Axel Reumann, Arthur Monnier

Project 2 Deliverable

Relational Translations:

- Entity Sets to Relations:
    - TeamMember(uuid, associationURL, name, DOB, role, shirtNumber, genPosition)
        - associationURL is foreign key to Team
    - Team(associationURL, associationName, country, group)
    - Referee(rid, role, country, name, yearsOfExperience)
    - Match(matchID, sname, round, date, duration, time)
        - sname is foreign key referencing Stadium
    - Goal(gid, team, uuid, matchID, duringPenaltyKick, minute, occurrence)
        - uuid references the uuid of Player
        - matchID references the matchID of Match
        - team references the associationURL of Team (Team which scored the goal)
    - Ticket(tid, matchID, transactionID, price)
        - matchID is a foreign key referencing Match
        - transactionID is a foreign key referencing Order
    - Client(email, name, address)
    - Order(transactionId, email, totalCost, paymentMethod)
        - email is a foreign key referencing Client
    - Seat(sId, sname, section, row, seatNumber)

        - sname is a foreign key referencing stadium (one to one relationship)
        - section is a foreign key referencing section
    - Section(name, capacity)
    - Stadium(name, capacity, location)
- Relationship Sets:
    - Participate(associationURL, matchID)
        - associationURL refers to Team
        - matchID refers to Match (with a participation constraint i.e. every Match must have a Team participating)
        - Many-many relationship
    - Assigned(rid, matchID)
        - rid refers to Referee
        - matchID refers to Match
        - Participation constraint on Match indicates that every Match must have at least one Referee
        - Many-many relationship
    - Plays(uuid, matchID, minEntered, minExited, detailedPosition, yellowCards, receivedRed)
        - uuid refers to id number for Player of TeamMember
        - matchID refers to Match
        - Participation constraint on Match indicates every Match must have at least one Player playing at any given time.
        - Many-many relationship

3) SQL Database Schema

a) CREATE statements

```
CREATE TABLE Team (
  associationURL VARCHAR(255) PRIMARY KEY NOT NULL,
  associationName VARCHAR(255) NOT NULL,
  country VARCHAR(255),
  group VARCHAR(255)
);

CREATE TABLE TeamMember (
  uuid INT PRIMARY KEY NOT NULL,
  associationURL VARCHAR(255) REFERENCES Team(associationURL) NOT NULL,
  name VARCHAR(255),
  DOB DATE,
  role VARCHAR(255),
  shirtNumber INT,
  genPosition VARCHAR(255)
);

CREATE TABLE Referee (
  rid INT PRIMARY KEY NOT NULL,
  role VARCHAR(255),
  country VARCHAR(255),
  name VARCHAR(255),
  yearsOfExperience INT
);

CREATE TABLE Stadium(
  name VARCHAR(255) PRIMARY KEY NOT NULL,
  location VARCHAR(255) NOT NULL,
```

```
  capacity INT
);

CREATE TABLE Match (
  matchID INT PRIMARY KEY NOT NULL,
  sname VARCHAR(255) REFERENCES Stadium(name) NOT NULL,
  round VARCHAR(255),
  date DATE,
  duration INT,
  time TIME
);

CREATE TABLE Goal (
  gid INT PRIMARY KEY NOT NULL,
  team VARCHAR(255) REFERENCES Team(associationURL) NOT NULL,
  uuid INT REFERENCES TeamMember(uuid) NOT NULL,
  matchID INT REFERENCES Match(matchID) NOT NULL,
  duringPenaltyKick BOOLEAN,
  minute INT,
  occurrence VARCHAR(255)
);

CREATE TABLE Client (
  email VARCHAR(255) PRIMARY KEY NOT NULL,
  name VARCHAR(255),
  address VARCHAR(255)
);

CREATE TABLE Order (
  transactionID INT PRIMARY KEY NOT NULL,
  email VARCHAR(255) REFERENCES Client(email),
```

```
  totalCost DECIMAL(10, 2),
  paymentMethod VARCHAR(255)
);

CREATE TABLE Ticket (
  tid INT PRIMARY KEY NOT NULL,
  matchID INT REFERENCES Match(matchID) NOT NULL,
  transactionID INT REFERENCES Order(transactionID) NOT NULL,
  price DECIMAL(10, 2)
);

CREATE TABLE Section (
  name VARCHAR(255) PRIMARY KEY NOT NULL,
  capacity INT
);

CREATE TABLE Seat (
  sId INT PRIMARY KEY NOT NULL,
  sname VARCHAR(255) REFERENCES Stadium(name),
  section VARCHAR(255) REFERENCES Section(name),
  row INT,
  seatNumber INT
);

CREATE TABLE Participate (
  associationURL VARCHAR(255) REFERENCES Team(associationURL) NOT NULL,
  matchID INT REFERENCES Match(matchID) NOT NULL,
  PRIMARY KEY (associationURL, matchID)
);

CREATE TABLE Assigned (
```

```
  rid INT REFERENCES Referee(rid) NOT NULL,
  matchID INT REFERENCES Match(matchID) NOT NULL,
  PRIMARY KEY (rid, matchID)
);

CREATE TABLE Plays (
  uuid INT REFERENCES TeamMember(uuid) NOT NULL,
  matchID INT REFERENCES Match(matchID) NOT NULL,
  minEntered INT,
  minExited INT,
  detailedPosition VARCHAR(255),
  yellowCards INT,
  receivedRed BOOLEAN,
  PRIMARY KEY (uuid, matchID)
);
```

b) DELETE statements

```
DROP TABLE Goal;
DROP TABLE Participate;
DROP TABLE Plays;
DROP TABLE Assigned;
DROP TABLE TeamMember;
DROP TABLE Team;
DROP TABLE Referee;
DROP TABLE Ticket;
DROP TABLE Order;
DROP TABLE Client;
DROP TABLE Seat;
DROP TABLE Section;
```

```
DROP TABLE Match;
DROP TABLE Stadium;
```

Pending constraints:

1. Participation constraint on Match:

   The participation constraint indicates that every Match must have at least one Team participating, one Referee officiating, and one Player playing at any given time. This constraint cannot be expressed in the database implementation.

2. One-to-one relationship between Stadium and Seat:

   The ER diagram indicates a one-to-one relationship between Stadium and Seat, meaning that each seat is associated with only one stadium. This constraint cannot be expressed in the database implementation as well.

3. Many-to-many relationship between TeamMember and Match:

   The ER diagram indicates a many-to-many relationship between TeamMember and Match, meaning that a TeamMember can play in multiple Matches, and a Match can have multiple TeamMembers playing. This constraint cannot be expressed in the database implementation as there is no way to enforce it as well.

Question 4

```
INSERT INTO Team (associationURL, associationName, country, group)
VALUES
('https://www.fifa.com/worldcup/teams/team/43968/', 'Argentina', 'Argentina', 'B'),
('https://www.fifa.com/worldcup/teams/team/43914/', 'France', 'France', 'C'),
('https://www.fifa.com/worldcup/teams/team/43828/', 'Brazil', 'Brazil', 'E'),
('https://www.fifa.com/worldcup/teams/team/43818/', 'Germany', 'Germany', 'F'),
('https://www.fifa.com/worldcup/teams/team/43927/', 'Spain', 'Spain', 'B');

INSERT INTO TeamMember (uuid, associationURL, name, DOB, role, shirtNumber,
genPosition) VALUES
```

```
(1, 'https://www.fifa.com/worldcup/teams/team/43968/', 'Lionel Messi', '1987-06-24', 'Player', 10, 'Forward'),
(2, 'https://www.fifa.com/worldcup/teams/team/43968/', 'Sergio Aguero', '1988-06-02', 'Player', 19, 'Forward'),
(3, 'https://www.fifa.com/worldcup/teams/team/43968/', 'Nicolas Otamendi', '1988-02-12', 'Player', 17, 'Defender'),
(4, 'https://www.fifa.com/worldcup/teams/team/43914/', 'Paul Pogba', '1993-03-15', 'Player', 6, 'Midfielder'),
(5, 'https://www.fifa.com/worldcup/teams/team/43914/', 'Kylian Mbappé', '1998-12-20', 'Player', 10, 'Forward');


INSERT INTO Referee (rid, role, country, name, yearsOfExperience)
VALUES
(1, 'Head Referee', 'England', 'Mark Clattenburg', 20),
(2, 'Assistant Referee', 'Spain', 'Juan Carlos Yuste Jiménez', 12),
(3, 'Assistant Referee', 'Brazil', 'Emerson de Carvalho', 15),
(4, 'Head Referee', 'Germany', 'Felix Brych', 18),
(5, 'Head Referee', 'Italy', 'Nicola Rizzoli', 14);
(6, 'Assistant Referee', France, 'Stéphanie Frappart', 10);


INSERT INTO Stadium(name, location, capacity)
VALUES
('Santiago Bernabeu', 'Madrid, Spain', 81044),
('Old Trafford', 'Manchester, UK', 74310),
('Allianz Arena', 'Munich, Germany', 75024),
('Parc des Princes', 'Paris, France', 48583),
('Johan Cruyff Arena', 'Amsterdam, The Netherlands', 55885);
```

```
INSERT INTO Match (matchID, sname, round, date, duration, time)
VALUES
(1, 'Santiago Bernabeu', 'Round 1', '2023-07-20', 90, '19:00:00'),
(2, 'Old Trafford', 'Round 2', '2023-07-22', 90, '17:30:00'),
(3, 'Allianz Arena', 'Round 3', '2023-07-24', 90, '20:00:00'),
(4, 'Parc des Princes', 'Round 4', '2023-07-26', 90, '21:00:00'),
(5, 'Johan Cruyff Arena', 'Round 5', '2023-08-02', 90, '19:45:00');

INSERT INTO Goal (gid, team, uuid, matchID, duringPenaltyKick, minute, occurrence)
VALUES
(1, 'https://www.fifa.com/worldcup/teams/team/43968/', 1, 1, false, 15, '1st half'),
(2, 'https://www.fifa.com/worldcup/teams/team/43968/', 3, 1, false, 25, '1st half'),
(3, 'https://www.fifa.com/worldcup/teams/team/43914/', 5, 2, false, 30, '1st half'),
(4, 'https://www.fifa.com/worldcup/teams/team/43968/', 2, 5, false, 60, '2nd half'),
(5, 'https://www.fifa.com/worldcup/teams/team/43914/', 2, 4, true, 85, '2nd half');

INSERT INTO Client(email, name, address)
VALUES
('a1@b.com', 'Client 1', 'Address 1'),
('a2@b.com', 'Client 2', 'Address 2'),
('a3@c.com', 'Client 3', 'Address 2'),
('a4@b.com', 'Client 4', 'Address 4'),
('a5@b.com', 'Client 5', 'Address 5');

INSERT INTO Order(transactionID, email, totalCost, paymentMethod)
VALUES
(1, 'a1@b.com', 120.34, 'Credit Card'),
(2, 'a2@b.com', 50.99, 'Debit Card'),
(3, 'a3@c.com', 10.00, 'Paypal'),
(4, 'a4@b.com', 250.22, 'Cash'),
(5, 'a5@b.com', 999.99, 'Credit Card');
```

```
INSERT INTO Ticket(tid, matchID, transactionID, price)
VALUES
(1,1, 1, 120.34),
(2,2,2, 50.99),
(3,3,3, 5.00),
(4,3,3, 5.00),
(5,4,4, 250.22),
(6,5,5, 999.99);

INSERT INTO Section(name, capacity)
VALUES
('A', 12000),
('B', 3000),
('C', 532),
('D', 359),
('VIP', 25);

INSERT INTO Seat(sId, sname, section, row, seatNumber)
VALUES
(1, 'Old Trafford', 'A', 3, 14),
(2, 'Old Trafford', 'B', 12, 4),
(3, 'Santiago Bernabeu', 'VIP', 1, 2),
(4, 'Allianz Arena', 'C', 2, 2),
(5, 'Allianz Arena', 'C', 1, 1);

INSERT INTO Participate(associationURL, matchID)
VALUES
('https://www.fifa.com/worldcup/teams/team/43968/', 1),
('https://www.fifa.com/worldcup/teams/team/43927/', 1),
('https://www.fifa.com/worldcup/teams/team/43914/', 2),
```

```
('https://www.fifa.com/worldcup/teams/team/43818/', 2),
('https://www.fifa.com/worldcup/teams/team/43828/', 3),
('https://www.fifa.com/worldcup/teams/team/43818/', 3),
('https://www.fifa.com/worldcup/teams/team/43914/', 4),
('https://www.fifa.com/worldcup/teams/team/43968/', 4),
('https://www.fifa.com/worldcup/teams/team/43927/', 5),
('https://www.fifa.com/worldcup/teams/team/43914/', 5);

--NOTE: although we are allowed to have matches without referee, in practice there will be one assigned

INSERT INTO Assigned(rid, matchID)
VALUES
(1, 2),
(2, 2),
(3, 3),
(3, 1),
(4, 4),
(6, 5);

INSERT INTO Plays(uuid, matchID, minEntered, minExited, detailedPosition, yellowCards, receivedRed)
VALUES
(1, 1, 0, 90, 'Forward', 0, False),
(4, 2, 15, 90, 'Midfielder', 1, False),
(5, 4, 0, 85, 'Forward', 0, False),
(3, 4, 45, 90, 'Defender', 1, True),
(2, 1, 0, 90, 'Midfielder', 0, False);
```

<u>SQL Queries Question 5:</u>

5a)

–Can guarantee that these are all matches where Lionel Messi plays and scores in via transitivity of equality on join and Non-nullity of g.matchID and g.uuid

```sql
SELECT DISTINCT s.name, s.location, m.date
FROM TeamMember t, Plays p, Match m, Goal g, Stadium s
WHERE (t.name LIKE 'Lionel Messi' AND
  t.uuid = p.uuid AND
  p.matchID = m.matchID AND
  g.matchID = m.matchID AND
  g.uuid = t.uuid AND
  s.name = m.sname)
ORDER BY s.name;
```

```
db2 => SELECT DISTINCT s.name, s.location, m.date
FROM TeamMember t, Plays p, Match m, Goal g, Stadium s
WHERE (t.name LIKE 'Lionel Messi' AND
   t.uuid = p.uuid AND
   p.matchID = m.matchID AND
   g.matchID = m.matchID AND
   g.uuid = t.uuid AND
   s.name = m.sname)
ORDER BY s.name;
db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
NAME
                                               LOCATION
                                                                                               DATE
--------------------------------------------------------------------------------------------------------------------------------------------------------
---------------------------------------------- --------------------------------------------------------------------------------------------------------
---------------------------------------------------------------------------------------------- ----------
Santiago Bernabeu
                                               Madrid, Spain
                                                                                               07/20/2023

  1 record(s) selected.
```

5b)

/*

1. Create a derived table "team_games" which calculates the number of games each team participates in (along with extracting the country name for the team)
2. Create a derived table "player_games" which calculates the number of matches which each player in the tournament plays for (along with extracting the uuid, associationURL of Team, name, and shirtNumber)

3. Join the two derived tables such that they have the same associationURL and the numgames = numplayed and return

*/

```
SELECT player_games.name, player_games.shirtNumber, team_games.country
FROM
(SELECT DISTINCT par.associationURL, tm.country, SUM(CASE WHEN par.associationURL
IS NOT NULL THEN 1 ELSE 0 END) AS numgames
FROM Team tm LEFT OUTER JOIN Participate par
ON tm.associationURL = par.associationURL
GROUP BY par.associationURL, tm.country
)team_games,
(SELECT DISTINCT p.uuid, t.associationURL, t.name, t.shirtNumber, SUM(CASE WHEN
p.uuid IS NOT NULL THEN 1 ELSE 0 END) AS numplayed
FROM TeamMember t LEFT OUTER JOIN Plays p
ON t.uuid = p.uuid
GROUP BY p.uuid, t.associationURL, t.name, t.shirtNumber
)player_games
WHERE numgames = numplayed AND
  team_games.associationURL = player_games.associationURL
ORDER BY name, shirtNumber, country;
```

```
db2 => SELECT player_games.name, player_games.shirtNumber, team_games.country
FROM
(SELECT DISTINCT par.associationURL, tm.country, SUM(CASE WHEN par.associationURL IS NOT NULL THEN 1 ELSE 0 END) AS numgames
FROM Team tm LEFT OUTER JOIN Participate par
ON tm.associationURL = par.associationURL
GROUP BY par.associationURL, tm.country
)team_games,
(SELECT DISTINCT p.uuid, t.associationURL, t.name, t.shirtNumber, SUM(CASE WHEN p.uuid IS NOT NULL THEN 1 ELSE 0 END) AS numplayed
FROM TeamMember t LEFT OUTER JOIN Plays p
ON t.uuid = p.uuid
GROUP BY p.uuid, t.associationURL, t.name, t.shirtNumber
)player_games
WHERE numgames = numplayed AND
  team_games.associationURL = player_games.associationURL
ORDER BY name, shirtNumber, country;db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.)
 => db2 (cont.) => db2 (cont.) =>

NAME
                                    SHIRTNUMBER COUNTRY
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------ ----------- ----------------------------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------------------------------------------
Sergio Aguero
                                              19 Argentina
```

5c)

/*

Procedure:

1. Perform a left outer join on Team and Participates to find the number of matches that each team has played, along with extracting the associationURL and country of each Team and call this derived table “team_games”
2. Perform a left outer join on Team and Participates to find the number of goals that each Team has scored in the tournament, along with extracting the Team associationURL and call this derived table “team_goals”
3. Join the two derived tables, “team_games” and “team_goals” such that the entries have matching team associationURLs and output the associationURL (as an identifier), country, numMatches, and numGoals of all Teams participating in the tournament

*/

```
SELECT DISTINCT team_games.associationURL, country, numMatches, numGoals
FROM
(SELECT par.associationURL, tm.country, SUM(CASE WHEN par.associationURL IS NOT
NULL THEN 1 ELSE 0 END) AS numMatches
FROM Team tm LEFT OUTER JOIN Participate par
ON tm.associationURL = par.associationURL
GROUP BY par.associationURL, tm.country)team_games,
(SELECT t.associationURL, SUM(CASE WHEN g.gid IS NOT NULL THEN 1 ELSE 0 END)
AS numGoals
FROM Team t LEFT OUTER JOIN Goal g
ON t.associationURL = g.team
GROUP BY t.associationURL)team_goals
WHERE team_goals.associationURL = team_games.associationURL
ORDER BY team_games.associationURL;
```

```
db2 => SELECT DISTINCT team_games.associationURL, country, numMatches, numGoals
FROM
(SELECT par.associationURL, tm.country, SUM(CASE WHEN par.associationURL IS NOT NULL THEN 1 ELSE 0 END) AS numMatches
FROM Team tm LEFT OUTER JOIN Participate par
ON tm.associationURL = par.associationURL
GROUP BY par.associationURL, tm.country)team_games,
(SELECT t.associationURL, SUM(CASE WHEN g.gid IS NOT NULL THEN 1 ELSE 0 END) AS numGoals
FROM Team t LEFT OUTER JOIN Goal g
ON t.associationURL = g.team
GROUP BY t.associationURL)team_goals
WHERE team_goals.associationURL = team_games.associationURL
ORDER BY team_games.associationURL;db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>


ASSOCIATIONURL
                                                  COUNTRY
                                                                                                                  NUMMATCHES  NUMGOALS
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------------------------------------------------- ----------- -----------
https://www.fifa.com/worldcup/teams/team/43818/
                                                  Germany
                                                                                                                              2           0
https://www.fifa.com/worldcup/teams/team/43828/
                                                  Brazil
                                                                                                                              1           0
https://www.fifa.com/worldcup/teams/team/43914/
                                                  France
                                                                                                                              3           2
https://www.fifa.com/worldcup/teams/team/43927/
                                                  Spain
                                                                                                                              2           0
https://www.fifa.com/worldcup/teams/team/43968/
                                                  Argentina
                                                                                                                              2           3

  5 record(s) selected.
```

5d)

This query returns the MatchID and the name of the stadium where each match is played, as well as the percentage of tickets sold (relative to the capacity of the stadium), as well as the total earnings (the sum of the price of all tickets sold).

```
SELECT MATCH.MATCHID,
    STADIUM.NAME,
     DECIMAL(COUNT(*) * 100 / FLOAT(STADIUM.CAPACITY) ,5,5) as
stadiumFillPercentage,
     SUM(PRICE) as totalEarnings
FROM MATCH, STADIUM, TICKET
WHERE STADIUM.NAME = MATCH.SNAME AND MATCH.MATCHID =
TICKET.MATCHID
GROUP BY MATCH.MATCHID, STADIUM.CAPACITY, STADIUM.NAME,
TICKET.PRICE;
ORDER BY MATCH.MATCHID;
```

```
db2 => SELECT MATCH.MATCHID,
      STADIUM.NAME,
       DECIMAL(COUNT(*) * 100 / FLOAT(STADIUM.CAPACITY) ,5,5) as stadiumFillPercentage,
       SUM(PRICE) as totalEarnings
FROM MATCH, STADIUM, TICKET
WHERE STADIUM.NAME = MATCH.SNAME AND MATCH.MATCHID = TICKET.MATCHID
GROUP BY MATCH.MATCHID, STADIUM.CAPACITY, STADIUM.NAME, TICKET.PRICE;
ORDER BY MATCH.MATCHID;db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>
MATCHID     NAME                                               STADIUMFILLPERCENTAGE TOTALEARNINGS
----------- -------------------------------------------------- --------------------- ------------------------------

          1 Santiago Bernabeu
                                                               .00123                120.34
          2 Old Trafford
                                                               .00134                 50.99
          3 Allianz Arena
                                                               .00266                 10.00
          4 Parc des Princes
                                                               .00205                250.22
          5 Johan Cruyff Arena
                                                               .00178                999.99

  5 record(s) selected.
```

5e)

This query returns the MatchID of the all matchs where a referee assigned is of the same nationality of one of the playing team. It also returns name of the referee and the name of the country of the referee. This query could be used to analyse the fairness of the games.

```
SELECT ASSIGNED.MATCHID, NAME, matchCountries.COUNTRY
FROM (
        SELECT MATCHID, COUNTRY
        FROM PARTICIPATE
                JOIN TEAM T on PARTICIPATE.ASSOCIATIONURL = T.ASSOCIATIONURL
    ) matchCountries
JOIN ASSIGNED ON ASSIGNED.MATCHID = matchCountries.MATCHID
JOIN REFEREE R ON ASSIGNED.RID = R.RID
WHERE R.COUNTRY = matchCountries.COUNTRY
ORDER BY ASSIGNED.MATCHID;
```

```
db2 => SELECT ASSIGNED.MATCHID, NAME, matchCountries.COUNTRY
FROM (
        SELECT MATCHID, COUNTRY
        FROM PARTICIPATE
                JOIN TEAM T on PARTICIPATE.ASSOCIATIONURL = T.ASSOCIATIONURL
    ) matchCountries
JOIN ASSIGNED ON ASSIGNED.MATCHID = matchCountries.MATCHID
JOIN REFEREE R ON ASSIGNED.RID = R.RID
WHERE R.COUNTRY = matchCountries.COUNTRY
ORDER BY ASSIGNED.MATCHID;db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) => db2 (cont.) =>

MATCHID     NAME                                               COUNTRY
----------- -------------------------------------------------- --------------------------------------------------

          3 Emerson de Carvalho
                                                               Brazil
          5 Stéphanie Frappart
                                                               France

  2 record(s) selected.
```

Question 6: Player Information:

6a)

–Use non-nullity of shirtNumber to guarantee that these are only players being displayed

```
CREATE VIEW playerinfo (name, shirtNumber, DOB, country, associationName, group)
AS
SELECT DISTINCT t.name, t.shirtNumber, t.DOB, tm.country, tm.associationName,
tm.group
FROM Team tm, TeamMember t
WHERE tm.associationURL = t.associationURL AND t.shirtNumber IS NOT NULL;
```

6b)

```
db2 => CREATE VIEW playerinfo (name, shirtNumber, DOB, country, associationName, group) AS
SELECT DISTINCT t.name, t.shirtNumber, t.DOB, tm.country, tm.associationName, tm.group
FROM Team tm, TeamMember t
WHERE tm.associationURL = t.associationURL AND t.shirtNumber IS NOT NULL;
db2 (cont.) => db2 (cont.) => db2 (cont.) => DB20000I  The SQL command completed successfully.
```

6c)

```
SELECT *
FROM playerinfo
LIMIT 5;
```

```
db2 => SELECT *
FROM playerinfo
LIMIT 5;db2 (cont.) => db2 (cont.) =>

NAME
                                          SHIRTNUMBER DOB        COUNTRY
                                                                                          ASSOCIATIONNAME
                                                                                                                                  GROUP

--------------------------------------------------------------------------------------------------------------------------------------------
Achraf Hakimi
                                                    2 11/04/1998 Morocco
                                                                                          Morocco
                                                                                                                                  A

Lionel Messi
                                                   10 06/24/1987 Argentina
                                                                                          Argentina
                                                                                                                                  B

Nicolas Otamendi
                                                   17 02/12/1988 Argentina
                                                                                          Argentina
                                                                                                                                  B

Sergio Aguero
                                                   19 06/02/1988 Argentina
                                                                                          Argentina
                                                                                                                                  B

Paul Pogba
                                                    6 03/15/1993 France
                                                                                          France
                                                                                                                                  C

  5 record(s) selected.
```

6d)

```
SELECT *
```

```
FROM playerinfo
WHERE group LIKE 'A'
LIMIT 5;
```

```
db2 => SELECT *
FROM playerinfo
WHERE group LIKE 'A'
LIMIT 5;db2 (cont.) => db2 (cont.) => db2 (cont.) =>

NAME
                                          SHIRTNUMBER DOB        COUNTRY
                                                                                                  ASSOCIATIONNAME
                                                                                                                                          GROUP

----------------------------------------------------------------------------------------------------------------------------------------------------
Achraf Hakimi
                                                    2 11/04/1998 Morocco
                                                                                                  Morocco
                                                                                                                                          A

  1 record(s) selected.
```

6e)

INSERT INTO playerinfo(name, shirtNumber, DOB, country, associationName, group)

VALUES (“Dimitar Berbatov”, 9, “1981-01-30”, “Bulgaria”, “Bulgaria National Football

Team”, “B”)

Explanation:

The below error as a result of insertion to view, playerinfo, is caused due to the fact that, by convention, we only use views as read only tables. If we do decide to manipulate the view, it may either lead to flat out erroneous behavior or corrupted data as the view is a manipulation of defined/previously created tables (to which this record has not been added) by definition.

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS                                          bash - p2

cs421g134@winter2023-comp421:~/Project2/p2$ db2 "INSERT INTO playerinfo(name, shirtNumber, DOB, country, associationName, group) VALUES ("Dimitar Berbatov", 9, "1981-01-30", "Bulgaria", "Bulgar
ia National Football Team", "B")"
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0104N  An unexpected token "," was found following "ES (Dimitar Berbatov".
Expected tokens may include:  "<join_type_without_spec> JOIN <join_operand>".
SQLSTATE=42601
cs421g134@winter2023-comp421:~/Project2/p2$ db2 "INSERT INTO playerinfo(name, shirtNumber, DOB, country, associationName, group) VALUES("Dimitar Berbatov", 9, "1981-01-30", "Bulgaria", "Bulgari
a National Football Team", "B")"
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0104N  An unexpected token "," was found following "UES(Dimitar Berbatov".
Expected tokens may include:  "<join_type_without_spec> JOIN <join_operand>".
SQLSTATE=42601
cs421g134@winter2023-comp421:~/Project2/p2$
```

Question 7

We add a constraint to check that the dates for the matches are between the 20th of July (start of the world cup) and 20th of August (end of the world cup).

```
db2 => ALTER TABLE MATCH ADD CONSTRAINT check_match_date CHECK (date >= '2023-07-20' AND date <= '2023-08-20');
DB20000I  The SQL command completed successfully.
```

Check Constraints:

If we try to insert a new match playing on the 20th of June (2023-06-20) then we run into the following error, as it violates the constraint:

```
db2 => INSERT INTO MATCH (matchID, sname, round, date, duration, time) VALUES (6, 'Parc des Princes', 'Semifinal', '2023-06-20', 90, '20:00:00');
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0545N  The requested operation is not allowed because a row does not
satisfy the check constraint "CS421G134.MATCH.CHECK_MATCH_DATE".
SQLSTATE=23513
```