- ## Club & System Admin

  The system admin could delete or add zero or many clubs however a club could be added or deleted by only one system admin.

  We added the attribute “Action” for the System Admin to insert whether he will add or delete a club.

- ## Club & Representative

  Club has only one Representative and also the Representative represents only one club.

- ## Representative & Stadium Manager & Matches

  Ternary relationship
  Representatives can request at least one permission to host a match from the stadium manager and the stadium manager can be requested permission from the representative for at least one match.

- ## System Admin & Stadium

  The system admin could delete or add zero or many Stadiums however a stadium could be added or deleted by only one system admin.

  We added the attribute “Action” for the System Admin to insert whether he will add or delete a Stadium.

- ## Stadium Manager & Stadium

  A manager manages one and only one stadium and also the stadium is managed by only and only one manager.

- ## Tickets & Stadium

  A ticket has only one stadium where the match is hosted and the Stadium has zero or many tickets to a match.

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# Relational Schema

Stadium_Manager (Username, Password, ID, Name)

Representative (Username, Password, ID, Name)

System_Admin (Username, Password, ID, Name)

Association_Manager (Username, Password, ID, Name)

Fan (Username, Password, ID, Name, national ID, Birth Date, Phone Number, Address)

Matches (ID, Starting Time, Ending Time, No. Of Attendees)

Stadium (name, capacity, ID, location, status)

Club (ID, location, name)

Tickets (ID, Match_ID, Status, Fan_Username, Stadium_ID)

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Tickets.Match_ID REFERENCES Matches

Tickets.Fan_Username REFERENCES Fan

Tickets.Stadium_ID REFERENCES Stadium

Stadium_Manages (sUsername, stID)

Stadium_Manages.sUsername REFERENCES Stadium_Manager

Stadium_Manages.stID REFERENCES Stadium

Request (Representative_Username, sUsername, mID, Approval)
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Request.Representative_Username REFERENCES Representative

Request.sUsername REFERENCES Stadium_Manager

Request.mID REFERENCES Matches

Club_has (cID, rUsername)

Club_has.cID REFERENCES Club

Club_has.rUsername REFERENCES Representative

Play (Match_ID, ID1, ID2)
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Play.ID1 REFERENCES Club
Play.ID2 REFERENCES Club
Play. Match_ID REFERENCES Matches

ClubAD (sa_Username, Club_ID, Action)

ClubAD.sa_Username REFERENCES System_Admin

ClubAD.Club_ID REFERENCES Club

StAD (sa_Username, Stadium_ID, Action)

StAD.sa_Username REFERENCES System_Admin

StAD.Stadium_ID REFERENCES Stadium

FAD (sa_Username, fUsername, Action)

FAD.sa_Username REFERENCES System_Admin

FAD.fUsername REFERENCES Fan

Block (sa_Username, fUsername)

Block.sa_Username REFERENCES System_Admin

Block.fUsername REFERENCES Fan

Host (Stadium_ID, Match_ID)

Host.Stadium_ID REFERENCES Stadium

Host.Match_ID REFERENCES Matches

Association_Manages (aID, mID , Operation)

Association_Manages.aID REFERENCES Association Manager

Association_Manages.mID REFERENCES Matches