DATABASE DESIGN - A CASE STUDY

ORGANISATION :
EVENT MANAGEMENT COMPANY

Presented by:
khusham khatri

MISSION

- To deliver a well-organized and engaging sports event experience for XYZ Corp employees by efficiently managing participation in cricket and football events, while fostering teamwork, wellness, and a sense of unity among colleagues

OBJECTIVES

- **Design and implement** a relational database to manage employee involvement in sports events organized for XYZ Corp.
- **Normalize and link** key entities — employees, sports, roles, and venues — using foreign keys to ensure data integrity and relational consistency.
- **Create dynamic SQL** views to simulate and categorize sport participation (e.g., official cricket/football participants) without inserting records into a physical participation table.
- **Automate participant filtering** using SQL conditions (PlaysCricket = 'Y', PlaysFootball = 'Y') to assign players to respective roles and venues.

TABLES

Table Name	Type	Purpose
ClientEmployees	Entity	Stores detailed information of all employees provided by XYZ Corp, including their department and sport preferences (Cricket/Football via Y/N).
Sports	Entity	Holds the list of sports (Cricket, Football) being organized for the event.
Roles	Entity	Defines the type of role an employee holds in the event — either *Official* (player) or *Unofficial* (support staff).
Venues	Entity	Stores venue details including name and location where the sports events are held.
SportParticipation	Process	(Conceptual/Virtual via Views) Used to **link** employees to the sports they are participating in, along with their roles and assigned venues. created **SQL views** to simulate this participation based on conditions like `PlaysCricket = 'Y'`.

TABLE : clientemployees

```
mysql> describe clientemployees;
+----------------+-------------+------+-----+
| Field          | Type        | Null | Key |
+----------------+-------------+------+-----+
| EmployeeID     | int         | NO   | PRI |
| FirstName      | varchar(50) | YES  |     |
| LastName       | varchar(50) | YES  |     |
| Department     | varchar(50) | YES  |     |
| PlaysCricket   | char(1)     | YES  |     |
| PlaysFootball  | char(1)     | YES  |     |
+----------------+-------------+------+-----+
6 rows in set (0.01 sec)
```

```
+------------+-----------+----------+------------+--------------+---------------+
| EmployeeID | FirstName | LastName | Department | PlaysCricket | PlaysFootball |
+------------+-----------+----------+------------+--------------+---------------+
|        101 | Aman      | Shah     | IT         | Y            | N             |
|        102 | Neha      | Patel    | Marketing  | N            | Y             |
|        103 | Ravi      | Kumar    | HR         | Y            | Y             |
|        104 | Simran    | Singh    | Finance    | N            | N             |
|        105 | Aditya    | Gupta    | Operations | Y            | N             |
```

TABLE : sports

```
mysql> describe sports;
+-----------+-------------+------+-----+
| Field     | Type        | Null | Key |
+-----------+-------------+------+-----+
| SportID   | int         | NO   | PRI |
| SportName | varchar(30) | YES  | UNI |
+-----------+-------------+------+-----+
2 rows in set (0.03 sec)
```

```
mysql> select * from sports;
+----------+------------+
| SportID | SportName |
+----------+------------+
|        1 | Cricket    |
|        2 | Football   |
+----------+------------+
2 rows in set (0.03 sec)
```

TABLE : Roles

```
+-----------+--------------+------+-----+
| Field     | Type         | Null | Key |
+-----------+--------------+------+-----+
| RoleID    | int          | NO   | PRI |
| RoleType | varchar(20) | YES  |     |
+-----------+--------------+------+-----+
```

```
mysql> select * from Roles;
+--------+-------------+
| RoleID | RoleType    |
+--------+-------------+
|      1 | Official    |
|      2 | Unofficial  |
+--------+-------------+
2 rows in set (0.01 sec)
```

TABLE : Venues

```
+------------+----------------+------+-----+
| Field      | Type           | Null | Key |
+------------+----------------+------+-----+
| VenueID    | int            | NO   | PRI |
| VenueName  | varchar(100)   | YES  |     |
| Location   | varchar(100)   | YES  |     |
+------------+----------------+------+-----+
```

```
mysql> select * from venues;
+---------+---------------------------+-----------+
| VenueID | VenueName                 | Location  |
+---------+---------------------------+-----------+
|       1 | Greenfield Cricket Ground | Sector-21 |
|       2 | Sunshine Football Arena   | Sector-22 |
|       3 | Lakeside Sports Complex   | Sector-21 |
|       4 | Downtown Stadium          | Sector-21 |
+---------+---------------------------+-----------+
4 rows in set (0.02 sec)
```

Sportparticipation

Q) How do we identify all official cricket participants ?

```
mysql> CREATE VIEW OfficialCricketParticipants AS
    -> SELECT EmployeeID, 1 AS SportID, 1 AS RoleID, 1 AS VenueID
    -> FROM ClientEmployees
    -> WHERE PlaysCricket = 'Y';
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> select * from OfficialCricketParticipants;
+------------+---------+--------+---------+
| EmployeeID | SportID | RoleID | VenueID |
+------------+---------+--------+---------+
|        101 |       1 |      1 |       1 |
|        103 |       1 |      1 |       1 |
|        105 |       1 |      1 |       1 |
|        107 |       1 |      1 |       1 |
|        109 |       1 |      1 |       1 |
|        111 |       1 |      1 |       1 |
|        113 |       1 |      1 |       1 |
|        115 |       1 |      1 |       1 |
|        117 |       1 |      1 |       1 |
|        119 |       1 |      1 |       1 |
|        121 |       1 |      1 |       1 |
|        123 |       1 |      1 |       1 |
|        125 |       1 |      1 |       1 |
|        127 |       1 |      1 |       1 |
|        129 |       1 |      1 |       1 |
|        131 |       1 |      1 |       1 |
|        133 |       1 |      1 |       1 |
|        135 |       1 |      1 |       1 |
|        137 |       1 |      1 |       1 |
|        139 |       1 |      1 |       1 |
+------------+---------+--------+---------+
20 rows in set (0.02 sec)
```

Q) How do we identify all official football participants?

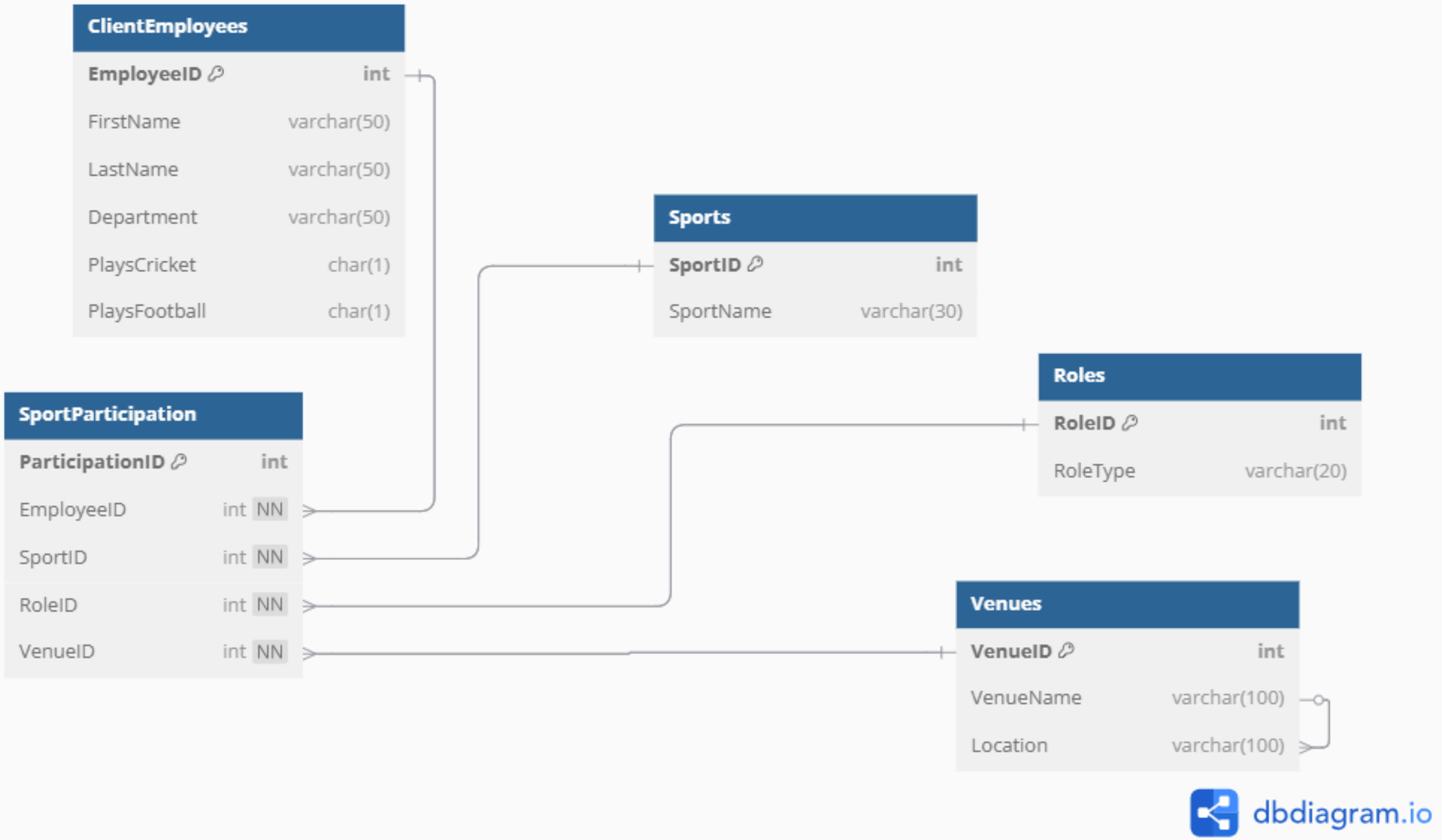
```
mysql> CREATE VIEW OfficialFootballParticipants AS
    -> SELECT
    ->     EmployeeID,
    ->     FirstName,
    ->     LastName,
    ->     2 AS SportID,
    ->     1 AS RoleID,
    ->     2 AS VenueID
    -> FROM ClientEmployees
    -> WHERE PlaysFootball = 'Y';
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> select * from OfficialFootballParticipants;
+------------+-----------+----------+---------+--------+---------+
| EmployeeID | FirstName | LastName | SportID | RoleID | VenueID |
+------------+-----------+----------+---------+--------+---------+
|        102 | Neha      | Patel    |       2 |      1 |       2 |
|        103 | Ravi      | Kumar    |       2 |      1 |       2 |
|        106 | Priya     | Joshi    |       2 |      1 |       2 |
|        107 | Vikram    | Mehta    |       2 |      1 |       2 |
|        109 | Suresh    | Nair     |       2 |      1 |       2 |
|        110 | Anjali    | Verma    |       2 |      1 |       2 |
|        112 | Sneha     | Das      |       2 |      1 |       2 |
|        113 | Amit      | Sharma   |       2 |      1 |       2 |
|        116 | Pooja     | Shah     |       2 |      1 |       2 |
|        117 | Rakesh    | Patel    |       2 |      1 |       2 |
|        119 | Sanjay    | Gupta    |       2 |      1 |       2 |
|        120 | Divya     | Mehta    |       2 |      1 |       2 |
|        122 | Anita     | Rao      |       2 |      1 |       2 |
|        123 | Sunil     | Singh    |       2 |      1 |       2 |
|        126 | Meena     | Das      |       2 |      1 |       2 |
|        127 | Tarun     | Sharma   |       2 |      1 |       2 |
|        129 | Ajay      | Gupta    |       2 |      1 |       2 |
|        130 | Rekha     | Shah     |       2 |      1 |       2 |
|        132 | Kiran     | Kumar    |       2 |      1 |       2 |
|        133 | Sunita    | Mehta    |       2 |      1 |       2 |
|        136 | Sapna     | Singh    |       2 |      1 |       2 |
|        137 | Harish    | Joshi    |       2 |      1 |       2 |
|        139 | Gaurav    | Shah     |       2 |      1 |       2 |
|        140 | Lata      | Patel    |       2 |      1 |       2 |
+------------+-----------+----------+---------+--------+---------+
24 rows in set (0.03 sec)
```

Q) Who are the employees participating in both Cricket and Football?

```
mysql> CREATE VIEW DualSportParticipants AS
    -> SELECT
    ->     EmployeeID,
    ->     FirstName,
    ->     LastName,
    ->     Department
    -> FROM ClientEmployees
    -> WHERE PlaysCricket = 'Y' AND PlaysFootball = 'Y';
Query OK, 0 rows affected (0.08 sec)
```

```
mysql> select * from DualSportParticipants;
+------------+-----------+----------+------------+
| EmployeeID | FirstName | LastName | Department |
+------------+-----------+----------+------------+
|        103 | Ravi      | Kumar    | HR         |
|        107 | Vikram    | Mehta    | Marketing  |
|        109 | Suresh    | Nair     | Finance    |
|        113 | Amit      | Sharma   | HR         |
|        117 | Rakesh    | Patel    | Marketing  |
|        119 | Sanjay    | Gupta    | Finance    |
|        123 | Sunil     | Singh    | HR         |
|        127 | Tarun     | Sharma   | Marketing  |
|        129 | Ajay      | Gupta    | Finance    |
|        133 | Sunita    | Mehta    | HR         |
|        137 | Harish    | Joshi    | Marketing  |
|        139 | Gaurav    | Shah     | Finance    |
+------------+-----------+----------+------------+
12 rows in set (0.01 sec)
```


ClientEmployees
EmployeeID int
FirstName varchar(50)
LastName varchar(50)
Department varchar(50)
PlaysCricket char(1)
PlaysFootball char(1)
Sports
SportID int
SportName varchar(30)
Roles
RoleID int
RoleType varchar(20)
SportParticipation
ParticipationID int
EmployeeID int NN
SportID int NN
RoleID int NN
VenueID int NN
Venues
VenueID int
VenueName varchar(100)
Location varchar(100)
dbdiagram.io

Q) List employees who are not playing any sport (neither Cricket nor Football).

```
mysql> SELECT
    ->     EmployeeID, FirstName, LastName, Department
    -> FROM
    ->     ClientEmployees
    -> WHERE
    ->     PlaysCricket = 'N' AND PlaysFootball = 'N';
+------------+-----------+----------+------------+
| EmployeeID | FirstName | LastName | Department |
+------------+-----------+----------+------------+
|        104 | Simran    | Singh    | Finance    |
|        108 | Kavita    | Rao      | HR         |
|        114 | Deepa     | Kaur     | Finance    |
|        118 | Neeraj    | Kumar    | HR         |
|        124 | Rina      | Joshi    | Finance    |
|        128 | Sonal     | Kaur     | HR         |
|        134 | Rohit     | Verma    | Finance    |
|        138 | Seema     | Nair     | HR         |
+------------+-----------+----------+------------+
8 rows in set (0.10 sec)
```

Q) Count of Participants (Official) for Each Sport.

```
mysql> SELECT
    ->     s.SportName,
    ->     COUNT(DISTINCT sp.EmployeeID) AS ParticipantCount
    -> FROM
    ->     Sports s
    -> LEFT JOIN (
    ->     SELECT EmployeeID, SportID FROM OfficialCricketParticipants
    ->     UNION ALL
    ->     SELECT EmployeeID, SportID FROM OfficialFootballParticipants
    -> ) sp ON s.SportID = sp.SportID
    -> GROUP BY
    ->     s.SportName;
+-----------+------------------+
| SportName | ParticipantCount |
+-----------+------------------+
| Cricket   |               20 |
| Football  |               24 |
+-----------+------------------+
2 rows in set (0.10 sec)
```

Q) How many employees are playing Cricket and how many are playing Football?

```
mysql> SELECT
    ->     SUM(CASE WHEN PlaysCricket = 'Y' THEN 1 ELSE 0 END) AS CricketPlayers,
    ->     SUM(CASE WHEN PlaysFootball = 'Y' THEN 1 ELSE 0 END) AS FootballPlayers
    -> FROM
    ->     ClientEmployees;
+----------------+----------------+
| CricketPlayers | FootballPlayers |
+----------------+----------------+
|             20 |             24 |
+----------------+----------------+
1 row in set (0.02 sec)
```

Thank you.