#### University of British Columbia, Vancouver

**Department of Computer Science** 

## CPSC 304 Project Cover Page

Milestone #: \_\_\_\_

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(<u>Name</u>, WinLossRatio, Location, Championships, **ManagerID**) -> Teams(<u>Name</u>, 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 (<u>FirstName</u>, <u>LastName</u>, <u>TeamName</u>) -> PlaysFor (<u>FirstName</u>, <u>LastName</u>, NickName, <u>TeamName</u>, Salary)

Nickname and Salary attribute was added to satisfy update query requirements

Hosts (GameScore , AudienceNumber, <u>TeamName</u>, <u>CourtID</u>) -> Hosts (<u>GameID</u>, GameScore , AudienceNumber, <u>TeamName</u>, <u>CourtID</u>, 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 Sacramento	2:8	
Charlotte Hornets Charlotte	1:9	
Boston Celtics Boston	9 <b>:1</b> 5	
NAME	WINLO	
LOCATION	CHAMPIONSHIPS	
Orlando Magic Orlando	5:5	
Toronto Raptors Toronto	6:4	

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



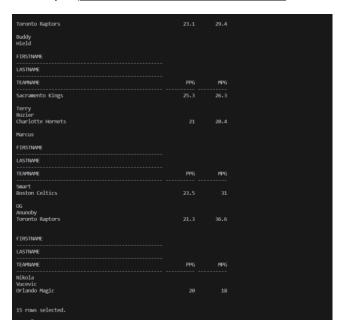
#### CheersFor (CheerleaderID, Name, TeamName)



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



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



#### Stadium (CourtID, Location, Capacity)



Company (CompanyName, Address, CourtID)



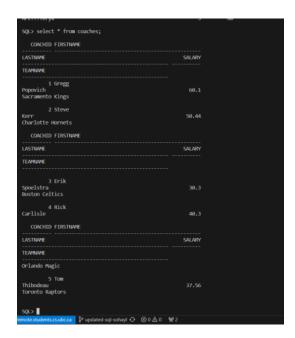
Endorses (CompanyName, FirstName, LastName, TeamName, YearlyDeal)



Sponsor (CompanyName, CourtID, YearlyDeal)



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



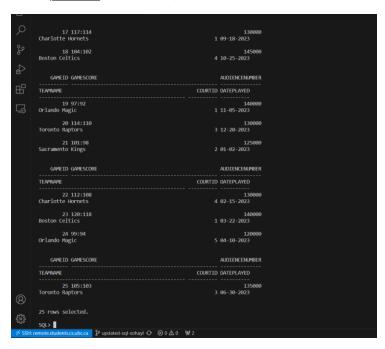
#### Coached (CoachID, TeamName, Title)



Reporters (ReporterID, Name, ReportedChannelName, TeamName)



Hosts (GameID, GameScore, AudienceNumber, TeamName, CourtID, DatePlayed)



Supports (FanID, Name, TeamName)



#### **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';
```

#### **Screenshots**

Before running @startup.sql

FILE = appService.js:183-195

#### Show PlaysFor First Name: Teams with >= 2 Star Players Fans Supporting All Teams $\fbox{[First\ Name][Last\ Name][Nickname][Team][Salary\ (millions/year)]}$ Last Name: Show Teams with >= 2 Star Players Team Name: New Nickname: New Salary: New Team Name: Update Player After running @startup.sql **Show PlaysFor** First Name: Teams with >= 2 Star Fans Supporting All Salary (millions/year) Nickname Team **Players** Teams Last Name: Wonder Boy Sacramento Kings Kevin Huerter Team Name: Charlotte Hornets Lamelo Ball Melo Show Teams with >= 2 Star Players New Nickname: Jrue Holiday Boston Celtics 19.8 Jew Show Games Orlando New Salary: 11.6 Jalen Suggs Dawg Magic New Team Name: Toronto 10.8 Shroder Alien Dennis Raptors Sacramento Kings Update Player 84 De'Aaron Fox Swipa Boston Celtics 28 Jayson Tatum JT Toronto Pascal Siakam SpicyP 29 Orlando Jonathan Isaac J.I. 9.2000000000000001 Magic Sacramento Kings 20 Charlotte Hornets Gordon Hayward Boston Celtics 25 Jaylen Brown SteadyFreddy Toronto Raptors Fred VanVleet Orlando 1.2 Fultz Markelle Fultz Magic Sacramento Buddy Hield Buddy Kings Charlotte ScaryTerry Before updating a player **Show PlaysFor** First Name: **First** Last **Salary** Nickname **Team** (millions/year) Name Name Last Name: Sacramento Kevin 12.5 Huerter Wonder Boy Kings Team Name: Charlotte Lamelo Ball Melo 20.2 Hornets New Nickname: Jrue Holiday Jew Boston Celtics | 19.8 Orlando New Salary: Suggs Jalen Dawg 11.6 Magic

New Team Name:

Update Player

Toronto

Raptors
Sacramento

Kings

10.8

84

Dennis

De'Aaron

Shroder

Fox

Alien

Swipa

#### 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

# 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

After checking games on a specific date

**Show Games** 

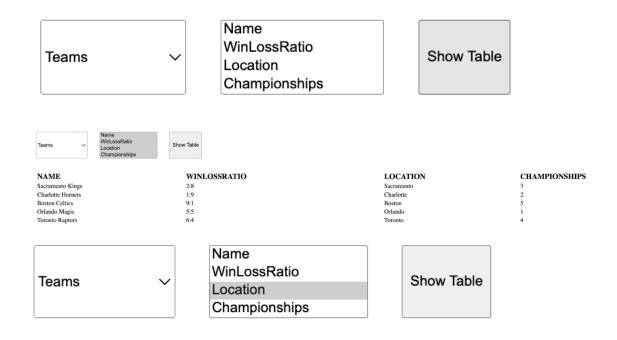
**Home Team Score Away Team** Boston Celtics 118:115 Charlotte Hornets

Orlando 99:95 Sacramento

Magic Kings

#### Projection -

## **Database Connection Status: connected**



### **LOCATION**

Sacramento

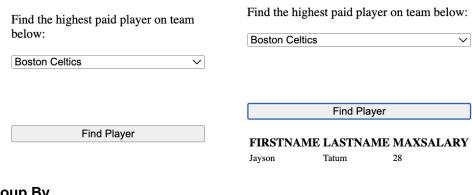
Charlotte

**Boston** 

Orlando

**Toronto** 

#### Having - Highest paid player



#### **Group By**





Player deleted: Chris Boucher

#### Selection



**Yearly Deal Company Name First Name Last Name Team Name** 

## **Insert Team Member**

First Name (Required): Hashim
I IN O
Last Name (Required): Syed
Team Name: Add New Team V
Tourn Transfer Tourn
New Team Name: UBC thunderbirds
g 1 (2000)
Salary: 6969
NickName: HighLikeHash
Triesta (azite)
Insert
<b>Insert Team Member</b>
First Name (Required): Hashim
The fund (require).
Last Name (Required): Syed
Team Name: Add New Team V
New Team Name: UBC thunderbirds
Salary: 6969
NickName: HighLikeHash
Insert
Player inserted successfully!



 LASTNAME
 NICKNAME
 TEAMNAME

 Huerter
 THUG
 Sacramento Kings

 Ball
 Melo
 Charlotte Hornets

 Holiday
 Jew
 Boston Celties

 Suggs
 Dawg
 Orlando Magic

 Shroder
 Alien
 Toronto Raptors

 Fox
 Swipa
 Sacramento Kings

 Tatum
 JT
 Boston Celties

 Siakar
 SpicyP
 Toronto Raptors

 Isaac
 JL
 Orlando Magic

 Barnes
 Sacramento Kings

 Hayward
 G-Time
 Charlotte Hornets

 Brown
 JB
 Boston Celties

 VanVleet
 SteadyFreddy
 Toronto Raptors

 Fultz
 Fultz
 Orlando Magic

 Fultz
 Fultz
 Orlando Magic

 Rozier
 ScaryTerry
 Charlotte Hornets

 Smart
 Boston Celties

 Anunoby
 OG
 Toronto Raptors

 Vucevic
 Vocch
 Orlando Magic

 Bagley III
 MB3
 Sacramento Kings

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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