University of British Columbia, Vancouver
Department of Computer Science

CPSC 304 Project Cover Page

Milestone #: __1__

Date: __01/12/2023__

Group Number: __114__

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

Description

We have developed an abstraction of an NBA Sports Management and Data Tracking System, presented by a full-stack application designed for the NBA industry. The application covers a wide range of functionality including viewings of Team and player data as well as endorsements, sponsorships, and more, which fans, analysts or even reporters would have access to. From an admins standpoint, our application facilitates the manipulation of set data via addition, deletion and update. Altogether to provide an efficient handling of sports related data within the NBA domain.

Schema Changes

Teams(Name, WinLossRatio, Location, Championships, **ManagerID**) -> Teams(Name, WinLossRatio, Location, Championships, CourtID)

CourtID was removed due to unnecessary foreign key relationship between Teams and Managers as there was already a foreign key in Managers referring to Teams. CourtID was added to create a relationship between Hosts and Teams for tracking of past games

PlaysFor (FirstName, LastName, **TeamName**) -> PlaysFor (FirstName, LastName, NickName, **TeamName,** Salary)

Nickname and Salary attribute was added to satisfy update query requirements

Hosts (GameScore , AudienceNumber, TeamName, CourtID) -> Hosts (GameID, GameScore , AudienceNumber, **TeamName**, **CourtID**, DatePlayed)

GameID added and replaced old PKs to allow for historical data of games played

DatePlayed added to satisfy join query

Schema

Teams (Name, WinLossRatio, Location, Championships, CourtID)

```
NAME                                  WINLO
------------------------------------- -----
LOCATION                              CHAMPIONSHIPS   COURTID
------------------------------------- ------------- ----------
Sacramento Kings                      2:8
Sacramento                                        3          1

Charlotte Hornets                     1:9
Charlotte                                         2          2

Boston Celtics                        9:1
Boston                                            5          3

NAME                                  WINLO
------------------------------------- -----
LOCATION                              CHAMPIONSHIPS   COURTID
------------------------------------- ------------- ----------
Orlando Magic                         5:5
Orlando                                           1          4

Toronto Raptors                       6:4
Toronto                                           4          5
```

Managers (ManagerID, LastName, FirstName, **TeamName**)

```
SQL> select * from managers;

 MANAGERID LASTNAME
---------- -------------------------------------------
FIRSTNAME
-------------------------------------------------------
TEAMNAME
-------------------------------------------------------
         1 Buchanan
Nick
Toronto Raptors

         2 Smith
Anna
Orlando Magic

 MANAGERID LASTNAME
---------- -------------------------------------------
FIRSTNAME
-------------------------------------------------------
TEAMNAME
-------------------------------------------------------
         3 Johnson
Harold
Boston Celtics

         4 Rogers
Mandy

 MANAGERID LASTNAME
---------- -------------------------------------------
FIRSTNAME
-------------------------------------------------------
TEAMNAME
-------------------------------------------------------
Charlotte Hornets

         5 Patterson
Louise
Sacramento Kings
```

CheersFor (CheerleaderID, Name, **TeamName**)

```
SQL> select * from cheersfor;

CHEERLEADERID NAME
------------- -------------------------------------------
TEAMNAME
-------------------------------------------------------
            1 Brenda
Sacramento Kings

            2 Treesha
Charlotte Hornets

            3 Uniqua
Boston Celtics

CHEERLEADERID NAME
------------- -------------------------------------------
TEAMNAME
-------------------------------------------------------
            4 Joy
Orlando Magic

            5 Skeeza
Toronto Raptors
```

PlaysFor (FirstName, LastName, NickName, **TeamName**, Salary)

```
FIRSTNAME
-------------------------------------------------
LASTNAME
-------------------------------------------------
NICKNAME
-------------------------------------------------
TEAMNAME                                SALARY
------------------------------------- ----------
Robert
Williams
TimeLord
Boston Celtics                             2.1


FIRSTNAME
-------------------------------------------------
LASTNAME
-------------------------------------------------
NICKNAME
-------------------------------------------------
TEAMNAME                                SALARY
------------------------------------- ----------
Chris
Boucher
SlimDuck
Toronto Raptors                            7


FIRSTNAME
-------------------------------------------------
LASTNAME
-------------------------------------------------
NICKNAME
-------------------------------------------------
TEAMNAME                                SALARY
------------------------------------- ----------
Chuma
Okeke
Chuma
Orlando Magic                              4.1


24 rows selected.
```

StarPlayer (**FirstName, LastName**, **TeamName**, PPG, MPG)

```
Toronto Raptors                         23.1      29.4

Buddy
Hield

FIRSTNAME
-------------------------------------------------
LASTNAME
-------------------------------------------------
TEAMNAME                                PPG       MPG
------------------------------------- --------- ---------
Sacramento Kings                        25.3      26.3

Terry
Rozier
Charlotte Hornets                        21       20.4

Marcus

FIRSTNAME
-------------------------------------------------
LASTNAME
-------------------------------------------------
TEAMNAME                                PPG       MPG
------------------------------------- --------- ---------
Smart
Boston Celtics                          23.5       31

OG
Anunoby
Toronto Raptors                         21.3      36.6


FIRSTNAME
-------------------------------------------------
LASTNAME
-------------------------------------------------
TEAMNAME                                PPG       MPG
------------------------------------- --------- ---------
Nikola
Vucevic
Orlando Magic                           20         18


15 rows selected.
```

Stadium (CourtID, Location, Capacity)

```
SQL> select * from stadium;

  COURTID LOCATION                                    CAPACITY
--------- ------------------------------------------- ----------
        1 Sacramento                                    18218
        2 Charlotte                                     19596
        3 Boston                                        19600
        4 Orlando                                       17923
        5 Toronto                                       19812

SQL>
```

Company (CompanyName, Address, **CourtID**)

```
SQL> select * from company;

COMPANYNAME
--------------------------------------------------
ADDRESS                                     COURTID
-------------------------------------------- ----------
Nike
15 Walnut street                                 1

Under Armour
69 Butox street                                  2

Jordan
24 Fern street                                   3


COMPANYNAME
--------------------------------------------------
ADDRESS                                     COURTID
-------------------------------------------- ----------
Adidas
43 Hastings Lane                                 4

Arc???Teryx
13 Dusk Street                                   5
```

Endorses (**CompanyName, FirstName, LastName, TeamName**, YearlyDeal)

```
Suggs
Orlando Magic                                    17

COMPANYNAME
--------------------------------------------------
FIRSTNAME
--------------------------------------------------
LASTNAME
--------------------------------------------------
TEAMNAME                                    YEARLYDEAL
-------------------------------------------- ----------
Jordan
Jrue
Holiday
Boston Celtics                                   3

COMPANYNAME
--------------------------------------------------
FIRSTNAME
--------------------------------------------------
LASTNAME
--------------------------------------------------
TEAMNAME                                    YEARLYDEAL
-------------------------------------------- ----------
Nike
Lamelo
Ball
Charlotte Hornets                                4

COMPANYNAME
--------------------------------------------------
FIRSTNAME
--------------------------------------------------
LASTNAME
--------------------------------------------------
TEAMNAME                                    YEARLYDEAL
-------------------------------------------- ----------
Adidas
Kevin
Huerter
Sacramento Kings                                 5
```

Sponsor (**CompanyName, CourtID**, YearlyDeal)

```
SQL> select * from sponsor;

COMPANYNAME                             COURTID YEARLYDEAL
-------------------------------------------- ---------- ----------
Nike                                         1        10
Under Armour                                 2        15
Jordan                                       3        80
Adidas                                       4        75
Arc???Teryx                                  5        60

SQL>
emote.students.cs.ubc.ca    updated-sql-sohayl    ⊗ 0 ⚠ 0   2
```

Coaches (CoachID, FirstName, LastName, Salary, **TeamName**)

Coached (**CoachID**, **TeamName**, Title)

Reporters (ReporterID, Name, ReportedChannelName, **TeamName**)

```
SQL> select * from reporters;

REPORTERID NAME
---------- ----------------------------------------
REPORTEDCHANNELNAME
----------------------------------------------
TEAMNAME
----------------------------------------------
         1 Doris Burke
ESPN
Sacramento Kings

         2 Shaquille O'Neal
TNT
Charlotte Hornets


REPORTERID NAME
---------- ----------------------------------------
REPORTEDCHANNELNAME
----------------------------------------------
TEAMNAME
----------------------------------------------
         3 Charles Barkley
ESPN
Boston Celtics

         4 Ernie Johnson
TNT


REPORTERID NAME
---------- ----------------------------------------
REPORTEDCHANNELNAME
----------------------------------------------
TEAMNAME
----------------------------------------------
Orlando Magic

         5 Kenny Smith
TNT
Toronto Raptors

SQL>
```

Hosts (<u>GameID</u>, GameScore, AudienceNumber, **TeamName**, **CourtID**, DatePlayed)


```
        17 117:114                              130000
Charlotte Hornets                       1 09-18-2023
        18 104:102                              145000
Boston Celtics                          4 10-25-2023

    GAMEID GAMESCORE                       AUDIENCENUMBER
---------- ----------                      --------------
TEAMNAME                                 COURTID DATEPLAYED
---------------------------------------- ---------- ----------
        19 97:92                                140000
Orlando Magic                           1 11-05-2023
        20 114:110                              130000
Toronto Raptors                         3 12-20-2023
        21 101:98                               125000
Sacramento Kings                        2 01-02-2023

    GAMEID GAMESCORE                       AUDIENCENUMBER
---------- ----------                      --------------
TEAMNAME                                 COURTID DATEPLAYED
---------------------------------------- ---------- ----------
        22 112:108                              130000
Charlotte Hornets                       4 02-15-2023
        23 120:118                              140000
Boston Celtics                          1 03-22-2023
        24 99:94                                120000
Orlando Magic                           5 04-10-2023

    GAMEID GAMESCORE                       AUDIENCENUMBER
---------- ----------                      --------------
TEAMNAME                                 COURTID DATEPLAYED
---------------------------------------- ---------- ----------
        25 105:103                              135000
Toronto Raptors                         3 06-30-2023

25 rows selected.

SQL>
```

Supports (<u>FanID</u>, Name, **<u>TeamName</u>**)

```
SQL> select * from supports;

     FANID NAME
---------- -----------------------------------------------
TEAMNAME
-----------------------------------------------
     1 FoxFan1
Sacramento Kings

     2 MeloFan1
Charlotte Hornets

     3 Nav
Boston Celtics

     FANID NAME
---------- -----------------------------------------------
TEAMNAME
-----------------------------------------------
     4 Fanatic4
Orlando Magic

     5 Loyal5
Toronto Raptors

SQL>
```

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SQL Queries

1) **DELETE OPERATION**
   delete a player from PlaysFor {will delete from Endorses and StarPlayer if needed}
   DELETE FROM PlaysFor
   Where firstname = 'xxxxxxx' AND lastname = 'yyyyyyyy';
   FILE = appService.js:352-363

2) **SELECTION OPERATION**
   selection from Endorses {where clause requires user input}
   SELECT *
   FROM endorses
   WHERE xxx = yyy AND/OR …
   FILE = appService.js:365-374

3) **PROJECTION OPERATION**
   projection from any table {select clause requires user input}
   Select *
   From Teams/Managers/Supports….
   FILE = appService.js:289-307

4) **NESTED AGG WITH GROUP BY**
   Implement Player with highest salary for a given team {select clause hardcoded; where clause user input}
   SELECT FirstName, LastName, MAX(Salary) AS MaxSalary
   FROM PlaysFor
   WHERE TeamName = 'xxxx'
   GROUP BY FirstName
   HAVING MAX(Salary) = (SELECT MAX(Salary) FROM PlaysFor WHERE TeamName = 'xxxx');
   FILE = appService.js:309-335

5) **INSERT OPERATION**
   add a player to PlaysFor {if team doesnt exist then insert a new team} {insert values come from user input}
   INSERT INTO Playsfor
   Values ('xFirstName' , 'xLastName' , 'xNickName' , 'xTeamName' , xsalary);

```
        INSERT INTO Teams
        Values ('xName', 'xWLRatio' , 'xCity' , xtitles);
        FILE = appService.js:214-243, 249-273
6)  DIVISION
        Implement find fans that support all teams
        SELECT DISTINCT s.FanID, s.Name
        FROM Supports s
        WHERE NOT EXISTS (SELECT t.Name FROM Teams t WHERE NOT EXISTS
        (SELECT 1
        FROM Supports s2
        WHERE s2.FanID = s.FanID AND s2.TeamName = t.Name));
        FILE = appService.js:139-156
7)  AGG WITH GROUP BY
        Implement average salary per team
        SELECT TeamName, AVG(Salary) AS AverageSalary
        FROM PlaysFor
        GROUP BY TeamName;
        FILE = appService.js:377-392
8)  UPDATE OPERATION
        update salary/nickname from Playsfor {set and where clause is user input}
        UPDATE Playsfor
        SET xxxx = yyyy
        WHERE FirstName = 'xxxx' AND LastName = 'yyy';
        FILE = appService.js:54-118
9)  AGG WITH HAVING
        Implement find teams with >= 2 star players
        SELECT TeamName
        FROM (SELECT TeamName, COUNT(*) AS StarPlayerCount FROM StarPlayer
        GROUP BY TeamName
        HAVING COUNT(*) >= 2);
        FILE = appService.js:158-171
10) JOIN
        Implement find teams who played one a specific date {where clause requires user input}
        Select t.name AS HomeTeam, h.teamname AS AwayTeam, GameScore, AudienceNumber
        From teams t, hosts h
        Where h.courtID = t.courtID AND dateplayed = 'xxxx';
        FILE = appService.js:183-195
```

Screenshots

Before running @startup.sql

Show PlaysFor

First Name	Last Name	Nickname	Team	Salary (millions/year)

First Name:

Last Name:

Team Name:

New Nickname:

New Salary:

New Team Name:

Update Player

Teams with >= 2 Star Players

Show Teams with >= 2 Star Players

Fans Supporting All Teams

Show Fans Supporting All Teams

Enter Date: yyyy-mm-dd Show Games

After running @startup.sql

Show PlaysFor

First Name	Last Name	Nickname	Team	Salary (millions/year)
Kevin	Huerter	Wonder Boy	Sacramento Kings	12.5
Lamelo	Ball	Melo	Charlotte Hornets	20.2
Jrue	Holiday	Jew	Boston Celtics	19.8
Jalen	Suggs	Dawg	Orlando Magic	11.6
Dennis	Shroder	Alien	Toronto Raptors	10.8
De'Aaron	Fox	Swipa	Sacramento Kings	84
Jayson	Tatum	JT	Boston Celtics	28
Pascal	Siakam	SpicyP	Toronto Raptors	29
Jonathan	Isaac	J.I.	Orlando Magic	9.200000000000001
Harrison	Barnes	Barnes	Sacramento Kings	20
Gordon	Hayward	G-Time	Charlotte Hornets	28
Jaylen	Brown	JB	Boston Celtics	25
Fred	VanVleet	SteadyFreddy	Toronto Raptors	2.1
Markelle	Fultz	Fultz	Orlando Magic	1.2
Buddy	Hield	Buddy	Sacramento Kings	2
Terry	Rozier	ScaryTerry	Charlotte Hornets	19

First Name:

Last Name:

Team Name:

New Nickname:

New Salary:

New Team Name:

Update Player

Teams with >= 2 Star Players

Show Teams with >= 2 Star Players

Fans Supporting All Teams

Show Fans Supporting All Teams

Enter Date: yyyy-mm-dd

Show Games

Before updating a player

Show PlaysFor

First Name	Last Name	Nickname	Team	Salary (millions/year)
Kevin	Huerter	Wonder Boy	Sacramento Kings	12.5
Lamelo	Ball	Melo	Charlotte Hornets	20.2
Jrue	Holiday	Jew	Boston Celtics	19.8
Jalen	Suggs	Dawg	Orlando Magic	11.6
Dennis	Shroder	Alien	Toronto Raptors	10.8
De'Aaron	Fox	Swipa	Sacramento Kings	84

First Name:

Last Name:

Team Name:

New Nickname:

New Salary:

New Team Name:

Update Player

After updating a player

Show PlaysFor

First Name	Last Name	Nickname	Team	Salary (millions/year)
Kevin	Huerter	THUG	Sacramento Kings	6969
Lamelo	Ball	Melo	Charlotte Hornets	20.2
Jrue	Holiday	Jew	Boston Celtics	19.8
Jalen	Suggs	Dawg	Orlando Magic	11.6
Dennis	Shroder	Alien	Toronto Raptors	10.8
De'Aaron	Fox	Swipa	Sacramento Kings	84

First Name: Kevin

Last Name: Huerter

Team Name: Sacramento Kings

New Nickname: THUG

New Salary: 6969

New Team Name:

Update Player

Before checking for teams with >= 2 star players

Teams with >= 2 Star Players

Show Teams with >= 2 Star Players

After checking for teams

Teams with >= 2 Star Players

- Toronto Raptors
- Charlotte Hornets
- Sacramento Kings
- Boston Celtics
- Orlando Magic

Show Teams with >= 2 Star Players

Before checking superfans

Fans Supporting All Teams

Show Fans Supporting All Teams

After checking superfans

Fans Supporting All Teams

- FanID: 3, Name: Nav

Show Fans Supporting All Teams

Before checking games on a specific date

Enter Date: yyyy-mm-dd

Show Games

After checking games on a specific date

Enter Date: 2023-02-02 📅

Show Games

Home Team	Score	Away Team
Boston Celtics	118:115	Charlotte Hornets
Orlando Magic	99:95	Sacramento Kings

Projection -

Database Connection Status: connected

| Teams ⌄ | Name
WinLossRatio
Location
Championships | Show Table |

| Teams ⌄ | Name
WinLossRatio
Location
Championships | Show Table |

NAME	WINLOSSRATIO	LOCATION	CHAMPIONSHIPS
Sacramento Kings	2:8	Sacramento	3
Charlotte Hornets	1:9	Charlotte	2
Boston Celtics	9:1	Boston	5
Orlando Magic	5:5	Orlando	1
Toronto Raptors	6:4	Toronto	4

| Teams ⌄ | Name
WinLossRatio
Location
Championships | Show Table |

LOCATION

Sacramento

Charlotte

Boston

Orlando

Toronto

Having - Highest paid player

Find the highest paid player on team below:

[Boston Celtics ▾]

[Find Player]

Find the highest paid player on team below:

[Boston Celtics ▾]

[Find Player]

FIRSTNAME LASTNAME MAXSALARY

Jayson	Tatum	28

Group By

Find the average salary per team below:

[Find Teams]

Find the average salary per team below:

[Find Teams]

TEAMNAME	AVERAGESALARY
Toronto Raptors	12.98
Charlotte Hornets	17.1
Sacramento Kings	1416.72
Boston Celtics	17.78
Orlando Magic	10.42

Delete

[Chris ▾]

[Boucher]

[Delete Player]

[Buddy ▾]

[Hield]

[Delete Player]

Player deleted: Chris Boucher

Selection

[Company Name ▾] [Value]

[Add Condition] [Apply Filters] [Reset Filters]

Company Name	First Name	Last Name	Team Name	Yearly Deal

Insert -

Insert Team Member

First Name (Required): Hashim

Last Name (Required): Syed

Team Name: Add New Team ▾

New Team Name: UBC thunderbirds

Salary: 6969

NickName: HighLikeHash

Insert

Insert Team Member

First Name (Required): Hashim

Last Name (Required): Syed

Team Name: Add New Team ▾

New Team Name: UBC thunderbirds

Salary: 6969

NickName: HighLikeHash

Insert

Player inserted successfully!

FirstName
LastName
NickName
TeamName

Show Table

LASTNAME

LASTNAME
Huerter
Ball
Holiday
Suggs
Shroder
Fox
Tatum
Siakam
Isaac
Barnes
Hayward
Brown
VanVleet
Fultz
Hield
Rozier
Smart
Anunoby
Vucevic
Bagley III
Rhay
Williams
Okeke
Syed

NICKNAME

NICKNAME	TEAMNAME
THUG	Sacramento Kings
Melo	Charlotte Hornets
Jew	Boston Celtics
Dawg	Orlando Magic
Alien	Toronto Raptors
Swipa	Sacramento Kings
JT	Boston Celtics
SpicyP	Toronto Raptors
J.I.	Orlando Magic
Barnes	Sacramento Kings
G-Time	Charlotte Hornets
JB	Boston Celtics
SteadyFreddy	Toronto Raptors
Fultz	Orlando Magic
Buddy	Sacramento Kings
ScaryTerry	Charlotte Hornets
Smart	Boston Celtics
OG	Toronto Raptors
Vooch	Orlando Magic
MB3	Sacramento Kings
G-Rhay	Charlotte Hornets
TimeLord	Boston Celtics
Chuma	Orlando Magic
HighLikeHash	UBC thunderbirds

NAME	WINLOSSRATIO	LOCATION	CHAMPIONSHIPS	COURTID
Sacramento Kings	2:8	Sacramento	3	1
Charlotte Hornets	1:9	Charlotte	2	2
Boston Celtics	9:1	Boston	5	3
Orlando Magic	5:5	Orlando	1	4
Toronto Raptors	6:4	Toronto	4	5
UBC thunderbirds	0:0	Unknown	0	0