

CSCU9B3

RelationalDatabaseAssignment

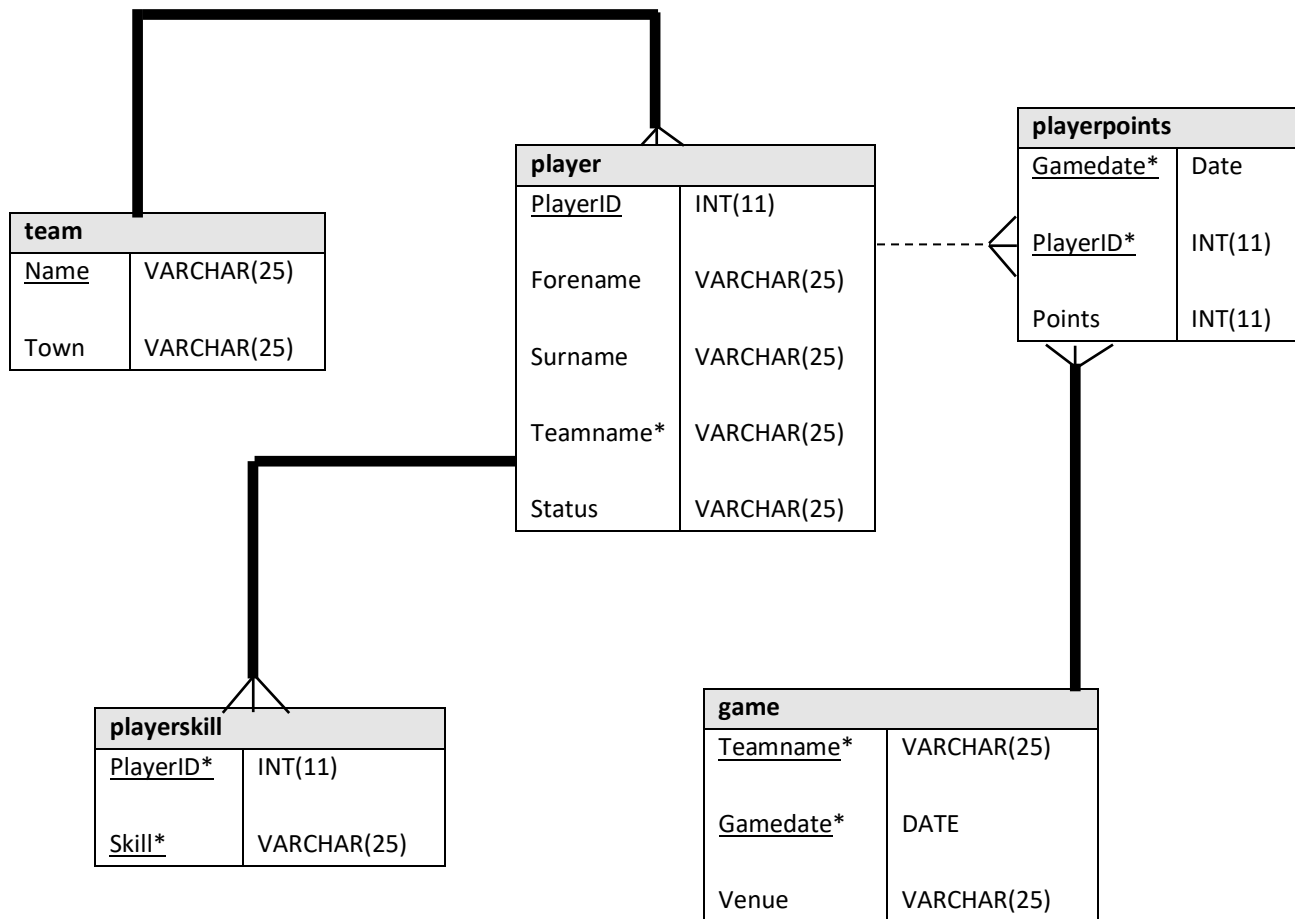
Due Date: 19th November 2018

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ER Diagram

The Entity Relationship Diagram is shown below:



Here,

- '_____' represents Primary key.
- '*' represents Foreign key.
- '____*' represents Composite Key.

Justification of Design

The Data which is stored in the original file which was in First Normal Form(1NF). I have divided the data into 5 tables there are:

1. player
2. game
3. playerpoints
4. team
5. playerskill

1. “player” table holds data about the players. Here PlayerID is Primary key and PlayerID of the players. Teamname is the Foreign key which helps to join to the Team table.
2. “game” table holds the data of Gamedate, Teamname and Venue. Here Gamedate and Teamname together are the Composite keys.
3. “playerpoints” table holds data of Gamedate, PlayerID and Points. Here Gamedate and PlayerID are the Composite keys.
4. “team” table holds the data of Teamname and Players Town.
5. “playerskill” holds the data of PlayerID and Skill. Here PlayerID and Skill together are the Composite keys.

The data given is in the First Normal Form(1NF), and there is lot of redundant data, I have split that table into multiple tables so, that is satisfies the rules of Third Normal Form(3NF).

Table creation

```
CREATE TABLE team(  
  NAME VARCHAR(25) PRIMARY KEY,  
  Town VARCHAR(25)  
);
```

```
CREATE TABLE playerskill(  
  Skill VARCHAR(25),  
  PlayerID INT(11),  
  PRIMARY KEY(Skill, PlayerID)  
);
```

```
CREATE TABLE game(  
  Gamedate DATE,  
  Venue VARCHAR(25),  
  Teamname VARCHAR(25),  
  PRIMARY KEY(Gamedate, Teamname)  
);
```

```
CREATE TABLE playerpoints(  
  Gamedate DATE,  
  PlayerID INT(11),  
  Skill VARCHAR(25),  
  PRIMARY KEY(Gamedate, PlayerID)  
);
```

Data transfer

The below SQL queries are used to insert the data into newly created tables from original “playerdata” table.

```
INSERT INTO player(forename, PlayerID, Status, Surname, TeamName)
```

```
SELECT DISTINCT
```

```
    playerdata.Forename,  
    playerdata.ID,  
    playerdata.Status,  
    playerdata.Surname,  
    playerdata.Team
```

```
FROM
```

```
    playerdata
```

```
INSERT INTO game(Gamedate,PlayerID,Points,Venue)
```

```
SELECT DISTINCT
```

```
    playerdata.Date,  
    playerdata.ID,  
    playerdata.Points,  
    playerdata.Venue
```

```
FROM
```

```
    playerdata
```

```
INSERT INTO playerskill(PlayerID, Skill)
```

```
SELECT DISTINCT
```

```
    playerdata.ID,  
    playerdata.skill
```

```
FROM
```

```
    playerdata
```

```
INSERT INTO playerpoints
```

```
SELECT DISTINCT
```

```
    playerdata.ID,  
    playerdata.Gamedate,  
    playerdata.Points
```

```
FROM
```

```
    playerdata
```

```
INSERT INTO team
```

```
SELECT DISTINCT
```

```
    playerdata.Team,  
    playerdata.Town
```

```
FROM
```

```
    playerdata
```

Searches

1. List each team name and the town they are based in.

```
SELECT * FROM team;
```

Output from search 1

Name	Town
Rams	Dunblane
Reds	Tullibody
Racers	Bridge of Allan
Blasters	Stirling
Sharks	Compton
Jets	Alloa
Blues	Falkirk
Runners	Menstrie
Rockets	Doune

2. List the total number of games played by each team.

```
SELECT
  Teamname,
  COUNT(Teamname) AS NumberOfGames
FROM
  game
GROUP BY
  Teamname;
```

Output from search 2

TeamName	NumberOfGames
Blasters	13
Blues	18
Jets	14
Racers	18
Rams	20
Reds	14
Rockets	19
Runners	22
Sharks	19

- List the total number of games played and the total points scored by each player (list player name plus total number of games and points scored, but just give the first 10 results in your report).

```

SELECT
  COUNT(pp.Gamedate) TotalGamesPlayed,
  SUM(pp.Points) TotalPoints,
  CONCAT(p.Forename, ' ', p.Surname) FullName
FROM
  playerpoints pp,
  player p
WHERE
  pp.PlayerID = p.PlayerID
GROUP BY
  pp.PlayerID
LIMIT 10;

```

Output from search 3

TotalGamesPlayed	TotalPoints	FullName
18	77	Gillian Botwright
22	93	John Exchange Ltd
13	47	David Varnam
14	61	Paul Agg
14	58	Matthew Forsyth
19	77	Asaf Burdon
14	38	Bob Brooks
14	60	Mark Taylor
14	56	Chad Huke
18	68	Sean Cocks

4. List the dates of all the games where the Jets and the Rams both played.

```
SELECT
  g1.Gamedate AS GameDate
FROM
  game g1
WHERE
  g1.Teamname = 'Rams' AND g1.Gamedate IN(
    SELECT
      g.Gamedate
    FROM
      game g
    WHERE
      g.Teamname = 'Jets'
  );
```

Output from search 4

GameDate
2012-02-14
2012-02-21
2012-05-01
2012-05-08
2012-06-19
2012-07-24

5. Write a query to produce the end of year team league table showing Team name, Number of games played, Number of points gained, Average points per game for each team.

```

SELECT
  p.Teamname AS TeamName,
  COUNT(DISTINCT pp.Gamedate) AS NumberOfGamesPlayed,
  SUM(pp.Points) NumberOfPointsGained,
  SUM(pp.Points) / COUNT(DISTINCT pp.Gamedate) AS AveragePointsPerGame
FROM
  playerpoints PP,
  player p,
  game g
WHERE
  p.PlayerID = pp.playerID AND g.Gamedate = pp.Gamedate AND g.Teamname = p.Teamname
GROUP BY
  p.Teamname;

```

Output from search 5

TeamName	NumberOfGamesPlayed	NumberOfPointsGained	AveragePointsPerGame
Blasters	13	697	53.6154
Blues	18	803	44.6111
Jets	14	598	42.7143
Racers	18	862	47.8889
Rams	20	369	18.4500
Reds	14	1051	75.0714
Rockets	19	375	19.7368
Runners	22	690	31.3636
Sharks	19	1191	62.6842

PHP(Assignment.php)

Below php code allows user to search players details by player's forename or surname, the search will be display the players ID, Forename, Surname, Status and skills of the players. One player can have multiple skills.

```
<html>
<head>
  <title>CSCU9B3 Assignment</title>
</head>

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

<?php
// Database connection details
$servername = "wamp0.cs.stir.ac.uk";
$username = "vsa00001";
$password = "*****";
$dbname = "*****";

if (!empty($_POST['name'])) {

  $name = $_POST['name'];
  echo "Hello, {$_POST["name"]}, and welcome.<br>";

  // Create db connection
  $conn = mysqli_connect($servername, $username, $password, $dbname);

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

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

  $sql = "select distinct p.PlayerID, p.Forename, p.Surname, p.Teamname, p.Status, ps.skill from player p, playerskill ps
where p.Forename like '%" . $name . "%' or p.Surname like '%" . $name . "%' and p.PlayerID = ps.PlayerID";
  $result = mysqli_query($conn, $sql);

  if (!$result) {
    echo "Search produced an error: " . mysqli_error();
  } else {
    echo "Results are:<br>";
    echo "<table border=1>";
    echo "<thead style='background-color: aqua'>";
    echo "<tr>";
    echo "<th>PlayerID</th>";
    echo "<th>Forename</th>";
    echo "<th>Surname</th>";
    echo "<th>Team</th>";
    echo "<th>Status</th>";
    echo "<th>Skills</th>";
    echo "</tr>";
```

```

echo "</thead>";

// output data of each row
echo "<tbody>";
while ($row = mysqli_fetch_row($result)) {
    echo "<tr>";
    echo "<td>$row[0]</td>";
    echo "<td>$row[1]</td>";
    echo "<td>$row[2]</td>";
    echo "<td>$row[3]</td>";
    echo "<td>$row[4]</td>";
    echo "<td>$row[5]</td>";
    echo "</td>";
    echo "</tr>";
}
echo "</table>";
}

mysqli_close($conn);
}

?>
</body>
</html>

```

Exampe of the above code displays as:

Enter player name or surname:

Hello, david, and welcome.
Connected successfully to database.
Results are:

PlayerID	Forename	Surname	Team	Status	Skills
10193	David	Varnam	Blasters	Amateur	Catching
12262	David	Hughes	Jets	Amateur	Catching
14016	David	Scott-Mullen	Rockets	Amateur	Catching
10193	David	Varnam	Blasters	Amateur	Jumping
12262	David	Hughes	Jets	Amateur	Jumping
14016	David	Scott-Mullen	Rockets	Amateur	Jumping
10193	David	Varnam	Blasters	Amateur	Throwing
12262	David	Hughes	Jets	Amateur	Throwing
14016	David	Scott-Mullen	Rockets	Amateur	Throwing
10193	David	Varnam	Blasters	Amateur	Scoring
12262	David	Hughes	Jets	Amateur	Scoring
14016	David	Scott-Mullen	Rockets	Amateur	Scoring
10193	David	Varnam	Blasters	Amateur	Defending
12262	David	Hughes	Jets	Amateur	Defending
14016	David	Scott-Mullen	Rockets	Amateur	Defending
10193	David	Varnam	Blasters	Amateur	Running
12262	David	Hughes	Jets	Amateur	Running
14016	David	Scott-Mullen	Rockets	Amateur	Running

This file is been displayed in my student web folder on wamp0.

Link to the site: <http://wamp0.cs.stir.ac.uk/vsa00001/assignment.php>