Ryerson University

Department of Electrical, Computer, & Biomedical Engineering
Faculty of Engineering & Architectural Science

Course Title:	Fundamentals of Data Engineering
Course Number:	COE 848
Semester/Year (e.g.F2016)	W2024

Instructor:	Dr. Faezeh Ensan

Assignment/Lab Number:	Lab 4
Assignment/Lab Title:	Manipulating Data

Submission Date:	March 14, 2024
Due Date:	March 14, 2024

Student LAST Name	Student FIRST Name	Student Number	Section	Signature*
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*By signing above you attest that you have contributed to this written lab report and confirm that all work you have contributed to this lab report is your own work. Any suspicion of copying or plagiarism in this work will result in an investigation of Academic Misconduct and may result in a "0" on the work, an "F" in the course, or possibly more severe penalties, as well as a Disciplinary Notice on your academic record under the Student Code of Academic Conduct, which can be found online at: http://www.ryerson.ca/senate/current/pol60.pdf

SQL Code for creating Tables and Inserting Data:

```
Last login: Thu Mar 14 00:00:29 on ttys000
(base) sanjam@Harsanjams-MacBook-Air ~ % cd Downloads/sqlite-tools-osx-x64-3450000
(base) sanjam@Harsanjams-MacBook-Air sqlite-tools-osx-x64-3450000 % ls
dssd.db                 sqlite3                 test.db
sqldiff                 sqlite3_analyzer        uclTourney.db
(base) sanjam@Harsanjams-MacBook-Air sqlite-tools-osx-x64-3450000 % sqlite3
SQLite version 3.39.3 2022-09-05 11:02:23
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open uclTourney.db
sqlite> .dump
PRAGMA foreign_keys=OFF;
BEGIN TRANSACTION;
```

Team:

```
CREATE TABLE Team (
    TeamID INT PRIMARY KEY,
    TeamName VARCHAR(255) NOT NULL,
    Sponsor VARCHAR(255),
    FoundedYear INT,
    WinLossRecord VARCHAR(20),
    NumberofWins INT,
    NumberofLosses INT,
    NumberofTies INT
, ManagerID INT);
INSERT INTO Team VALUES(1,'Los Angeles Lakers','Nike',1947,'20-15',20,15,0,1);
INSERT INTO Team VALUES(2,'Golden State Warriors','Under Armour',1946,'22-3',22,3,0,2);
INSERT INTO Team VALUES(3,'Brooklyn Nets','Adidas',1967,'18-17',18,17,0,3);
INSERT INTO Team VALUES(4,'Milwaukee Bucks','Puma',1968,'23-12',23,12,0,4);
INSERT INTO Team VALUES(5,'Phoenix Suns','State Farm',1968,'21-14',21,14,0,5);
INSERT INTO Team VALUES(6,'Philadelphia 76ers','StubHub',1946,'24-11',24,11,0,6);
INSERT INTO Team VALUES(7,'Utah Jazz','Qualtrics',1974,'25-10',25,10,0,7);
INSERT INTO Team VALUES(8,'Miami Heat','American Airlines',1988,'20-15',20,15,0,8);
INSERT INTO Team VALUES(9,'Minnesota Timberwolves','Fitbit',1989,'18-17',18,17,0,9);
INSERT INTO Team VALUES(10,'Chicago Bulls','United Airlines',1966,'19-16',19,16,0,10);
INSERT INTO Team VALUES(11,'San Antonio Spurs','Frost Bank',1967,'15-20',15,20,0,11);
INSERT INTO Team VALUES(12,'Orlando Magic','Disney',1989,'14-21',14,21,0,12);
INSERT INTO Team VALUES(13,'Detroit Pistons','Rocket Mortgage',1941,'10-19',10,19,0,13);
INSERT INTO Team VALUES(14,'Washington Wizards','Capital One',1961,'11-18',11,18,0,14);
```

Game:

```
CREATE TABLE Game (
    GameID INT PRIMARY KEY,
    Date DATE,
    Venue VARCHAR(255),
    Attendance INT,
    FinalScores VARCHAR(255), -- assuming scores are stored as a string
    Awards VARCHAR(255) -- assuming awards can be multiple and stored as a string
);
```

```
INSERT INTO Game VALUES(1,'2024-03-10','Staples Center',18000,NULL,'1');
INSERT INTO Game VALUES(2,'2024-03-12','Chase Center',15000,NULL,'2');
INSERT INTO Game VALUES(3,'2024-03-15','Barclays Center',17000,NULL,'3');
INSERT INTO Game VALUES(4,'2024-03-17','Fiserv Forum',16000,NULL,'4');
INSERT INTO Game VALUES(5,'2024-03-20','Talking Stick Resort Arena',18000,NULL,'5');
INSERT INTO Game VALUES(6,'2024-03-22','Wells Fargo Center',16000,NULL,'6');
INSERT INTO Game VALUES(7,'2024-03-25','Vivint Arena',20000,NULL,'7');
INSERT INTO Game VALUES(8,'2024-03-27','American Airlines Arena',19000,NULL,'8');
INSERT INTO Game VALUES(9,'2024-03-30','Target Center',18000,NULL,'9');
INSERT INTO Game VALUES(10,'2024-04-01','United Center',17000,NULL,'10');
INSERT INTO Game VALUES(11,'2024-04-03','AT&T Center',16000,NULL,'11');
INSERT INTO Game VALUES(12,'2024-04-05','Amway Center',15000,NULL,'12');
INSERT INTO Game VALUES(13,'2024-04-08','Little Caesars Arena',16000,NULL,'13');
INSERT INTO Game VALUES(14,'2024-04-10','Capital One Arena',15000,NULL,'14');
```

State/Conference:

```
CREATE TABLE State (
    StateID INT PRIMARY KEY,
    Name VARCHAR(255) NOT NULL,
    Conference VARCHAR(50) NOT NULL
);
INSERT INTO State VALUES(1,'California','West');
INSERT INTO State VALUES(2,'New York','East');
INSERT INTO State VALUES(3,'Texas','West');
INSERT INTO State VALUES(4,'Wisconsin','East');
INSERT INTO State VALUES(5,'Arizona','West');
INSERT INTO State VALUES(6,'Pennsylvania','East');
INSERT INTO State VALUES(7,'Utah','West');
INSERT INTO State VALUES(8,'Florida','East');
INSERT INTO State VALUES(9,'Minnesota','West');
INSERT INTO State VALUES(10,'Illinois','East');
INSERT INTO State VALUES(11,'Michigan','East');
INSERT INTO State VALUES(12,'Washington','East');
INSERT INTO State VALUES(13,'Oregon','West');
INSERT INTO State VALUES(14,'Colorado','West');
```

Manager:

```
CREATE TABLE Manager (
    ManagerID INT PRIMARY KEY,
    Name VARCHAR(255) NOT NULL,
    TeamID INT,
    FOREIGN KEY (TeamID) REFERENCES Team(TeamID)
);
INSERT INTO Manager VALUES(1,'Frank Vogel',NULL);
INSERT INTO Manager VALUES(2,'Steve Kerr',NULL);
INSERT INTO Manager VALUES(3,'Steve Nash',NULL);
INSERT INTO Manager VALUES(4,'Mike Budenholzer',NULL);
INSERT INTO Manager VALUES(5,'Monty Williams',NULL);
INSERT INTO Manager VALUES(6,'Doc Rivers',NULL);
INSERT INTO Manager VALUES(7,'Quin Snyder',NULL);
INSERT INTO Manager VALUES(8,'Erik Spoelstra',NULL);
INSERT INTO Manager VALUES(9,'Chris Finch',NULL);
INSERT INTO Manager VALUES(10,'Billy Donovan',NULL);
INSERT INTO Manager VALUES(11,'Gregg Popovich',NULL);
INSERT INTO Manager VALUES(12,'Jamahl Mosley',NULL);
INSERT INTO Manager VALUES(13,'Dwane Casey',NULL);
INSERT INTO Manager VALUES(14,'Wes Unseld Jr.',NULL);
```

```
CREATE TABLE Player_Game (
    PlayerID INT,
    GameID INT,
    PRIMARY KEY (PlayerID, GameID),
    FOREIGN KEY (PlayerID) REFERENCES Player(PlayerID),
    FOREIGN KEY (GameID) REFERENCES Game(GameID)
);
INSERT INTO Player_Game VALUES(1,1);
INSERT INTO Player_Game VALUES(2,1);
INSERT INTO Player_Game VALUES(3,2);
INSERT INTO Player_Game VALUES(4,3);
INSERT INTO Player_Game VALUES(5,3);
INSERT INTO Player_Game VALUES(6,4);
INSERT INTO Player_Game VALUES(7,5);
INSERT INTO Player_Game VALUES(8,5);
INSERT INTO Player_Game VALUES(9,6);
INSERT INTO Player_Game VALUES(10,7);
INSERT INTO Player_Game VALUES(11,7);
INSERT INTO Player_Game VALUES(12,8);
INSERT INTO Player_Game VALUES(13,9);
INSERT INTO Player_Game VALUES(14,9);
INSERT INTO Player_Game VALUES(15,10);
INSERT INTO Player_Game VALUES(16,11);
INSERT INTO Player_Game VALUES(17,11);
INSERT INTO Player_Game VALUES(18,12);
INSERT INTO Player_Game VALUES(19,13);
INSERT INTO Player_Game VALUES(20,13);
INSERT INTO Player_Game VALUES(21,14);
```

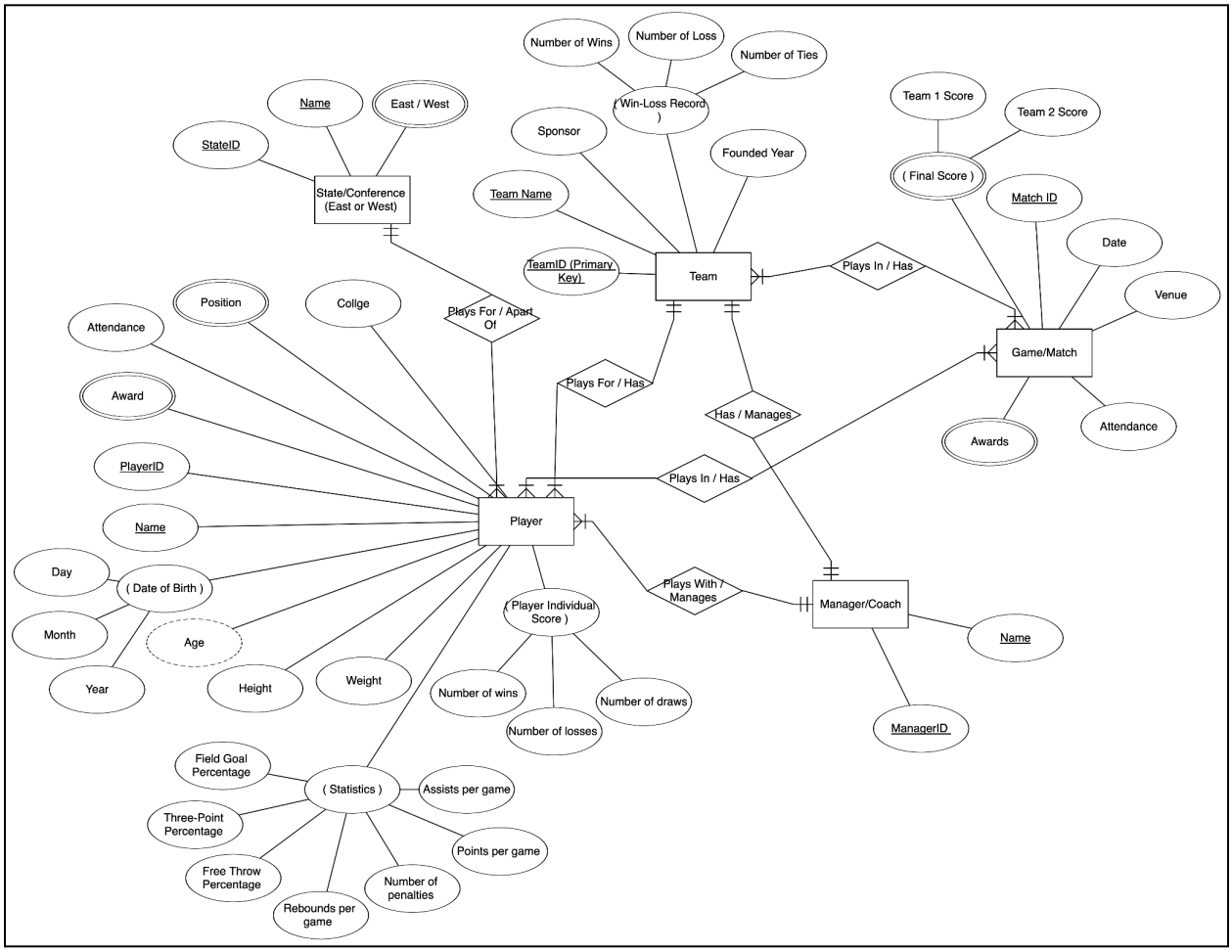
```
CREATE TABLE Game_Team (
    GameID INT,
    TeamID INT,
    PRIMARY KEY (GameID, TeamID),
    FOREIGN KEY (GameID) REFERENCES Game(GameID),
    FOREIGN KEY (TeamID) REFERENCES Team(TeamID)
);
INSERT INTO Game_Team VALUES(1,1);
INSERT INTO Game_Team VALUES(1,2);
INSERT INTO Game_Team VALUES(2,1);
INSERT INTO Game_Team VALUES(2,2);
INSERT INTO Game_Team VALUES(3,3);
INSERT INTO Game_Team VALUES(3,4);
INSERT INTO Game_Team VALUES(4,3);
INSERT INTO Game_Team VALUES(4,4);
INSERT INTO Game_Team VALUES(5,5);
INSERT INTO Game_Team VALUES(5,6);
INSERT INTO Game_Team VALUES(6,5);
INSERT INTO Game_Team VALUES(6,6);
INSERT INTO Game_Team VALUES(7,7);
INSERT INTO Game_Team VALUES(7,8);
INSERT INTO Game_Team VALUES(8,7);
INSERT INTO Game_Team VALUES(8,8);
INSERT INTO Game_Team VALUES(9,9);
INSERT INTO Game_Team VALUES(9,10);
INSERT INTO Game_Team VALUES(10,9);
INSERT INTO Game_Team VALUES(10,10);
INSERT INTO Game_Team VALUES(11,11);
INSERT INTO Game_Team VALUES(11,12);
INSERT INTO Game_Team VALUES(12,11);
INSERT INTO Game_Team VALUES(12,12);
INSERT INTO Game_Team VALUES(13,13);
INSERT INTO Game_Team VALUES(13,14);
INSERT INTO Game_Team VALUES(14,13);
INSERT INTO Game_Team VALUES(14,14);
```

Player:

```
CREATE TABLE Player (
    PlayerID INT PRIMARY KEY,
    Name VARCHAR(255) NOT NULL,
    Age INT,
    BirthDate DATE,
    Height DECIMAL(5,2),
    Weight DECIMAL(5,2),
    Position VARCHAR(50),
    College VARCHAR(255),
    Attendance INT,
    Awards INT,
    NumberofWins INT,
    NumberofLosses INT,
    NumberofDraws INT,
    FieldGoalPercentage DECIMAL(5,2),
    FreeThrowPercentage DECIMAL(5,2),
    ThreePointPercentage DECIMAL(5,2),
    NumberOfPenalties INT,
    PointsPerGame DECIMAL(5,2),
    AssistsPerGame DECIMAL(5,2),
    ReboundsPerGame DECIMAL(5,2),
    TeamID INT,
    StateID INT,
    FOREIGN KEY (TeamID) REFERENCES Team(TeamID),
    FOREIGN KEY (StateID) REFERENCES State(StateID)
);
```

```
INSERT INTO Player VALUES(1,'LeBron James',36,'1984-12-30',6.900000000000003552,250,'Small Forward','None',20,15,10,5,3,50.500000000000000001,75.299999999999997156,35.200000000000002842,2,28.499999999999999,10.499999999999999999,8.6999999999999992894,1,1);
INSERT INTO Player VALUES(2,'Stephen Curry',33,'1988-03-14',6.299999999999998223,190,'Point Guard','Davidson College',22,20,12,3,7,48.200000000000002842,92.099999999999994319,42.5,3,32.60000000000000142,9.800000000000007105,5.200000000000001776,2,1);
INSERT INTO Player VALUES(3,'Kevin Durant',33,'1988-09-29',6.099999999999996447,240,'Power Forward','University of Texas',18,18,8,7,3,52.70000000000000284,88.900000000000005684,38.899999999999998578,1,30.199999999999999288,7.5,9.099999999999996447,1,2);
INSERT INTO Player VALUES(13,'Donovan Mitchell',26,'1996-09-07',6.099999999999996447,215,'Shooting Guard','University of Louisville',17,16,8,9,1,45.600000000000001421,87.200000000000002838,36.899999999999998578,2,27.800000000000000071,5.400000000000003552,4.980000000000003552,7,7);
INSERT INTO Player VALUES(14,'Jimmy Butler',32,'1989-09-14',6.700000000000001776,230,'Small Forward','Marquette University',19,20,7,8,2,47.299999999999997159,82.900000000000000568,34.5,3,25.380000000000000071,7.099999999999999647,6.799999999999998223,8,8);
INSERT INTO Player VALUES(15,'Karl-Anthony Towns',27,'1995-11-15',7,248,'Center','University of Kentucky',18,17,10,7,1,51.200000000000002843,79.499999999999999998,39.200000000000002841,2,29.600000000000001421,4.200000000000001776,12.400000000000000355,7,7);
INSERT INTO Player VALUES(16,'Devin Vassell',22,'2000-08-23',6.599999999999996447,200,'Small Forward','Florida State University',16,10,6,10,2,43.799999999999997156,78.499999999999999999,35.899999999999998578,1,15.699999999999999289,3.200000000000001776,5.400000000000003552,9,9);
INSERT INTO Player VALUES(17,'Tyrese Haliburton',22,'2000-02-29',6.5,175,'Point Guard','Iowa State University',15,8,5,12,3,41.200000000000002843,85.299999999999997161,32.600000000000000142,1,12.900000000000000355,6.5,3.799999999999999998223,10,10);
INSERT INTO Player VALUES(18,'Jalen Suggs',20,'2001-06-03',6.400000000000003552,205,'Point Guard','Gonzaga University',18,12,7,9,1,45.899999999999998578,81.599999999999994317,37.399999999999998579,2,18.300000000000000071,5.799999999999998223,4.200000000000001776,11,11);
INSERT INTO Player VALUES(19,'Dejounte Murray',25,'1996-09-19',6.400000000000003552,180,'Point Guard','University of Washington',17,12,7,8,2,42.600000000000000142,83.099999999999994313,33.799999999999997158,1,17.199999999999999289,6.299999999999998223,4.900000000000003552,11,11);
INSERT INTO Player VALUES(20,'Cole Anthony',21,'2000-05-15',6.200000000000001776,190,'Point Guard','University of North Carolina',16,9,8,9,3,39.799999999999997157,79.400000000000005686,30.499999999999999999,2,14.800000000000000071,5.900000000000003552,3.399999999999999111,12,12);
INSERT INTO Player VALUES(21,'Cade Cunningham',20,'2001-09-25',6.799999999999998223,220,'Point Guard','Oklahoma State University',18,13,6,7,1,44.299999999999997157,87.200000000000002838,35.600000000000001421,2,19.5,6.799999999999998223,5.200000000000001776,11,11);
INSERT INTO Player VALUES(4,'Kawhi Leonard',30,'1991-06-29',6.700000000000001776,225,'Small Forward','San Diego State University',19,20,9,8,2,47.799999999999997156,87.400000000000005687,40.100000000000000142,2,26.880000000000000709,6.900000000000003552,7.299999999999998223,1,1);
INSERT INTO Player VALUES(5,'Giannis Antetokounmpo',27,'1994-12-06',6.110000000000003197,242,'Power Forward','None',21,22,11,6,4,54.200000000000002841,72.5,31.600000000000001421,3,31.5,8.199999999999992894,11.400000000000000355,2,1);
INSERT INTO Player VALUES(6,'James Harden',33,'1989-08-26',6.5,220,'Shooting Guard','Arizona State University',20,18,12,8,2,45.899999999999998578,90.299999999999997161,36.799999999999997157,4,29.699999999999999289,11.900000000000000355,5.299999999999998223,2,1);
INSERT INTO Player VALUES(7,'Anthony Davis',29,'1993-03-11',6.099999999999996447,253,'Power Forward','University of Kentucky',16,18,7,5,1,52.299999999999997159,75.599999999999994313,33.799999999999997158,2,27.300000000000000711,5.599999999999996447,9.800000000000007105,1,1);
INSERT INTO Player VALUES(8,'Luka Doncic',23,'1999-02-28',6.700000000000001776,230,'Point Guard','None',20,15,11,4,1,48.899999999999999858,83.200000000000002842,36.5,3,33.100000000000001421,10.400000000000000355,8.900000000000003552,2,1);
INSERT INTO Player VALUES(9,'Damian Lillard',32,'1990-07-15',6.200000000000001776,195,'Point Guard','Weber State University',19,16,10,6,3,45.600000000000001421,90.099999999999994312,39.799999999999997157,3,29.5,7.799999999999998223,4.299999999999998223,3,2);
INSERT INTO Player VALUES(10,'Devin Booker',25,'1996-10-30',6.599999999999996447,206,'Shooting Guard','University of Kentucky',18,17,9,6,2,46.799999999999997157,85.299999999999997161,35.200000000000002842,2,28.399999999999998578,6.200000000000001776,4.700000000000001776,5,5);
INSERT INTO Player VALUES(11,'Joel Embiid',28,'1993-03-16',7,280,'Center','University of Kansas',20,20,8,7,3,49.499999999999999998,79.799999999999997159,32.100000000000000142,3,30.899999999999998578,4.599999999999996447,11.800000000000000071,6,6);
INSERT INTO Player VALUES(12,'Chris Paul',38,'1985-05-06',6.099999999999996447,175,'Point Guard','Wake Forest University',19,18,10,8,1,46.200000000000002843,88.700000000000002843,37.5,1,26.699999999999999289,9.300000000000007105,5.099999999999996447,5,5);
COMMIT;
sqlite>
```

Entity Relationship Diagram



Database Structure:

Entities:

- **Player -** *A single Basketball player's information like name, age, personal stats, etc.*
- **Team -** *Represents a Basketball team's statistics such as the entire team score, number of Wins, Loss, Ranking, etc.*
- **Game/match -** *Stores data regarding the current season's games between 2 teams*
- **State/conference east or west -** *Contains information regarding the name of the State a player can participate in and which conference (East/West) it falls under.*
- **Coach/Manager -** *Holds information regarding the manager's name that a player plays with or the name of the entire team managed by the coach.*

Queries and their result

1. **To select the points per game for a specific player on a specific date:**

```
SELECT PointsPerGame
FROM Player
JOIN Player_Game ON Player.PlayerID = Player_Game.PlayerID
JOIN Game ON Player_Game.GameID = Game.GameID
WHERE Player.Name = 'LeBron James' -- Replace 'SpecificPlayerName' with the player's actual name
AND Game.Date = '2024-03-10'; -- Replace 'YYYY-MM-DD' with the actual date
```

```
sqlite> SELECT PointsPerGame
FROM Player
JOIN Player_Game ON Player.PlayerID = Player_Game.PlayerID
JOIN Game ON Player_Game.GameID = Game.GameID
WHERE Player.Name = 'LeBron James' -- Replace 'SpecificPlayerName' with the player's actual name
AND Game.Date = '2024-03-10'; -- Replace 'YYYY-MM-DD' with the actual date
28.5
```

Explanation - This query retrieves the points per game for a particular player (in this example, LeBron James) on a specific date (March 10, 2024). It joins the Player, Player_Game, and Game tables on their respective IDs, and then filters the results based on the player's name and the game date.

---

2. **To calculate the average assists per game for a specific player:**

```
SELECT AVG(AssistsPerGame)
FROM Player
WHERE Name = 'Stephen Curry'; -- Replace 'SpecificPlayerName' with the player name
```

```
sqlite> SELECT AVG(AssistsPerGame)
FROM Player
WHERE Name = 'Stephen Curry'; -- Replace 'SpecificPlayerName' with the player's actual name
9.8
```

Explanation - This query calculates the average assists per game for a specific player (in this case, Stephen Curry) by selecting the player's assists per game from the Player table and using the AVG function to calculate the average.

---

3. **What is the average age of NBA players in the current season**

```
SELECT AVG(Age)
FROM Player;
```

```
sqlite> SELECT AVG(Age)
FROM Player;
27.7142857142857
```

Explanation - This query calculates the average age of NBA players in the current season by selecting the average of the Age column from the Player table.

---

4. **To get the field goal percentage for a specific player:**
   SELECT FieldGoalPercentage
   FROM Player
   WHERE Name = 'Chris Paul'; -- Replace 'SpecificPlayerName' with the player's name

```
sqlite> SELECT FieldGoalPercentage
FROM Player
WHERE Name = 'Chris Paul'; -- Replace 'SpecificPlayerName' with the player's actual name
46.2
```

Explanation - This query retrieves the field goal percentage for a specific player (Chris Paul) by selecting the FieldGoalPercentage column from the Player table where the player's name matches.

---

5. **Who is the top scorer in the league for the current season**
   SELECT Name
   FROM Player
   WHERE PointsPerGame = (SELECT MAX(PointsPerGame) FROM Player);

```
sqlite> SELECT Name
FROM Player
WHERE PointsPerGame = (SELECT MAX(PointsPerGame) FROM Player);
Luka Doncic
```

Explanation - This query retrieves the name of the player who has the maximum points per game in the current season by selecting the player's name from the Player table where the PointsPerGame equals the maximum points per game in the whole league.

---

6. **To get the points per game for a specific player:**
   SELECT PointsPerGame
   FROM Player
   WHERE Name = 'Anthony Davis'; -- Replace 'SpecificPlayerName' with the player name

```
sqlite> SELECT PointsPerGame
FROM Player
WHERE Name = 'Anthony Davis'; -- Replace 'SpecificPlayerName' with the player's actual name
27.3
```

Explanation - This query retrieves the points per game for a specific player (here, Anthony Davis) by selecting the PointsPerGame column from the Player table where the player's name matches.

---

7. **To retrieve the names of players who are under 30 years old**
   SELECT Name
   FROM Player
   WHERE Age < 30;

```
sqlite> SELECT Name
FROM Player
WHERE Age < 30;
Donovan Mitchell
Karl-Anthony Towns
Devin Vassell
Tyrese Haliburton
Jalen Suggs
Dejounte Murray
Cole Anthony
Cade Cunningham
Giannis Antetokounmpo
Anthony Davis
Luka Doncic
Devin Booker
Joel Embiid
```

Explanation - This query retrieves the names of players who are under 30 years old by selecting the names from the Player table where the Age column is less than 30.

---

8. **What is the average points per game for a specific team in the current NBA season?**
   SELECT AVG(PointsPerGame)
   FROM Player
   WHERE TeamID = (SELECT TeamID FROM Team WHERE TeamName = 'Los Angeles Lakers');

```
sqlite> SELECT AVG(PointsPerGame)
FROM Player
WHERE TeamID = (SELECT TeamID FROM Team WHERE TeamName = 'Los Angeles Lakers');
28.2
```

Explanation - This query calculates the average points per game for a specific team (here, Los Angeles Lakers) in the current NBA season by selecting the average of PointsPerGame from the Player table where the TeamID matches the TeamID of the Los Angeles Lakers team.

---

9. **To retrieve the list of teams that won more than 20 matches**
   SELECT TeamName
   FROM Team
   WHERE NumberofWins > 20;

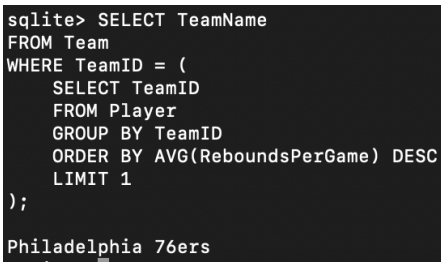
```
sqlite> SELECT TeamName
FROM Team
WHERE NumberofWins > 20;
Golden State Warriors
Milwaukee Bucks
Phoenix Suns
Philadelphia 76ers
Utah Jazz
```

Explanation - This query retrieves the names of teams that won more than 20 matches by selecting the TeamName from the Team table where the NumberofWins column is greater than 20.

---

10. **Which team has the highest average rebounds per game in the current NBA season**

```
SELECT TeamName
FROM Team
WHERE TeamID = (
   SELECT TeamID
   FROM Player
   GROUP BY TeamID
   ORDER BY AVG(ReboundsPerGame) DESC
   LIMIT 1);
```



Explanation - This query retrieves the team name that has the highest average rebounds per game in the current NBA season. It does this by grouping players by their team IDs, calculating the average rebounds per game for each team, sorting the results in descending order of average rebounds per game, and selecting the team name from the Team table corresponding to the team with the highest average rebounds per game.

Sample code used to Insert Data

--- Inserting data into the Player table

```
INSERT INTO Player (PlayerID, Name, Age, BirthDate, Height, Weight, Position, College, Attendance, Awards, NumberofWins, NumberofLosses, NumberofDraws, FieldGoalPercentage, FreeThrowPercentage, ThreePointPercentage, NumberOfPenalties, PointsPerGame, AssistsPerGame, ReboundsPerGame, TeamID, StateID)
VALUES
   (1, 'LeBron James', 36, '1984-12-30', 6.9, 250, 'Small Forward', 'None', 20, 15, 10, 5, 3, 50.5, 75.3, 35.2, 2, 28.5, 10.5, 8.7, 1, 1),
  (2, 'Stephen Curry', 33, '1988-03-14', 6.3, 190, 'Point Guard', 'Davidson College', 22, 20, 12, 3, 7, 48.2, 92.1, 42.5, 3, 32.6, 9.8, 5.2, 2, 1);
```

-- Inserting data into the Team table

```
INSERT INTO Team (TeamID, TeamName, Sponsor, FoundedYear, WinLossRecord, NumberofWins, NumberofLosses, NumberofTies, ManagerID)
VALUES
   (1, 'Los Angeles Lakers', 'Nike', 1947, '20-15', 20, 15, 0, 1),
```

```
    (2, 'Golden State Warriors', 'Under Armour', 1946, '22-3', 22, 3, 0, 2),
    (3, 'Brooklyn Nets', 'Adidas', 1967, '18-17', 18, 17, 0, 3);

-- Inserting data into the Game table
INSERT INTO Game (GameID, Date, Venue, Attendance, Awards)
VALUES
    (1, '2024-03-10', 'Staples Center', 18000, 1),
    (2, '2024-03-12', 'Chase Center', 15000, 2),
    (3, '2024-03-15', 'Barclays Center', 17000, 3);

-- Inserting data into the Manager table
INSERT INTO Manager (ManagerID, Name)
VALUES
    (1, 'Frank Vogel'),
    (2, 'Steve Kerr'),
    (3, 'Steve Nash');

-- Inserting data into the State table
INSERT INTO State (StateID, Name, Conference)
VALUES
    (1, 'California', 'West'),
    (2, 'New York', 'East'),
    (3, 'Texas', 'West');

-- Inserting data into the Player_Game table
INSERT INTO Player_Game (PlayerID, GameID)
VALUES
    (1, 1),
    (2, 1),
    (3, 2);

-- Inserting data into the Game_Team table
INSERT INTO Game_Team (GameID, TeamID)
VALUES
    (1, 1),
    (1, 2),
    (2, 1),
    (2, 2);
```