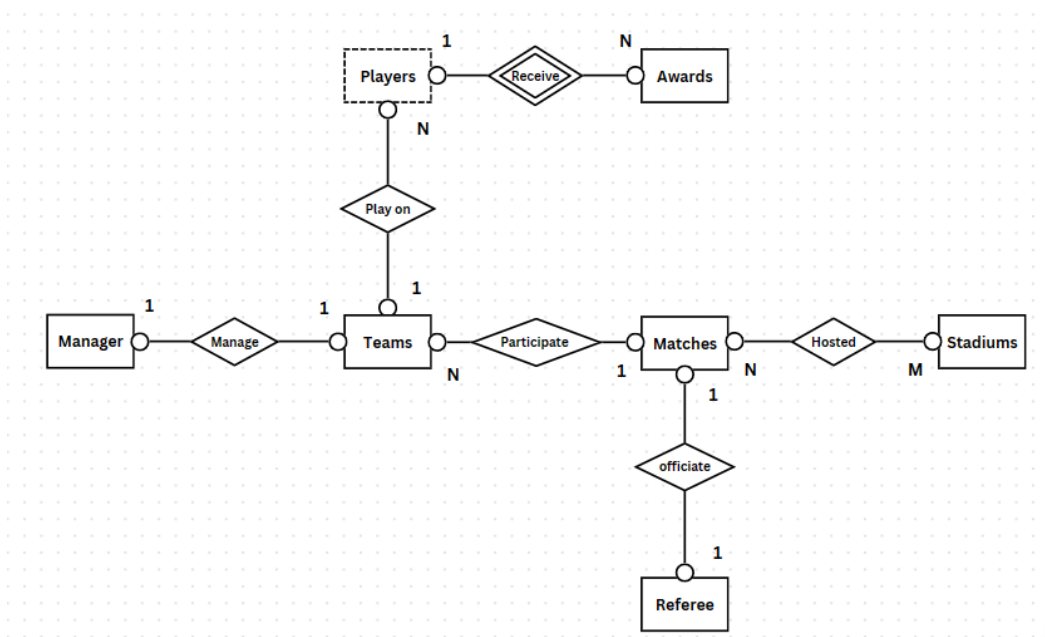# Documentation

Final Assignment
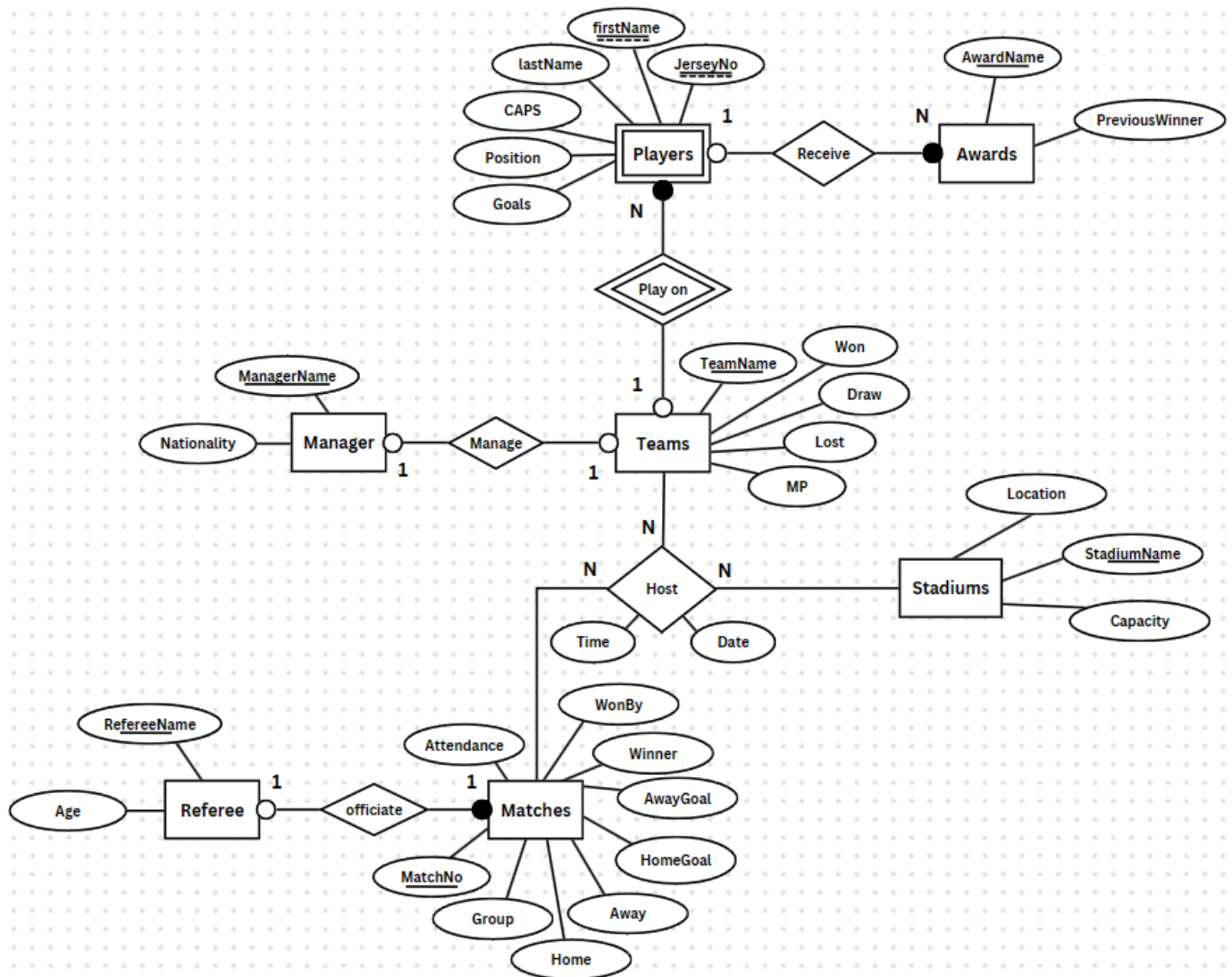**Imam Hasan**
21280896

Introduction

My final assignment has a total of (7 entities) and one N : M entity (Host). The insertion of the data was done through using INSERT, CSV files and by using python MySQL connector. The selected scenarios and activities was done as rough then corrected throughout.

Design of the Database

At the beginning of my er model making I made a rough drawing of the entity sets connected to each other for my assumption and error correcting. This is what the rough drawing looks like :

Keep in mind that this is a (ROUGH SKETCH) for my assumption making. The main idea was trying to not make it as complicated as possible, but this seemed too simple.

The reason I selected the entities was mainly because there was a valid relationship between most of them. The relationship schema :

Teams(TeamName, Won, Draw, Loss, MP)
Manager(ManagerName, Nationality, TeamName)
FK TeamName REF Teams(TeamName)
Players(JerseyNo, firstName, lastName, Position, Goals, Assists, TeamName)
FK TeamName REF Teams(TeamName)
Awards(AwardName, PreviousWinner, Number, TeamCode, TeamName)
FK (Number, TeamCode) REF Players(Number, TeamCode)
FK TeamName REF Teams(TeamName)
Matches(MatchNo, Stage, Home, Outsider, HomeGoal, OutsideGoal, Winner, Wonby, Attendance)
Referees(RefereeName, Age, MatchNo)
FK MatchNo REF Matches(MatchNo)
Stadiums(StadiumName, Location, Capacity)
Host(GameDate, GameTime, TeamName, MatchNo, StadiumNo)
FK (TeamName) REF Teams(TeamName)
FK (MatchNo) REF Matches(MatchNo)
FK (StadiumNo) REF Stadiums(StadiumNo)

Entity Sets :

Entity Set	Keys	Attributes
Players	Number, firstName	lastName, Position, Goals, CAPS
Teams	TeamName	Won, Draw, Lost, MP
Matches	MatchNo	Stage, Home, Outsider, HomeGoal, OutsiderGoal, Winner, WonBy, Attendance
Stadiums	StadiumName	Location, Capacity
Managers	ManagerName	Nationality
Referees	RefereeName	Age
Awards	AwardName	PreviousWinner

Relationship Tables :

Relationship Sets	Between Entity Sets	Attributes
Plays on	Players, Teams	-
Host	Teams, Matches, Stadiums	Date, Time
Manage	Managers, Teams	-
Receive	Players, Awards	-
Officiate	Referees, Matches	-

Constraints Table :

Relationship Sets	Cardinality	Participation / Other Constraints
Plays on	1 : N	Players - Partial, Teams - Partial
Host	N : M	Teams, Matches, Stadiums
Manage	1 : 1	Managers - Partial, Teams
Receive	1 : N	Players - Partial, Awards - Total
Officiate	1 : 1	Referees - Partial, Matches - Total

Description Tables :

Teams

Attribute	Type	Size	Null	Primary Key	Description	Other constraints
TeamName	VARCHAR	20	N	Y	Team Names	-
Won	INT	-	-	N	Team Wins	-
Draw	INT	-	-	N	Team Draw	-
Lost	INT	-	-	N	Team Losses	-
MP	INT	-	-	N	Matches Played	-

Referees

Attribute	Type	Size	Null	Primary Key	Description	Other constraints
RefereeName	VARCHAR	50	N	Y	Referee Name	-
Age	INT	-	-	N	Referee age	-

Managers

Attribute	Type	Size	Null	Primary Key	Description	Other constraints
ManagerName	VARCHAR	40	N	Y	Manager name	-
Nationality	VARCHAR	25	Y	N	Manager Country	-
TeamName	VARCHAR	25	N	N	Managers TeamName	-

Stadiums

Attribute	Type	Size	Null	Primary Key	Description	Other constraints
StadiumName	VARCHAR	30	N	Y	Stadium Name	-
Location	CHAR	20	N	N	Stadium Location	-
Capacity	INT	-	N	N	Stadium capacity	-

Players

Attribute	Type	Size	Null	Primary Key	Description	Other constraints
JerseyNo	INT	-	N	Y	Player Jersey Number	-
Position	CHAR	2	Y	N	Position they play	-
firstName	VARCHAR	30	N	Y	First Name	-
lastName	VARCHAR	30	Y	N	Last Name	-
Goals	INT	-	Y	N	Totals goals they scored	-
Assists	INT	-	Y	N	Total assists	-
TeamName	VARCHAR	25	N	N	Team Name	-

Awards

Attribute	Type	Size	Null	Primary Key	Description	Other constraints
JerseyNo	INT	-	Y	N	Jersey Number	-
firstName	VARCHAR	30	Y	N	First Names of the winner	-
TeamName	VARCHAR	25	N	N	Team Name	-
AwardName	VARCHAR	30	N	Y	Award Name	-
PreviousWinner	VARCHAR	25	Y	N	Previous Winner	-

Matches

Attribute	Type	Size	Null	Primary Key	Description	Other constraints
MatchNo	CHAR	3	N	Y	Match Number	
Stage	CHAR	20	Y	N	Group Stage	
Home	VARCHAR	20	N	N	Home team	
Outsider	VARCHAR	20	N	N	Away team	
HomeGoals	INT	-	N	N	Home goals	
OutsiderGoals	INT	-	N	N	Away goals	
Winner	VARCHAR	20	N	N	Winner team	
Wonby	CHAR	20	Y	N	Winning method	
Attendance	INT	-	N	N	People attending	
RefereeName	VARCHAR	50	N	N	Referee officiate	

This is the description for the many to many relationships table :

Host

Attribute	Type	Size	Null	Primary Key	Description	Other constraints
GameDate	DATE	-	N	N	Match date	-
GameTime	TIME	-	N	N	Match time	-
MatchNo	CHAR	3	N	N		-
TeamName	CHAR	25	N	N	Team Name	
StadiumName	CHAR	30	N	N	Award Name	-

Selected Entities

1) Teams :- Since I had attributes that only relates to the team to avoid breaking normalisation rules, I made it a separate entity. Relating to the players and matches
2) Referees :- Since referees were related to matches and had its own attributes, I made it a separate entity.
3) Managers :- Unique managers for every team and had its own attributes.
4) Stadiums :- Matches held in many stadiums and have their own attributes.
5) Players :- Related to a team and had many of its own attributes.
6) Awards :- Related to players since awards are given to them.
7) Matches :- Related to teams since two teams compete to have a winner, loser, draw based on the goal difference.
8) Host :- M: N table relating Stadiums, Matches, Teams.

Assumptions(Design)

- The foreign key placed must make sense within the table.
- Composite is not the best idea for normalisations.

Implementation Of Database

All my tables use CREATE query to create tables. Everything is on the tables1.sql file. Here is the evidence of implementation.

```sql
/*Creating Matches Table*/
CREATE TABLE Matches(
        MatchNo CHAR(3) NOT NULL,
        Stage CHAR(20),
        HomeTeam VARCHAR(20) NOT NULL,
        OutsiderTeam VARCHAR(20) NOT NULL,
        HomeGoals INT NOT NULL,
        OutsiderGoals INT NOT NULL,
        Winner VARCHAR(20) NOT NULL,
        Wonby CHAR(20),
        Attendance INT NOT NULL,
        RefereeName VARCHAR(50) NOT NULL,
        PRIMARY KEY(MatchNo),
        FOREIGN KEY (RefereeName) REFERENCES Referees(RefereeName)
        );

/*Creating Stadiums Table*/
CREATE TABLE Stadiums(
        StadiumName VARCHAR(30) NOT NULL,
        Location CHAR(20) NOT NULL,
        Capacity INT NOT NULL,
        PRIMARY KEY(StadiumName)
        );
```

```sql
/*Creating Referees Table*/
CREATE TABLE Referees(
    RefereeName VARCHAR(50) NOT NULL,
    Age INT,
    PRIMARY KEY(RefereeName)
);

/*Creating Teams Table*/
CREATE TABLE Teams(
        TeamName VARCHAR(25) NOT NULL,
        Won INT,
        Draw INT,
        Lost INT,
        MP INT,
        PRIMARY KEY(TeamName)
        );
```

```sql
/*Creating Host Table*/
CREATE TABLE Host(
        GameDate DATE NOT NULL,
        GameTime TIME NOT NULL,
        MatchNo CHAR(3) NOT NULL,
        TeamName CHAR(25) NOT NULL,
        StadiumName CHAR(30) NOT NULL,
        FOREIGN KEY (TeamName) REFERENCES Teams(TeamName),
        FOREIGN KEY (MatchNo) REFERENCES Matches(MatchNo),
        FOREIGN KEY (StadiumName) REFERENCES Stadiums(StadiumName)
        );

/*Creating Managers Table*/
CREATE TABLE Managers(
    ManagerName VARCHAR(40) NOT NULL,
    Nationality VARCHAR(25),
    TeamName VARCHAR(25) NOT NULL,
    PRIMARY KEY(ManagerName),
    FOREIGN KEY (TeamName) REFERENCES Teams(TeamName) ON DELETE CASCADE
);
```

```sql
/*Creating Players Table*/
CREATE TABLE Players (
    JerseyNo INT NOT NULL,
    Position CHAR(2),
    firstName VARCHAR(30) NOT NULL,
    lastName VARCHAR(30),
    Goals INT,
    CAPS INT,
    TeamName VARCHAR(25) NOT NULL,
    PRIMARY KEY (JerseyNo, firstName),
    FOREIGN KEY (TeamName) REFERENCES Teams(TeamName) ON DELETE CASCADE
);

/*Creating Awards Table*/
CREATE TABLE Awards (
    JerseyNo INT,
    firstName VARCHAR(30),
    TeamName VARCHAR(25) NOT NULL,
    AwardName VARCHAR(40) NOT NULL,
    PreviousWinner VARCHAR(30),
    PRIMARY KEY (AwardName),
    FOREIGN KEY (JerseyNo, firstName) REFERENCES Players(JerseyNo, firstName) ON DELETE SET NULL,
    FOREIGN KEY (TeamName) REFERENCES Teams(TeamName)
);
```

```
mysql> \. tables1.sql
Query OK, 0 rows affected (0.06 sec)

Query OK, 0 rows affected (0.04 sec)

Query OK, 0 rows affected (0.16 sec)

Query OK, 0 rows affected (0.06 sec)

Query OK, 0 rows affected (0.11 sec)

Query OK, 0 rows affected (0.08 sec)

Query OK, 0 rows affected (0.08 sec)

Query OK, 0 rows affected (0.09 sec)
```

Data Insertion & Sources

Inserting data into Teams Table :

```
mysql> LOAD DATA LOCAL INFILE 'Teams.csv' INTO TABLE Teams FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 32 rows affected (0.03 sec)
Records: 32  Deleted: 0  Skipped: 0  Warnings: 0
```

Inserting data into Referees Table :

```
mysql> LOAD DATA LOCAL INFILE 'Referees.csv' INTO TABLE Referees FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 27 rows affected (0.04 sec)
Records: 27  Deleted: 0  Skipped: 0  Warnings: 0
```

Inserting data into Managers Table :

```
mysql> LOAD DATA LOCAL INFILE 'Managers.csv' INTO TABLE Managers FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 32 rows affected (0.01 sec)
Records: 32  Deleted: 0  Skipped: 0  Warnings: 0
```

Inserting data into Stadiums Table :

```
mysql> LOAD DATA LOCAL INFILE 'Stadiums.csv' INTO TABLE Stadiums FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 10 rows affected (0.02 sec)
Records: 10  Deleted: 0  Skipped: 0  Warnings: 0
```

Inserting data into Players Table :

```
mysql> LOAD DATA LOCAL INFILE 'Players.csv' INTO TABLE Players FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 736 rows affected (0.04 sec)
Records: 736  Deleted: 0  Skipped: 0  Warnings: 0
```

Inserting data into Awards Table :

```
mysql> \. Awards.sql
Query OK, 9 rows affected (0.01 sec)
Records: 9  Duplicates: 0  Warnings: 0
```

Inserting data into Matches Table :

```
mysql> LOAD DATA LOCAL INFILE 'Matches.csv' INTO TABLE Matches FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 64 rows affected (0.04 sec)
Records: 64  Deleted: 0  Skipped: 0  Warnings: 0
```

Inserting data into Host Table :

```
mysql> LOAD DATA LOCAL INFILE 'Host.csv' INTO TABLE Host FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 128 rows affected (0.03 sec)
Records: 128  Deleted: 0  Skipped: 0  Warnings: 0
```

All the Tables :

```
mysql> SHOW TABLES;
+--------------------------------+
| Tables_in_FinalAssignment_21280896 |
+--------------------------------+
| Awards                         |
| Host                           |
| Managers                       |
| Matches                        |
| Players                        |
| Referees                       |
| Stadiums                       |
| Teams                          |
+--------------------------------+
8 rows in set (0.00 sec)
```

Data Sources

Most of the data that I used was from using Wikipedia and the official FIFA website. I would like to mention that out of the 32 countries only 2-3 countries did not have players goals details which is due to no record keeping of the data. The evidence above for inserting uses CSV file for the majority of the tables and SQL file for one Table. The sample data I used for testing has random data fitting the datatypes. Here are the main sources I used to gather my data :

- Official FIFA website :- https://www.fifa.com/fifaplus/en/articles/fifa-womens-world-cup-australia-and-new-zealand-2023-match-schedule-football-soccer
- Wikipedia :- https://en.wikipedia.org/wiki/2023_FIFA_Women%27s_World_Cup
- PDF File(Players) :- Added into the file.

Designing and Implementing Queries

Here are my queries. That I implemented one by one. The queries are all in the Queries.sql FILE. Initially I used the . Here are the queries :

1) Gets the sum of goals scored by players in a team and then grouping them by Team Name.

```
mysql> SELECT TeamName, SUM(Goals) AS TotalGoals FROM Players GROUP BY TeamName;
+--------------------+------------+
| TeamName           | TotalGoals |
+--------------------+------------+
| Argentina          |         83 |
| Australia          |        249 |
| Brazil             |        311 |
| Canada             |        333 |
| China              |        204 |
| Colombia           |        164 |
| Costa Rica         |        169 |
| Denmark            |        202 |
| England            |        127 |
| France             |        230 |
| Germany            |        223 |
| Haiti              |          0 |
| Italy              |        150 |
| Jamaica            |          0 |
| Japan              |         93 |
| Morocco            |         73 |
| Netherlands        |        254 |
| New Zealand        |         97 |
| Nigeria            |          0 |
| Norway             |        189 |
| Panama             |          0 |
| Phillipines        |        130 |
| Portugal           |        143 |
| Republic of Ireland |        97 |
| South Africa       |        194 |
| South Korea        |        204 |
| Spain              |        200 |
| Sweden             |        272 |
| Switzerland        |        208 |
| USA                |        333 |
| Vietnam            |        208 |
| Zambia             |          0 |
+--------------------+------------+
32 rows in set (0.00 sec)
```

2) Concatenate to add both first and last names to makeup full name of players in a specific team and ascending order of jersey number.

```
mysql> SELECT TeamName, JerseyNo, Position, CONCAT(firstName, ' ', lastName) AS FullName, Goals, CAPS FROM Players WHERE TeamName = 'Australia'
    ORDER BY JerseyNo ASC;
+-----------+----------+----------+--------------------+-------+------+
| TeamName  | JerseyNo | Position | FullName           | Goals | CAPS |
+-----------+----------+----------+--------------------+-------+------+
| Australia |        1 | GK       | Lydia Williams     |     0 |  102 |
| Australia |        2 | DF       | Courtney Nevin     |     0 |   24 |
| Australia |        3 | DF       | Aivi Luik          |     1 |   43 |
| Australia |        4 | DF       | Clare Polkinghorne |    16 |  163 |
| Australia |        5 | FW       | Cortnee Vine       |     3 |   24 |
| Australia |        6 | MF       | Clare Wheeler      |     0 |   14 |
| Australia |        7 | DF       | Steph Catley       |     5 |  117 |
| Australia |        8 | MF       | Alex Chidiac       |     2 |   30 |
| Australia |        9 | FW       | Caitlin Foord      |    30 |  116 |
| Australia |       10 | MF       | Emily Van Egmond   |    31 |  135 |
| Australia |       11 | FW       | Mary Fowler        |    11 |   43 |
| Australia |       12 | GK       | Teagan Micah       |     0 |   14 |
| Australia |       13 | MF       | Tameka Yallop      |    12 |  115 |
| Australia |       14 | DF       | Alanna Kennedy     |     9 |  114 |
| Australia |       15 | DF       | Clare Hunt         |     0 |   13 |
| Australia |       16 | FW       | Hayley Raso        |    15 |   78 |
| Australia |       17 | FW       | Kyah Simon         |    29 |  111 |
| Australia |       18 | GK       | Mackenzie Arnold   |     0 |   42 |
| Australia |       19 | MF       | Katrina Gorry      |    17 |  101 |
| Australia |       20 | FW       | Sam Kerr           |    64 |  125 |
| Australia |       21 | DF       | Ellie Carpenter    |     3 |   69 |
| Australia |       22 | DF       | Charlotte Grant    |     1 |   19 |
| Australia |       23 | MF       | Kyra Coonevcross   |     0 |   35 |
+-----------+----------+----------+--------------------+-------+------+
23 rows in set (0.00 sec)
```

3) Uses subqueries to find the teams that are managed by managers from a specific nationality.

```
mysql> SELECT * FROM Teams WHERE TeamName IN (SELECT TeamName FROM Managers WHERE Nationality = 'Sweden');
+-----------+------+------+------+------+
| TeamName  | Won  | Draw | Lost | MP   |
+-----------+------+------+------+------+
| Sweden    |    7 |    6 |    0 |    1 |
| Brazil    |    3 |    1 |    1 |    1 |
| Australia |    7 |    4 |    0 |    3 |
+-----------+------+------+------+------+
3 rows in set (0.02 sec)
```

4) Changes date & time format and only gets the matches hosted before 8:00am.

```
mysql> SELECT DATE_FORMAT(GameDate, '%d-%M-%Y') AS GmDate, TIME_FORMAT(GameTime, '%h:%i %p') AS GmTime, MatchNo, TeamName, StadiumName FROM Host
    WHERE GameTime < '08:00:00';
+----------------+----------+---------+-------------+-------------------------------+
| GmDate         | GmTime   | MatchNo | TeamName    | StadiumName                   |
+----------------+----------+---------+-------------+-------------------------------+
| 21-July-2023   | 06:30 AM | 3       | Nigeria     | Melbourne Rectangular Stadium |
| 21-July-2023   | 06:30 AM | 3       | Canada      | Melbourne Rectangular Stadium |
| 22-July-2023   | 05:00 AM | 6       | USA         | Eden Park                     |
| 22-July-2023   | 05:00 AM | 6       | Vietnam     | Eden Park                     |
| 25-July-2023   | 06:00 AM | 16      | Colombia    | Allianz Stadium               |
| 25-July-2023   | 06:00 AM | 16      | South Korea | Allianz Stadium               |
| 27-July-2023   | 05:00 AM | 22      | USA         | Wellington Regional Stadium   |
| 27-July-2023   | 05:00 AM | 22      | Netherlands | Wellington Regional Stadium   |
| 28-July-2023   | 04:00 AM | 25      | Argentina   | Forsyth Barr Stadium          |
| 28-July-2023   | 04:00 AM | 25      | South Africa| Forsyth Barr Stadium          |
| 06-August-2023 | 06:00 AM | 51      | Netherlands | Allianz Stadium               |
| 06-August-2023 | 06:00 AM | 51      | South Africa| Allianz Stadium               |
| 08-August-2023 | 05:00 AM | 57      | Spain       | Wellington Regional Stadium   |
| 08-August-2023 | 05:00 AM | 57      | Netherlands | Wellington Regional Stadium   |
+----------------+----------+---------+-------------+-------------------------------+
14 rows in set (0.00 sec)
```

5) Uses count to find the number and join to connect both Teams and Host

```
mysql> SELECT Teams.TeamName, COUNT(*) AS MatchesPlayed FROM Teams JOIN Host ON Teams.TeamName = Host.TeamName GROUP BY Teams.TeamName;
+--------------------+---------------+
| TeamName           | MatchesPlayed |
+--------------------+---------------+
| Argentina          |             3 |
| Australia          |             7 |
| Brazil             |             3 |
| Canada             |             3 |
| China              |             3 |
| Colombia           |             5 |
| Costa Rica         |             3 |
| Denmark            |             4 |
| England            |             7 |
| France             |             5 |
| Germany            |             3 |
| Haiti              |             3 |
| Italy              |             3 |
| Jamaica            |             4 |
| Japan              |             5 |
| Morocco            |             4 |
| Netherlands        |             5 |
| New Zealand        |             3 |
| Nigeria            |             4 |
| Norway             |             4 |
| Panama             |             3 |
| Phillipines        |             3 |
| Portugal           |             3 |
| Republic of Ireland|             3 |
| South Africa       |             4 |
| South Korea        |             3 |
| Spain              |             7 |
| Sweden             |             7 |
| Switzerland        |             4 |
| USA                |             4 |
| Vietnam            |             3 |
| Zambia             |             3 |
+--------------------+---------------+
32 rows in set (0.00 sec)
```

6) Used this query to see how many players I had missing (look at the issues section below).

```
mysql> SELECT TeamName, COUNT(*) AS NumberOfPlayers FROM Players GROUP BY TeamName;
+---------------------+-----------------+
| TeamName            | NumberOfPlayers |
+---------------------+-----------------+
| Argentina           |              23 |
| Australia           |              23 |
| Brazil              |              23 |
| Canada              |              23 |
| China               |              23 |
| Colombia            |              23 |
| Costa Rica          |              23 |
| Denmark             |              23 |
| England             |              23 |
| France              |              23 |
| Germany             |              23 |
| Haiti               |              23 |
| Italy               |              23 |
| Jamaica             |              23 |
| Japan               |              23 |
| Morocco             |              23 |
| Netherlands         |              23 |
| New Zealand         |              23 |
| Nigeria             |              23 |
| Norway              |              23 |
| Panama              |              23 |
| Phillipines         |              23 |
| Portugal            |              23 |
| Republic of Ireland |              23 |
| South Africa        |              23 |
| South Korea         |              23 |
| Spain               |              23 |
| Sweden              |              23 |
| Switzerland         |              23 |
| USA                 |              23 |
| Vietnam             |              23 |
| Zambia              |              23 |
+---------------------+-----------------+
32 rows in set (0.00 sec)
```

7) Using average to find out the average of the referees.

```
mysql> SELECT AVG(Age) AS Avg_RefereeAge FROM Referees;
+----------------+
| Avg_RefereeAge |
+----------------+
|        37.8519 |
+----------------+
1 row in set (0.00 sec)
```

Functionality with Advanced Concepts

Here are the stored procedures and triggers to increase the functionality of the database.

1) **Procedure1.sql :- Takes Team Name as input and gives out the number of matches they won.**

```
 1 /* 1) Procedure using both in and out parameter resulting the number of team wins */
 2 DELIMITER //
 3
 4 CREATE PROCEDURE TeamWins(IN TName VARCHAR(25), OUT Wins INT)
 5 BEGIN
 6     SELECT Won INTO Wins
 7     FROM Teams
 8     WHERE TeamName = TName;
 9 END //
10
11 DELIMITER ;
12
13
14 /* CALL TeamWins('Spain', @result); SELECT @result; */
```

```
mysql> CALL TeamWins('Spain', @result);
Query OK, 1 row affected (0.01 sec)

mysql> SELECT @result;
+---------+
| @result |
+---------+
|       7 |
+---------+
1 row in set (0.00 sec)
```

2) Procedure2.sql :- Takes everything from players as insert values.

```sql
1 /* 2) Procedure using in parameter to insert players */
2 DELIMITER //
3 CREATE PROCEDURE AddPlayer(IN JNo VARCHAR(2), IN Ption CHAR(2), IN fName VARCHAR(30), IN lName VARCHAR(30), IN G INT, IN C INT, IN TName VARCHAR(25))
4 BEGIN
5         INSERT INTO Players (JerseyNo, Position, firstName, lastName, Goals, CAPS, TeamName)
6         VALUES (JNo, Ption, fName, lName, G, C, TName);
7 END;
8 //
9 DELIMITER ;
10
11 /* CALL AddPlayer(69, 'GK', 'Rawad', 'Hassan', 99, 199, 'Morocco'); */
```

```
mysql> CALL AddPlayer(69, 'GK', 'Rawad', 'Hassan', 99, 199, 'Morocco');
Query OK, 1 row affected (0.02 sec)

mysql> SELECT TeamName, JerseyNo, Position, CONCAT(firstName, ' ', lastName) AS FullName, Goals, CAPS FROM Players WHERE TeamName = 'Morocco' ORDER BY JerseyNo ASC;
+----------+----------+----------+-----------------------------+-------+------+
| TeamName | JerseyNo | Position | FullName                    | Goals | CAPS |
+----------+----------+----------+-----------------------------+-------+------+
| Morocco  |        1 | GK       | Khadija Er-Rmichi           |     0 |   87 |
| Morocco  |        2 | DF       | Zineb Redouani              |     2 |   41 |
| Morocco  |        3 | DF       | Nouhaila Benzina            |     0 |   18 |
| Morocco  |        4 | MF       | Sarah Kassi                 |     0 |    8 |
| Morocco  |        5 | DF       | Nesryne El Chad             |     2 |   23 |
| Morocco  |        6 | MF       | Elodie Nahla Nakkach        |     0 |   41 |
| Morocco  |        7 | FW       | Ghizlane Chebbak            |    21 |   67 |
| Morocco  |        8 | MF       | Salma Amani                 |     7 |   35 |
| Morocco  |        9 | FW       | Ibtissam Jraidi             |    13 |   41 |
| Morocco  |       10 | DF       | Najat Badri                 |     5 |   33 |
| Morocco  |       11 | FW       | Fatima Tagnaoijt            |     5 |   22 |
| Morocco  |       12 | GK       | Assia Zouhair               |     0 |   18 |
| Morocco  |       13 | DF       | Sabah Seghir                |     1 |   22 |
| Morocco  |       14 | DF       | Rkia Mazrouai               |     0 |    2 |
| Morocco  |       15 | FW       | Fatima Zohra Gharbi Berrima |     0 |    3 |
| Morocco  |       16 | MF       | Anissa Lahmari              |     1 |    7 |
| Morocco  |       17 | DF       | Hanane Ait El Haj           |     3 |   77 |
| Morocco  |       18 | MF       | Kenza Chapelle              |     0 |    3 |
| Morocco  |       19 | FW       | Sakina Ouzraoui             |     0 |   13 |
| Morocco  |       20 | MF       | Sofia Bouftini              |     0 |    9 |
| Morocco  |       21 | DF       | Yasmin-Katie M'Rabet        |     3 |   22 |
| Morocco  |       22 | GK       | Ines Chiama Arouaissa       |     0 |    5 |
| Morocco  |       23 | FW       | Rosella Annie Ayane         |    10 |   27 |
| Morocco  |       69 | GK       | Rawad Hassan                |    99 |  199 |
+----------+----------+----------+-----------------------------+-------+------+
24 rows in set (0.00 sec)
```

3) Trigger1.sql :- Takes data inserted from matches and updates the Teams table.

```sql
1 /* 4)changes teams table data after matches table inserted */
2 DELIMITER //
3
4 CREATE TRIGGER UpdateTeamStats AFTER INSERT ON Matches
5 FOR EACH ROW
6 BEGIN
7     IF NEW.Winner = NEW.HomeTeam THEN
8         -- Update the winning team--
9         UPDATE Teams
10        SET Won = Won + 1,
11            MP = MP + 1
12        WHERE TeamName = NEW.HomeTeam;
13
14        -- Update the losing team--
15        UPDATE Teams
16        SET Lost = Lost + 1,
17            MP = MP + 1
18        WHERE TeamName = NEW.OutsiderTeam;
19    ELSEIF NEW.Winner = NEW.OutsiderTeam THEN
20        -- Update the winning team--
21        UPDATE Teams
22        SET Won = Won + 1,
23            MP = MP + 1
24        WHERE TeamName = NEW.OutsiderTeam;
25
26        -- Update the losing team--
27        UPDATE Teams
28        SET Lost = Lost + 1,
29            MP = MP + 1
30        WHERE TeamName = NEW.HomeTeam;
31    ELSEIF NEW.Winner = 'DRAW' THEN
32        -- Update for a draw--
33        UPDATE Teams
34        SET Draw = Draw + 1,
35            MP = MP + 1
36        WHERE TeamName IN (NEW.HomeTeam, NEW.OutsiderTeam);
37    END IF;
38 END;
39
40 //
41
42 DELIMITER ;
43
44 /* INSERT INTO Matches (MatchNo, HomeTeam, OutsiderTeam, HomeGoals, OutsiderGoals, Winner, Wonby, Attendance, RefereeName) VALUES ('126', 'Argentina',
   'Australia', 4, 4, 'DRAW', '-', 50000, 'Oh-Hyeon Jeong'); */
```

Before:

TeamName	Won	Draw	Lost	MP
Argentina	9	3	1	14
Australia	12	7	10	18
Brazil	3	1	1	1
Canada	3	1	1	1
China	3	1	0	2
Colombia	5	3	0	2

After :

TeamName	Won	Draw	Lost	MP
Argentina	9	4	1	15
Australia	12	8	10	19
Brazil	3	1	1	1
Canada	3	1	1	1
China	3	1	0	2
Colombia	5	3	0	2

4) Views1.sql :- Uses inner join to connect players and awards to give New PlayerAwards.

```sql
1  /* 3)View Playerawards with more attributes */
2  CREATE VIEW PlayerAwards
3  AS SELECT P.JerseyNo, P.firstName, P.lastName, A.AwardName
4  FROM Players P
5  JOIN Awards A
6  ON P.JerseyNo = A.JerseyNo AND P.firstName = A.firstName ORDER BY P.JerseyNo;
```

```
mysql> SELECT * FROM PlayerAwards;
+----------+----------------+--------------------+-----------------------------+
| JerseyNo | firstName      | lastName           | AwardName                   |
+----------+----------------+--------------------+-----------------------------+
|        1 | Mary Alexandra | Earps              | Golden Glove Award          |
|        4 | Saki           | Kumagai            | FIFA Fair Play Award        |
|        6 | Aitana         | Bonma Conca        | Golden Ball Award           |
|        7 | Hinata         | Miyazawa           | Golden Boot Award           |
|       10 | Jennifer       | Hermoso Fuentes    | Silver Ball Award           |
|       11 | Alexandra      | Popp-Hoppe         | Bronze Boot Award           |
|       11 | Kadidiatou     | Diani              | Silver Boot Award           |
|       13 | Amanda         | Ilestedt           | Bronze Ball Award           |
|       18 | Salma Celeste  | Paralluelo Ayingono| FIFA Best Young Player Award|
+----------+----------------+--------------------+-----------------------------+
9 rows in set (0.00 sec)
```

Python Connection

The implementation of python to run the already defined queries above and perform operations such as INSERT/UPDATE/DELETE.

Connecting to MySQL server :-

```
(base) imam@imam-VirtualBox:~/Desktop/FinalAssignment$ python3
Python 3.9.13 (main, Aug 25 2022, 23:26:10)
[GCC 11.2.0] :: Anaconda, Inc. on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import mysql.connector
>>> conn = mysql.connector.connect(host='localhost', database='FinalAssignment_21280896', user='Imam', password='Tianjio32@1')
```

Query1 :-

```python
3  cursor = conn.cursor()
4
5  # 1) Gets the total goals scored by all the players in each Team:
6  query = """
7          SELECT TeamName, SUM(Goals) AS TotalGoals
8          FROM Players GROUP BY TeamName;
9  """
10
11 cursor.execute(query)
12
13 result= cursor.fetchall()
14
15 print("Result :", result)
```

```
Result : [('Argentina', Decimal('83')), ('Australia', Decimal('249')), ('Brazil', Decimal('311')), ('Canada', Decimal('333')), ('China',
Decimal('204')), ('Colombia', Decimal('164')), ('Costa Rica', Decimal('169')), ('Denmark', Decimal('202')), ('England', Decimal('127'))
, ('France', Decimal('230')), ('Germany', Decimal('223')), ('Haiti', Decimal('0')), ('Italy', Decimal('150')), ('Jamaica', Decimal('0'))
, ('Japan', Decimal('93')), ('Morocco', Decimal('73')), ('Netherlands', Decimal('254')), ('New Zealand', Decimal('97')), ('Nigeria', Dec
imal('0')), ('Norway', Decimal('189')), ('Panama', Decimal('0')), ('Phillipines', Decimal('130')), ('Portugal', Decimal('143')), ('Repub
lic of Ireland', Decimal('97')), ('South Africa', Decimal('194')), ('South Korea', Decimal('204')), ('Spain', Decimal('200')), ('Sweden'
, Decimal('272')), ('Switzerland', Decimal('208')), ('USA', Decimal('333')), ('Vietnam', Decimal('208')), ('Zambia', Decimal('0'))]
```

Query2 :-

```python
18 # 2) Using concat and finding one specific country players ordered by JerseyNo
19 query = """
20         SELECT TeamName, JerseyNo, Position, CONCAT(firstName, ' ', lastName) AS FullName, Goals, CAPS
21         FROM Players
22         WHERE TeamName = 'Australia' ORDER BY JerseyNo ASC;
23 """
24
25 cursor.execute(query)
26
27 result1= cursor.fetchall()
28
29 print("Result 1:", result1)
```

```
Result 1: [('Australia', 1, 'GK', 'Lydia Williams', 0, 102), ('Australia', 2, 'DF', 'Courtney Nevin', 0, 24), ('Australia', 3, 'DF', 'Al
vi Lutk', 1, 43), ('Australia', 4, 'DF', 'Clare Polkinghorne', 16, 163), ('Australia', 5, 'FW', 'Cortnee Vine', 3, 24), ('Australia', 6,
'MF', 'Clare Wheeler', 0, 14), ('Australia', 7, 'DF', 'Steph Catley', 5, 117), ('Australia', 8, 'MF', 'Alex Chidiac', 2, 30), ('Austral
ia', 9, 'FW', 'Caitlin Foord', 30, 116), ('Australia', 10, 'MF', 'Emily Van Egmond', 31, 135), ('Australia', 11, 'FW', 'Mary Fowler', 11
, 43), ('Australia', 12, 'GK', 'Teagan Micah', 0, 14), ('Australia', 13, 'MF', 'Tameka Yallop', 12, 115), ('Australia', 14, 'DF', 'Alann
a Kennedy', 9, 114), ('Australia', 15, 'DF', 'Clare Hunt', 0, 13), ('Australia', 16, 'FW', 'Hayley Raso', 15, 78), ('Australia', 17, 'FW
', 'Kyah Simon', 29, 111), ('Australia', 18, 'GK', 'Mackenzie Arnold', 0, 42), ('Australia', 19, 'MF', 'Katrina Gorry', 17, 101), ('Aust
ralia', 20, 'FW', 'Sam Kerr', 64, 125), ('Australia', 21, 'DF', 'Ellie Carpenter', 3, 69), ('Australia', 22, 'DF', 'Charlotte Grant', 1,
19), ('Australia', 23, 'MF', 'Kyra Coonevcross', 0, 35)]
```

Query3:-

```python
27 # 3) Finds the teams managed by a manager from a specific country
28 query = """
29        SELECT * FROM Teams
30        WHERE TeamName IN (SELECT TeamName FROM Managers WHERE Nationality = 'Sweden');
31 """
32
33 cursor.execute(query)
34 result2= cursor.fetchall()
35 print("Result 2:", result2)
```

```
Result 2: [('Sweden', 7, 6, 0, 1), ('Brazil', 3, 1, 1, 1), ('Australia', 7, 4, 0, 3)]
```

Query4:-

```python
37 # 4) Changes date format and time format and finds matches that held before 8am'
38 query = """
39        SELECT DATE_FORMAT(GameDate, '%d-%M-%Y') AS GmDate, TIME_FORMAT(GameTime, '%h:%i %p') AS GmTime, MatchNo, TeamName, StadiumName
40        FROM Host
41        WHERE GameTime < '08:00:00';
42 """
43
44 cursor.execute(query)
45 result3= cursor.fetchall()
46 print("Result 3:", result3)
```

```
Result 3: [('21-July-2023', '06:30 AM', '3', 'Nigeria', 'Melbourne Rectangular Stadium'), ('21-July-2023', '06:30 AM', '3', 'Canada', 'M
elbourne Rectangular Stadium'), ('22-July-2023', '05:00 AM', '6', 'USA', 'Eden Park'), ('22-July-2023', '05:00 AM', '6', 'Vietnam', 'Ede
n Park'), ('25-July-2023', '06:00 AM', '16', 'Colombia', 'Allianz Stadium'), ('25-July-2023', '06:00 AM', '16', 'South Korea', 'Allianz
Stadium'), ('27-July-2023', '05:00 AM', '22', 'USA', 'Wellington Regional Stadium'), ('27-July-2023', '05:00 AM', '22', 'Netherlands', '
Wellington Regional Stadium'), ('28-July-2023', '04:00 AM', '25', 'Argentina', 'Forsyth Barr Stadium'), ('28-July-2023', '04:00 AM', '25
', 'South Africa', 'Forsyth Barr Stadium'), ('06-August-2023', '06:00 AM', '51', 'Netherlands', 'Allianz Stadium'), ('06-August-2023', '
06:00 AM', '51', 'South Africa', 'Allianz Stadium'), ('08-August-2023', '05:00 AM', '57', 'Spain', 'Wellington Regional Stadium'), ('08-
August-2023', '05:00 AM', '57', 'Netherlands', 'Wellington Regional Stadium')]
```

Query5:-

```python
48 # 5) Gets the total NUmbers of matches played by the teams
49 query = """
50        SELECT Teams.TeamName, COUNT(*) AS MatchesPlayed
51        FROM Teams
52        JOIN Host ON Teams.TeamName = Host.TeamName
53        GROUP BY Teams.TeamName;
54 """
55
56 cursor.execute(query)
57 result4= cursor.fetchall()
58 print("Result 4:", result4)
```

```
Result 4: [('Argentina', 3), ('Australia', 7), ('Brazil', 3), ('Canada', 3), ('China', 3), ('Colombia', 5), ('Costa Rica', 3), ('Denmark'
, 4), ('England', 7), ('France', 5), ('Germany', 3), ('Haiti', 3), ('Italy', 3), ('Jamaica', 4), ('Japan', 5), ('Morocco', 4), ('Netherla
nds', 5), ('New Zealand', 3), ('Nigeria', 4), ('Norway', 4), ('Panama', 3), ('Phillipines', 3), ('Portugal', 3), ('Republic of Ireland',
3), ('South Africa', 4), ('South Korea', 3), ('Spain', 7), ('Sweden', 7), ('Switzerland', 4), ('USA', 4), ('Vietnam', 3), ('Zambia', 3)]
```

Query6:-

```python
60 # 6) Used this to find an error in my data
61 query = """
62        SELECT TeamName, COUNT(*) AS NumberOfPlayers
63        FROM Players
64        GROUP BY TeamName;
65 """
66
67 cursor.execute(query)
68 result5= cursor.fetchall()
69 print("Result 5:", result5)
```

```
Result 5: [('Argentina', 23), ('Australia', 23), ('Brazil', 23), ('Canada', 23), ('China', 23), ('Colombia', 23), ('Costa Rica', 23), ('D
enmark', 23), ('England', 23), ('France', 23), ('Germany', 23), ('Haiti', 23), ('Italy', 23), ('Jamaica', 23), ('Japan', 23), ('Morocco',
23), ('Netherlands', 23), ('New Zealand', 23), ('Nigeria', 23), ('Norway', 23), ('Panama', 23), ('Phillipines', 23), ('Portugal', 23), (
'Republic of Ireland', 23), ('South Africa', 23), ('South Korea', 23), ('Spain', 23), ('Sweden', 23), ('Switzerland', 23), ('USA', 23), (
'Vietnam', 23), ('Zambia', 23)]
```

Query7:-

```python
71 # 7) Calculates the average age of the Referees in the Referees Table
72 query = """
73        SELECT AVG(Age) AS Avg_RefereeAge
74        FROM Referees;
75 """
76
77 cursor.execute(query)
78 result6= cursor.fetchall()
79 print("Result 6:", result6)
80
81 cursor.close()
82 conn.close()
```

```
Result 6: [(Decimal('37.8519'),)]
>>>
>>> cursor.close()
True
>>> conn.close()
```

Inserting Data into Players Table:-

```python
import mysql.connector

conn = mysql.connector.connect(host='localhost', database='FinalAssignment_21280896', user='Imam', password='Tianjio32@1')

cursor = conn.cursor()

# Insert Player

insertquery = """
        INSERT INTO Players (JerseyNo, Position, firstName, lastName, Goals, CAPS, TeamName)
        VALUES ('24','DF','Bamster','Wamster','99','160', 'Australia');
"""
cursor.execute(insertquery)
conn.commit()
print("Player Data Inserted")

query = """
        SELECT TeamName, JerseyNo, Position, CONCAT(firstName, ' ', lastName) AS FullName, Goals, CAPS
        FROM Players
        WHERE TeamName = 'Australia' ORDER BY JerseyNo ASC;
"""

cursor.execute(query)

result1= cursor.fetchall()

print("Result 1:", result1)

cursor.close()
conn.close()
```

```
(base) imam@imam-VirtualBox:~/Desktop/FinalAssignment$ python3 InsertPython.py
Player Data Inserted
Result 1: [('Australia', 1, 'GK', 'Lydia Williams', 0, 102), ('Australia', 2, 'DF', 'Courtney Nevin', 0, 24), ('Australia', 3, 'DF', 'Ai
vi Luik', 1, 43), ('Australia', 4, 'DF', 'Clare Polkinghorne', 16, 163), ('Australia', 5, 'FW', 'Cortnee Vine', 3, 24), ('Australia', 6,
 'MF', 'Clare Wheeler', 0, 14), ('Australia', 7, 'DF', 'Steph Catley', 5, 117), ('Australia', 8, 'MF', 'Alex Chidiac', 2, 30), ('Austral
ia', 9, 'FW', 'Caitlin Foord', 30, 116), ('Australia', 10, 'MF', 'Emily Van Egmond', 31, 135), ('Australia', 11, 'FW', 'Mary Fowler', 11
, 43), ('Australia', 12, 'GK', 'Teagan Micah', 0, 14), ('Australia', 13, 'MF', 'Tameka Yallop', 12, 115), ('Australia', 14, 'DF', 'Alann
a Kennedy', 9, 114), ('Australia', 15, 'DF', 'Clare Hunt', 0, 13), ('Australia', 16, 'FW', 'Hayley Raso', 15, 78), ('Australia', 17, 'FW
', 'Kyah Simon', 29, 111), ('Australia', 18, 'GK', 'Mackenzie Arnold', 0, 42), ('Australia', 19, 'MF', 'Katrina Gorry', 17, 101), ('Aust
ralia', 20, 'FW', 'Sam Kerr', 64, 125), ('Australia', 21, 'DF', 'Ellie Carpenter', 3, 69), ('Australia', 22, 'DF', 'Charlotte Grant', 1,
 19), ('Australia', 23, 'MF', 'Kyra Coonevcross', 0, 35), ('Australia', 24, 'DF', 'Bamster Wamster', 99, 160)]
```

Updating Data in the Players Table:-

```python
import mysql.connector

conn = mysql.connector.connect(host='localhost', database='FinalAssignment_21280896', user='Imam', password='Tianjio32@1')

cursor = conn.cursor()

# Update Player

updatequery = """
        UPDATE Players
        SET Goals = 25
        WHERE firstName = 'Bamster' AND lastName = 'Wamster';
"""
cursor.execute(updatequery)
conn.commit()
print("Player Data Updated")

query = """
        SELECT TeamName, JerseyNo, Position, CONCAT(firstName, ' ', lastName) AS FullName, Goals, CAPS
        FROM Players
        WHERE TeamName = 'Australia' ORDER BY JerseyNo ASC;
"""

cursor.execute(query)

result2= cursor.fetchall()

print("Result 2:", result2)

cursor.close()
conn.close()
```

```
(base) imam@imam-VirtualBox:~/Desktop/FinalAssignment$ python3 UpdatePython.py
Player Data Updated
Result 2: [('Australia', 1, 'GK', 'Lydia Williams', 0, 102), ('Australia', 2, 'DF', 'Courtney Nevin', 0, 24), ('Australia', 3, 'DF', 'Ai
vi Luik', 1, 43), ('Australia', 4, 'DF', 'Clare Polkinghorne', 16, 163), ('Australia', 5, 'FW', 'Cortnee Vine', 3, 24), ('Australia', 6,
 'MF', 'Clare Wheeler', 0, 14), ('Australia', 7, 'DF', 'Steph Catley', 5, 117), ('Australia', 8, 'MF', 'Alex Chidiac', 2, 30), ('Austral
ia', 9, 'FW', 'Caitlin Foord', 30, 116), ('Australia', 10, 'MF', 'Emily Van Egmond', 31, 135), ('Australia', 11, 'FW', 'Mary Fowler', 11
, 43), ('Australia', 12, 'GK', 'Teagan Micah', 0, 14), ('Australia', 13, 'MF', 'Tameka Yallop', 12, 115), ('Australia', 14, 'DF', 'Alann
a Kennedy', 9, 114), ('Australia', 15, 'DF', 'Clare Hunt', 0, 13), ('Australia', 16, 'FW', 'Hayley Raso', 15, 78), ('Australia', 17, 'FW
', 'Kyah Simon', 29, 111), ('Australia', 18, 'GK', 'Mackenzie Arnold', 0, 42), ('Australia', 19, 'MF', 'Katrina Gorry', 17, 101), ('Aust
ralia', 20, 'FW', 'Sam Kerr', 64, 125), ('Australia', 21, 'DF', 'Ellie Carpenter', 3, 69), ('Australia', 22, 'DF', 'Charlotte Grant', 1,
 19), ('Australia', 23, 'MF', 'Kyra Coonevcross', 0, 35), ('Australia', 24, 'DF', 'Bamster Wamster', 25, 160)]
```

Deleting Data in the Players Table:-

```python
1 import mysql.connector
2
3 conn = mysql.connector.connect(host='localhost', database='FinalAssignment_21280896', user='Imam', password='Tianjio32@1')
4
5 cursor = conn.cursor()
6
7 # Delete Player
8
9 deletequery = """
10      DELETE FROM Players
11      WHERE firstname = 'Bamster' AND lastname = 'Wamster';
12 """
13 cursor.execute(deletequery)
14 conn.commit()
15 print("Player Data Deleted")
16
17 query = """
18      SELECT TeamName, JerseyNo, Position, CONCAT(firstName, ' ', lastName) AS FullName, Goals, CAPS
19      FROM Players
20      WHERE TeamName = 'Australia' ORDER BY JerseyNo ASC;
21 """
22
23 cursor.execute(query)
24
25 result3= cursor.fetchall()
26
27 print("Result 3:", result3)
28
29 cursor.close()
30 conn.close()
```

```
(base) imam@imam-VirtualBox:~/Desktop/FinalAssignment$ python3 DeletePython.py
Player Data Deleted
Result 3: [('Australia', 1, 'GK', 'Lydia Williams', 0, 102), ('Australia', 2, 'DF', 'Courtney Nevin', 0, 24), ('Australia', 3, 'DF', 'Ai
vi Luik', 1, 43), ('Australia', 4, 'DF', 'Clare Polkinghorne', 16, 163), ('Australia', 5, 'FW', 'Cortnee Vine', 3, 24), ('Australia', 6,
'MF', 'Clare Wheeler', 0, 14), ('Australia', 7, 'DF', 'Steph Catley', 5, 117), ('Australia', 8, 'MF', 'Alex Chidiac', 2, 30), ('Austral
ia', 9, 'FW', 'Caitlin Foord', 30, 116), ('Australia', 10, 'MF', 'Emily Van Egmond', 31, 135), ('Australia', 11, 'FW', 'Mary Fowler', 11
, 43), ('Australia', 12, 'GK', 'Teagan Micah', 0, 14), ('Australia', 13, 'MF', 'Tameka Yallop', 12, 115), ('Australia', 14, 'DF', 'Alann
a Kennedy', 9, 114), ('Australia', 15, 'DF', 'Clare Hunt', 0, 13), ('Australia', 16, 'FW', 'Hayley Raso', 15, 78), ('Australia', 17, 'FW
', 'Kyah Simon', 29, 111), ('Australia', 18, 'GK', 'Mackenzie Arnold', 0, 42), ('Australia', 19, 'MF', 'Katrina Gorry', 17, 101), ('Aust
ralia', 20, 'FW', 'Sam Kerr', 64, 125), ('Australia', 21, 'DF', 'Ellie Carpenter', 3, 69), ('Australia', 22, 'DF', 'Charlotte Grant', 1,
 19), ('Australia', 23, 'MF', 'Kyra Coonevcross', 0, 35)]
```

Business Rules

Business Rules	Description
BR1	Team must have 23 players
BR2	32 teams participating
BR3	Each team should have unique manager

Issues

This was the last bit of my work in this final assignment. Now let's talk about the errors and issues I faced while starting the assignment. The amount of data I had to gather took me too long.

1) After gathering the data while loading the csv files, names with special letters were showing errors. They didn't run which forced me to recorrect over 100-150 rows of data with this error.

23	GK	Zainab Yewande Omoyiola	Balogun	0
1	GK	Cecilie Haust�ker	Fiskerstrand	0
2	DF	Anja	S�nstevold	1
3	DF	Sara Iren Lindbak	H�rte	1
4	DF	Tuva	Hansen	1
5	DF	Guro	Bergsvand	4
6	DF	Maren N�ydal	Mjelde	20
7	MF	Ingrid Syrstad	Engen	6
8	MF	Vilde B�e	Risa	2
9	FW	Karina	S�vik	6
10	FW	Caroline Graham	Hansen	45

```
mysql> LOAD DATA LOCAL INFILE 'Players.csv' INTO TABLE Players FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMIN
ATED BY '\n' IGNORE 1 ROWS;
ERROR 1300 (HY000): Invalid utf8mb4 character string: 'Ang?uca Kuemaschewsk Ara'
```

2) Then I had an issue with Host table when loading the csv file 2 tuples where skipped. After taking a look at the warning I found and changed the error. Spelling mistake Wakaito but it was actually Waikato.

| 2023-07-22 11:00 | | 7 Zambia | FMG Stadium Wakaito |
| 2023-07-22 11:00 | | 7 Japan | FMG Stadium Wakaito |

```
mysql> LOAD DATA LOCAL INFILE 'Host.csv' INTO TABLE Host FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 126 rows affected, 2 warnings (0.05 sec)
Records: 128  Deleted: 0  Skipped: 2  Warnings: 2

mysql> SHOW WARNINGS;
+---------+------+------------------------------------------------------------------------------------------------+
| Level   | Code | Message                                                                                        |
+---------+------+------------------------------------------------------------------------------------------------+
| Warning | 1452 | Cannot add or update a child row: a foreign key constraint fails (`dswork`.`Host`, CONSTRAINT `Host_ibfk_3` FOREIGN KEY (`StadiumName`)
 REFERENCES `Stadiums` (`StadiumName`)) |
| Warning | 1452 | Cannot add or update a child row: a foreign key constraint fails (`dswork`.`Host`, CONSTRAINT `Host_ibfk_3` FOREIGN KEY (`StadiumName`)
 REFERENCES `Stadiums` (`StadiumName`)) |
+---------+------+------------------------------------------------------------------------------------------------+
```

3) Error with making the trigger. The trigger I tried to make was supposed to take data from the matches table and change the wins, losses and draws in the team table. The issue was when Outside team was the winner, the trigger didn't update it as a win but a loss instead. I realised that the issue I was facing was due to the 2 columns (HomeTeam, OutsiderTeam).

```
1  DELIMITER //
2  CREATE TRIGGER update_team_stats AFTER INSERT ON Matches
3  FOR EACH ROW
4  BEGIN
5      UPDATE Teams
6      SET Won = Won + IF(NEW.HomeGoals > NEW.OutsiderGoals, 1, 0),
7          Draw = Draw + IF(NEW.HomeGoals = NEW.OutsiderGoals, 1, 0),
8          Lost = Lost + IF(NEW.HomeGoals < NEW.OutsiderGoals, 1, 0),
9          MP = MP + 1
10     WHERE TeamName = NEW.HomeTeam OR TeamName = NEW.OutsiderTeam;
11 END;
12 //
13 DELIMITER ;
```

4) I had 1 player missing from the England Team and 1 whole country missing (Phillipines) so I used a query to find all the players part of the team and the number of teams. Result was 31 rows which was incorrect due to 32 teams participating in the championship. Corrected the name of the England player and the country phillipines word corrected.

```
| England                |         22 |
31 rows in set (0.00 sec)
```

Ways to improve work : - My entities set could have been a bigger and much more complex relationship and due to the lack of time I could make only 1 trigger which was to calculate the match statistics and add to teams. The inclusion of referee giving red cards and yellow cards, penalty kick scores, Managers previous team.