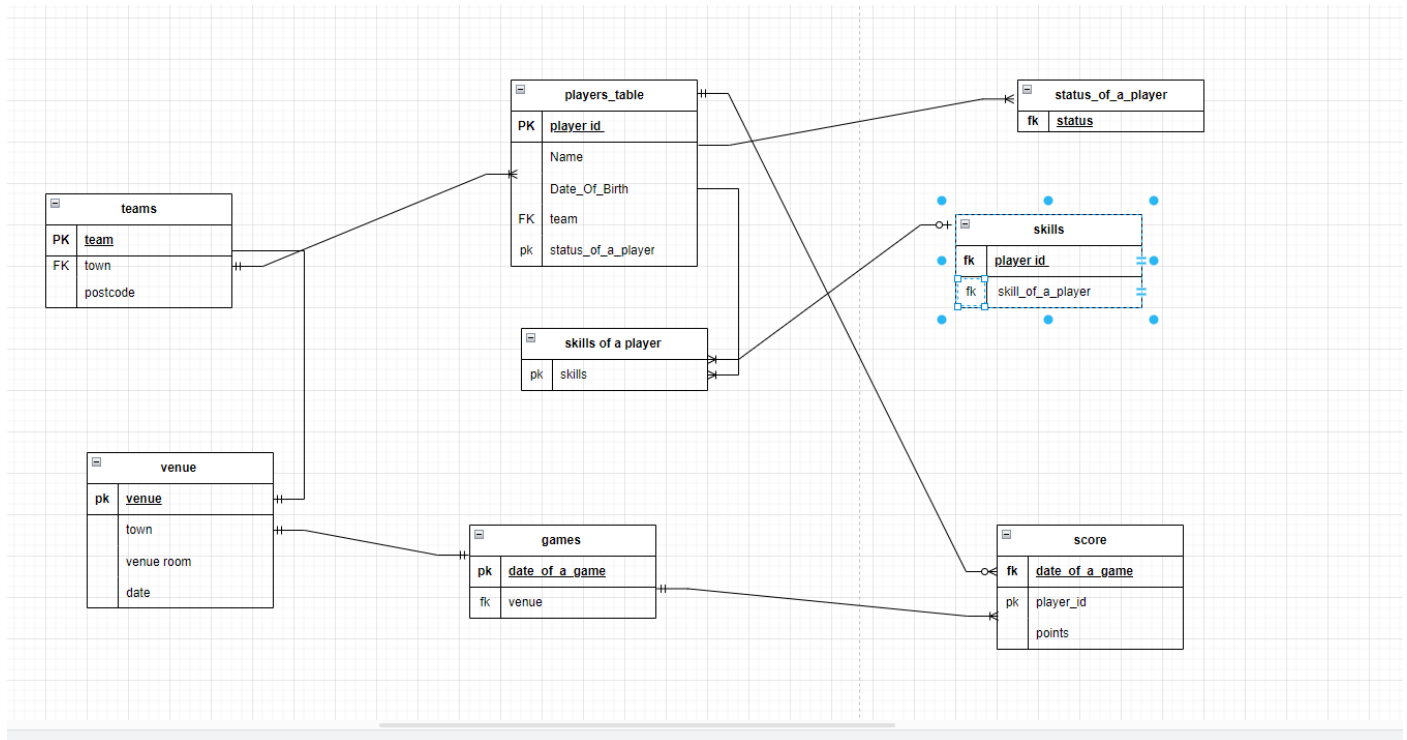


ASSIGNMENT CSCU9B3

Roll number: 3144419

1 er model



Database as a methodically arranged set of data. We can quickly store, manage, update, and retrieve data using it as a digital filing system. Nonetheless, it might become challenging to comprehend how everything in the database is connected because there is so much data travelling about. I applied the graphical tool creation use draw.io to help me understand this complexity. I created an Entity Relationship Diagram (ERD) specifically. This diagram demonstrates how various database elements relate to and cooperate with one another using graphics. It functions similarly to a map in assisting us in navigating the complex information network found within databases or information systems.

- **Entities** The items, individuals, and locations which we wish to continue keeping track of in our database are called entities. Example as name in player table is an entity.
- **Attribute**
The varied characteristics or features of an entity are called attributes. EXAMPLE first name last name along with player id is an attribute. These characteristics are turned into columns in our data structure.
- **Relationship:** Relationships explain the relationships that exist between entities. Example: let take example from er diagram in which you can see the player table is connected to teams, skills of player, score etc.

Cardinality:

In between two separate events. The number of times an entity of an entity set engages in a relationship is known as the relationship's cardinality. Example: let take example of our er diagram in our er diagram we used different types of cardinalities because Player table contain entities such name, id (primary key), team, and status. In team column we contain entities like team as (Primary key), town (foreign Key) and postcode. In the example above we will use **1 to many**: A team may consist of several players, but each player is exclusive to their own team. In the "Players" table, team A (with TeamID = 1) may have several players associated with it, each with a distinct Player ID; however, each player is only a member of one team.

2)many to 1 relationship: A player is a member of only one team, even though numerous players may be on the same team. Example: Team A (with TeamID = 1) may contain multiple players (each with a unique Player ID), but each player is only connected to one team.

3) foreign key: for the foreign key we will use primary key for the team in team table and we will use team column in players the value of player table contains team column there must be a match for it to be a valid relationship.

2

Primary key:

The Primary Key is a unique code that is used to identify each player in our large list (table). We can locate and identify each player with greater speed and accuracy because each has a unique tag. Since there's a single bit of data that can be used to uniquely identify every player in the table, we use a primary key. It's like providing unique ID cards to every player. No two players may have an identical ID since the Primary Key needs to be unique. It shouldn't ever alter. Over time, we want a reliable and consistent method of player identification. It must never be left empty (null). All players need to have an ID.

Example: Consider the case of Ali, a player. There might be other players with the same name, so using the name won't work. Players can switch teams, so Team and Status won't function either. We are left with Player ID. This unique figure rises in unison with every additional player that is added. It fits perfectly because it complies with all the requirements. Paul Ali ID won't ever expire, change, or become invalid.

Foreign key

A foreign key is like index in table which indicate primary key it makes a link between data into different tables and makes consistency and accuracy in relationships foreign key represents point in a relation which connect the table and allows a connection between data store in them. Consider a new entity such as player through er model each player belongs to certain team if you look in er table you would see the team table connected to player table and in team table team is primary key while in player table it is foreign key. let's take man city as example in which **man city is represented as team table** and let's say we have **Haaland would be represented as player** the HALAND belongs to **man city** the man city would be the primary key in team table but in player status it would be foreign key.

3 NORMALIZATIONS

In the normalization it includes the data for skills as you see on the top the skill data is kept into single table from er diagram it will result in redundancy and it will become difficult in management and updating let take an example such as player had same skills like another player the skill information would repeat for player it will end up wasting space and the duplication data will become difficult in updating. We will divide the data into two parts such as players and one for the skills we will use 3NF because the skill is in separate table and if you see from the er table if skills are primary key in one table but if you see in main table the skills would be foreign key. we will divide the table because every table has specific function which is used to manage the data and modify. In the relational database management system, it is design in such a way that it is used to handle the many to many relations (M:M)

- **Many to many relations:** Entities one side can various entities let say in our er diagram right the player table is linked with many tables like team, venue, skills.
- **Junction Entity:** It is introduced as many to many relationships this object can link between two entities.

4 table creation:

In this table given below is the code which I used in my phpMyAdmin in this I have made the tables which are present in my er diagram and I have written the code for each of them

```
create table players
(
    player_id int , Name varchar(20), date_of_birth date, team varchar(10) , status_of_a_player varchar(10)
);
create table status_of_a_player( status varchar(10) );
create table teams
(
    team varchar(10) , Town varchar(10), PostCode varchar(10)
);
create table skills(
    player_id int , skills_of_a_player varchar(10)
);
```

```
create table score
(
    date_of_a_game date , player_id int , point int
);
create table games
(
    date_of_a_game date , venue varchar(10)
);
create table venue(
    venue varchar(10), venueroom varchar(10) , date_of_a_game date
);
```

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0006 seconds.)

```
create table players ( player_id int , Name varchar(20), date_of_birth date, team varchar(10) , status_of_a_player varchar(10) );
```

[Edit inline] [Edit] [Create PHP code]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

```
create table status_of_a_player( status varchar(10) );
```

[Edit inline] [Edit] [Create PHP code]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0006 seconds.)

```
create table teams ( team varchar(10) , Town varchar(10), PostCode varchar(10) );
```

[Edit inline] [Edit] [Create PHP code]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0006 seconds.)

```
create table skills( player_id int , skills_of_a_player varchar(10) );
```

[Edit inline] [Edit] [Create PHP code]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

```
create table score ( date_of_a_game date , player_id int , point int );
```

[Edit inline] [Edit] [Create PHP code]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0006 seconds.)

```
create table games ( date_of_a_game date , venue varchar(10) );
```

[Edit inline] [Edit] [Create PHP code]

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

```
create table venue( venue varchar(10), venueroom varchar(10) , date_of_a_game date );
```

[Edit inline] [Edit] [Create PHP code]

5) in this part we must use the noheaddata.csv file and we need to import it on phpMyAdmin after that it will show data like this

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0007 seconds.)

```
CREATE TABLE IF NOT EXISTS `assignment_for_php`.`noheaddata` (`COL 1` int(5), `COL 2` varchar(18), `COL 3` varchar(10), `COL 4` varchar(8), `COL 5` varchar(12), `COL 6` varchar(9), `COL 7` varchar(8), `COL 8` varchar(15), `COL 9` varchar(8), `COL 10` varchar(15), `COL 11` varchar(4), `COL 12` varchar(10), `COL 13` int(1)) DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;
```

[Edit inline] [Edit] [Create PHP code]

✔ 4282 rows inserted. (Query took 0.0006 seconds.)

```
INSERT INTO `assignment_for_php`.`noheaddata` (`COL 1`, `COL 2`, `COL 3`, `COL 4`, `COL 5`, `COL 6`, `COL 7`, `COL 8`, `COL 9`, `COL 10`, `COL 11`, `COL 12`, `COL 13`) VALUES (12981, 'Anthony Jackson', '1949-03-05', 'Blues', 'Professional', 'Defending', 'Blues', 'Falkirk', 'FK1 5RS', 'Doune', 'R-9', '2012-01-03', 3), (12981, 'Anthony Jackson', '1949-03-05', 'Blues', 'Professional', 'Throwing', 'Blues', 'Falkirk', 'FK1 5RS', 'Doune', 'R-9', '2012-01-03', 3), (12554, 'Antony Fletcher', '1943-11-21', 'Reds', 'Professional', 'Catching', 'Reds', 'Tullibody', 'FK10 1BA', 'Doune', 'R-25', '2012-01-03', 7), (12554, 'Antony Fletcher', '1943-11-21', 'Reds', 'Professional', 'Running', 'Reds', 'Tullibody', 'FK10 1BA', 'Doune', 'R-25', '2012-01-03', 7), (12554, 'Antony Fletcher', '1943-11-21', 'Reds', 'Professional', 'Scoring', 'Reds', 'Tullibody', 'FK10 1BA', 'Doune', 'R-25', '2012-01-03', 7), (15589, 'Barry Lowry', '1945-02-27', 'Blues', 'Amateur', 'Defending', 'Blues', 'Falkirk', 'FK1 5RS', [...])
```

[Edit]

COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8	COL 9	COL 10	COL 11	COL 12	COL 13
12981	Anthony Jackson	1949-03-05	Blues	Professional	Defending	Blues	Falkirk	FK1 5RS	Doune	R-9	2012-01-03	3
12981	Anthony Jackson	1949-03-05	Blues	Professional	Throwing	Blues	Falkirk	FK1 5RS	Doune	R-9	2012-01-03	3
12554	Antony Fletcher	1943-11-21	Reds	Professional	Catching	Reds	Tullibody	FK10 1BA	Doune	R-25	2012-01-03	7
12554	Antony Fletcher	1943-11-21	Reds	Professional	Running	Reds	Tullibody	FK10 1BA	Doune	R-25	2012-01-03	7
12554	Antony Fletcher	1943-11-21	Reds	Professional	Scoring	Reds	Tullibody	FK10 1BA	Doune	R-25	2012-01-03	7
15589	Barry Lowry	1945-02-27	Blues	Amateur	Defending	Blues	Falkirk	FK1 5RS	Doune	R-17	2012-01-03	2
15589	Barry Lowry	1945-02-27	Blues	Amateur	Scoring	Blues	Falkirk	FK1 5RS	Doune	R-17	2012-01-03	2
16771	Brendon Hammond	1963-03-02	Blues	Professional	Jumping	Blues	Falkirk	FK1 5RS	Doune	R-28	2012-01-03	4
16771	Brendon Hammond	1963-03-02	Blues	Professional	Scoring	Blues	Falkirk	FK1 5RS	Doune	R-28	2012-01-03	4
15467	Brian Vance	1980-01-10	Racers	Amateur	Catching	Racers	Bridge of Allan	FK9 4NA	Doune	R-10	2012-01-03	5
15467	Brian Vance	1980-01-10	Racers	Amateur	Jumping	Racers	Bridge of Allan	FK9 4NA	Doune	R-10	2012-01-03	5
15467	Brian Vance	1980-01-10	Racers	Amateur	Running	Racers	Bridge of Allan	FK9 4NA	Doune	R-10	2012-01-03	5
13798	Chris Worth	1939-04-17	Blues	Amateur	Catching	Blues	Falkirk	FK1 5RS	Doune	R-11	2012-01-03	2
13798	Chris Worth	1939-04-17	Blues	Amateur	Defending	Blues	Falkirk	FK1 5RS	Doune	R-11	2012-01-03	2
13798	Chris Worth	1939-04-17	Blues	Amateur	Running	Blues	Falkirk	FK1 5RS	Doune	R-11	2012-01-03	2
18417	Christien Jones	1962-12-05	Racers	Professional	Catching	Racers	Bridge of Allan	FK9 4NA	Doune	R-23	2012-01-03	3
18417	Christien Jones	1962-12-05	Racers	Professional	Jumping	Racers	Bridge of Allan	FK9 4NA	Doune	R-23	2012-01-03	3
18417	Christien Jones	1962-12-05	Racers	Professional	Running	Racers	Bridge of Allan	FK9 4NA	Doune	R-23	2012-01-03	3
12824	Claire Cole	1928-02-22	Reds	Amateur	Catching	Reds	Tullibody	FK10 1BA	Doune	R-24	2012-01-03	6
12824	Claire Cole	1928-02-22	Reds	Amateur	Running	Reds	Tullibody	FK10 1BA	Doune	R-24	2012-01-03	6
14743	Gary Berry	1973-04-12	Racers	Professional	Defending	Racers	Bridge of Allan	FK9 4NA	Doune	R-20	2012-01-03	7
14743	Gary Berry	1973-04-12	Racers	Professional	Running	Racers	Bridge of Allan	FK9 4NA	Doune	R-20	2012-01-03	7
14743	Gary Berry	1973-04-12	Racers	Professional	Scoring	Racers	Bridge of Allan	FK9 4NA	Doune	R-20	2012-01-03	7
10162	Gillian Botwright	1982-12-27	Racers	Amateur	Catching	Racers	Bridge of Allan	FK9 4NA	Doune	R-25	2012-01-03	4
10162	Gillian Botwright	1982-12-27	Racers	Amateur	Jumping	Racers	Bridge of Allan	FK9 4NA	Doune	R-25	2012-01-03	4

6)

In here we use the raw data from above and select certain thing we will want to get information about let say that we are using skills right in skill table I had skill name and player id so I will use select and distinct method in which I want to get data from data file

Run SQL query/queries on table csc4000_assignment_skills.

```
1 INSERT INTO `skills`(`skill_name`, `player_id`) SELECT DISTINCT Skill , ID from rawdata;
```

skill_name	player_id
Defending	12981
Throwing	12981
Catching	12554
Running	12554
Scoring	12554
Defending	15589
Scoring	15589
Jumping	16771
Scoring	16771
Catching	15467
Jumping	15467
Running	15467
Catching	13798
Defending	13798
Running	13798
Catching	18417
Jumping	18417
Running	18417
Catching	12824
Running	12824
Defending	14743
Running	14743
Scoring	14743
Catching	10162
Jumping	10162

Q7 part a

```
SELECT `player name`, `date_of_birth`
FROM players
WHERE `date_of_birth` > '1990-01-01';
```

Output

player name	date_of_birth
Paul Agg	1992-08-27
Lucy Duong	1992-08-03
Paul Robinson	1992-08-25
Trevor Oldham	1990-06-17

Part b

```
SELECT
    TeamName,
    SUM(1) AS TotalDaysPlayed
FROM
    games
GROUP BY
    TeamName;
```

TeamName	TotalDaysPlayed
Blasters	272
Blues	311
Jets	239
Racers	335
Rams	177
Reds	343
Rockets	174
Runners	286
Sharks	442

Q7 part c


```

SELECT
    T.Team_Name,
    T.town,
    COUNT(g.date_of_game) AS TotalGamesPlayed,
    SUM(G.Point) AS TotalPointsScored
FROM
    teams T
JOIN
    Games G ON T.Team_Name = G.TeamName
GROUP BY
    T.Team_Name, T.town, T.Postcode;

```

Output

✓ Showing rows 0 - 8 (9 total, Query took 0.0195 seconds)

[select](#) T.Team_Name , T.town , [count](#)(g.date_of_game) as TotalGamesPlayed, [sum](#)(G.point) as TotalPointsScored From teams t join Games G on T.Team_Name=G.TeamName group by T.Team_Name , T.town , T.Postcode;

☐ [Profiling](#) [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

Team_Name	town	TotalGamesPlayed	TotalPoints Scored
Blasters	Stirling	272	1041
Blues	Falkirk	311	1253
Jets	Alloa	239	938
Racers	Bridge of Allan	335	1347
Rams	Dunblane	177	656
Reds	Tullibody	343	1404
Rockets	Doune	174	684
Runners	Menstrie	286	1124
Sharks	Cornton	442	1736

Q7 part d

```
SELECT DISTINCT venue.`Venue Name`, venue.`Venue Room`, games.`date_of_game`
FROM games, venue
WHERE games.date_of_game BETWEEN '2012-03-01' and '2012-03-31' and games.`date_of_game` = venue.`Date` and games.TeamName != 'Sharks' and games.TeamName != 'Rockets';
```

Venue Name	Venue Room	date_of_game
Cornton	R-7	2012-03-20
Cornton	R-28	2012-03-20
Cornton	R-9	2012-03-20
Cornton	R-8	2012-03-20
Cornton	R-11	2012-03-20
Cornton	R-25	2012-03-20
Cornton	R-18	2012-03-20
Cornton	R-6	2012-03-20
Cornton	R-24	2012-03-20
Cornton	R-14	2012-03-20
Cornton	R-20	2012-03-20
Cornton	R-29	2012-03-20
Cornton	R-26	2012-03-20
Cornton	R-15	2012-03-20
Cornton	R-5	2012-03-20
Cornton	R-19	2012-03-20
Cornton	R-30	2012-03-20
Cornton	R-23	2012-03-20
Cornton	R-16	2012-03-20
Cornton	R-17	2012-03-20
Cornton	R-21	2012-03-20
Cornton	R-10	2012-03-20
Cornton	R-12	2012-03-20
Cornton	R-13	2012-03-20
Alloa	R-26	2012-03-27

Q8)

```
<html>

<head>
|   <title>Assignment Template</title>
</head>

<body>
|   <form action="assignment.php" method="post">
|       Search player name: <input type="text" name="name">
|       <input type="submit">
|   </form>

|   <?php
|   $servername = "127.0.0.1:3308";
|   $username = "root";
|   $password = "";
|   $database = "cscu9b3_assignment";

|   if(!empty($_POST['name']))
|   {
|       $name = $_POST['name'];
|       echo "Hello, {$_POST["name"]}, and welcome.<br>";

|       // Create connection
|       $conn = mysqli_connect($servername, $username, $password, $database);

|       // Check connection
|       if (!$conn) {
|           die("Connection failed: " . mysqli_connect_error());
|       }
|       echo "Connection to database was successful.<br>";

|       $name=mysqli_real_escape_string($conn,$name);
|       $name=strip_tags($name);

|       $sql = "SELECT
|       p.player_id,
|       p.playername,
|       p.date_of_birth,
|       p.Team,
|       p.status_of_players,
|       s.skill_name AS Skills
```

```

        p.player_id,
        p.playername,
        p.date_of_birth,
        p.Team,
        p.status_of_players,
        s.skill_name AS Skills
    FROM players p
    INNER JOIN skills s ON p.player_id = s.player_id
    WHERE p.PlayerName LIKE '%" . $name . "%'
    GROUP BY p.player_id";

```

```

echo "<br>Query is: ".$sql."<br>";

$result = mysqli_query($conn, $sql);

if (!$result) {
    echo "Error in Serarch: ". mysqli_error($conn);
}
else {
    echo "Results are:<br>";
    // output data of each row
    while($row = mysqli_fetch_row($result)) {
        echo "Player ID: " . $row[0] . "<br>" .
            "Player Name: " . $row[1] . "<br>" .
            "Date Of Birth: " . $row[2] . "<br>" .
            "Team: " . $row[3] . "<br>" .
            "Status: " . $row[4] . "<br>" .
            "Skill: " . $row[5] . "<br><br>";
    }
}
mysqli_close($conn);

```

```

?>
</body>
</html>

```

Output

```

Results are:
Player ID: 10162
Player Name: Gillian Botwright
Date Of Birth: 1982-12-27
Team: Racers
Status: Amateur
Skill: Catching

```