

NBA PLAYOFF DATABASE



CONTENTS

- Team information
- Tools used
- Data overview
- RDM
- GUI overview
- Queries and Results

TEAM OVERVIEW

- Team members:
 - Jiarong Chen – Python GUI/Data implementation
 - Liang Fang – RDM/Database Design
 - Andrew Courtien – Presentation/Data curation

TOOLS USED

- Data and sources:
 - All data has been pulled from official NBA sites to ensure accuracy as of the 2018-2019 NBA playoff series
 - www.nbastuffer.com
 - <https://hoopshype.com/salaries/2018-2019/>

TOOLS USED CONTINUED

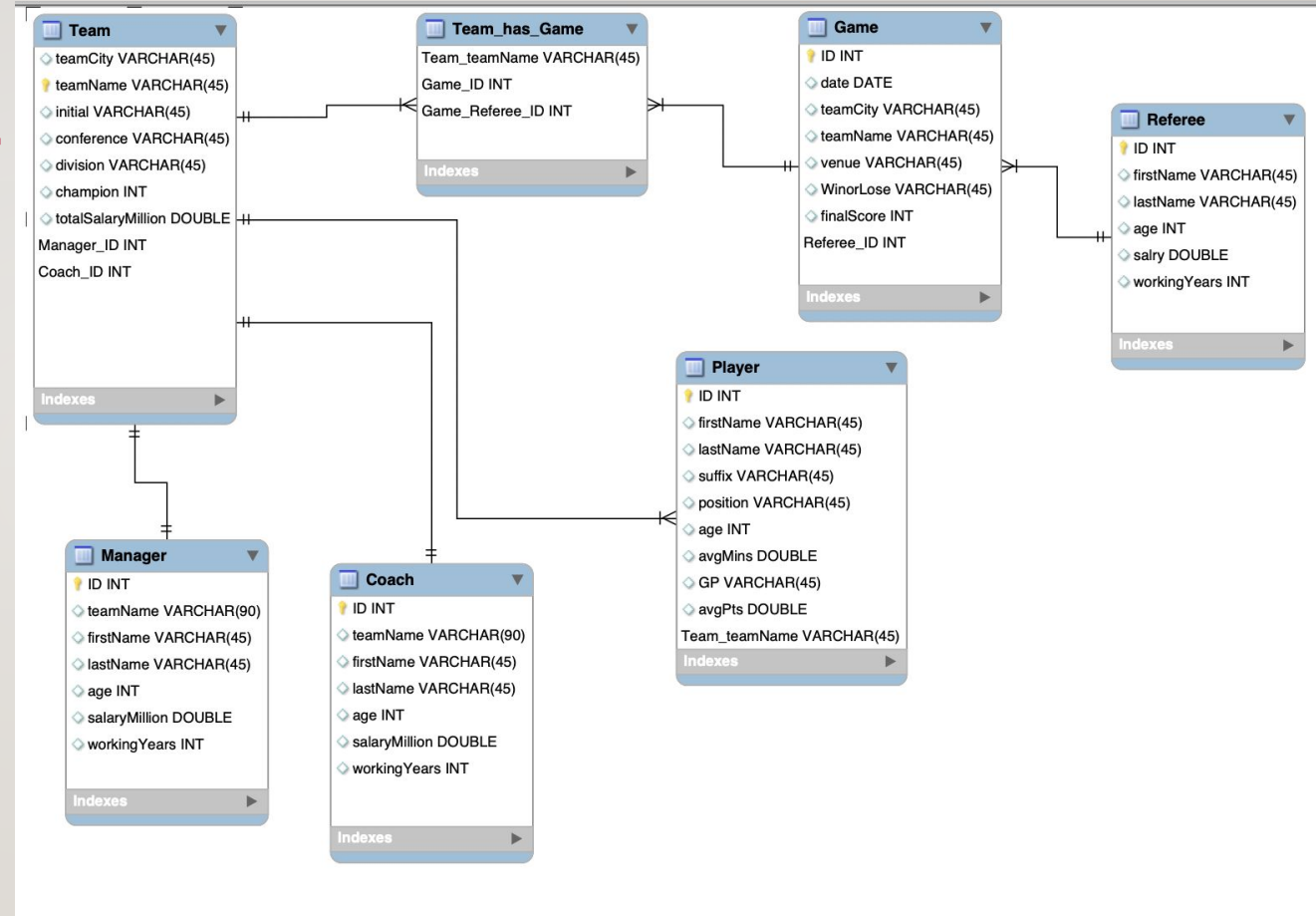
- Database and GUI
 - MySQL has been used for the database.
 - Python with a Flask web microframework(front end) were used to create a local server to connect to the SQL database(backend) along with local HTML pages to allow a user input and selection through a GUI interface.
 - The code has been written in Sublime text editor.
 - Bootstrap CSS templates have been used to create a user friendly interface.

DATA OVERVIEW

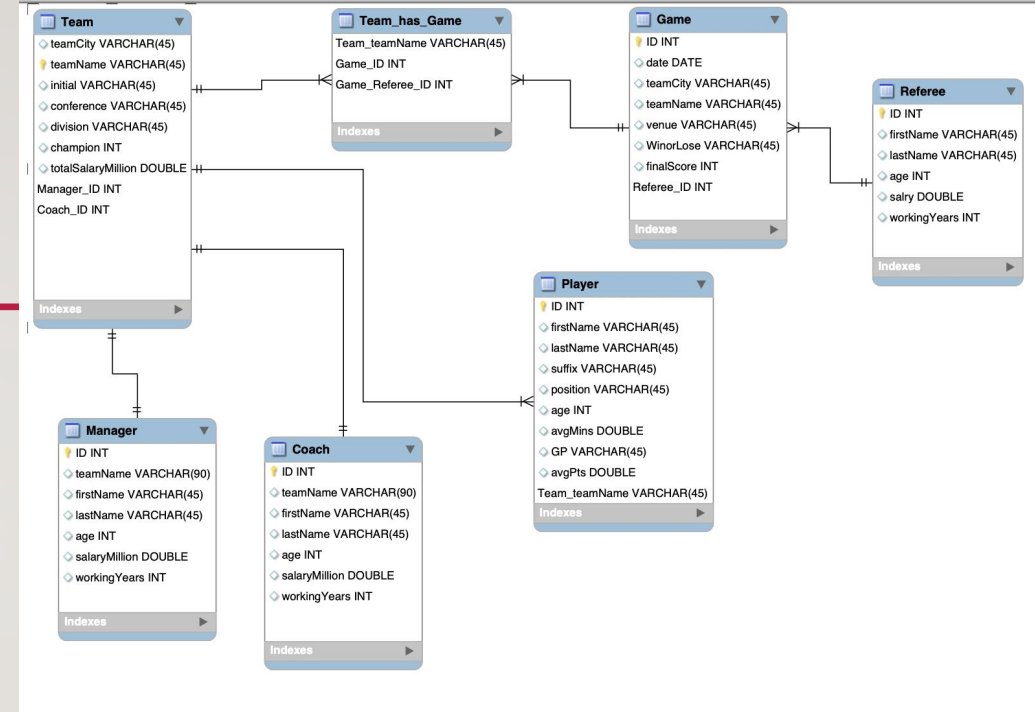
- Over 650 lines of data has been used within this database, broken down into the following categories.
 - Game results from 4/13/2019 - 6/13/2019.
 - Stats for 212 players including positions, age, average minutes, how many games played in a season and the average points scored.
 - Team information including coaches, conference, division, number of championships won and total salary.
 - Coach, referees and managers ages, salaries and length and tenure within the NBA have been gathered as well.
 - All tables have been normalized to the 3rd form.

RDM

- I:I Relationships:
 - Team – Manager
 - Team – Coach
- I:M Relationships:
 - Team – Player
 - Referee – Game
- M:M Relationships:
 - Team – Game



PRIMARY AND FOREIGN KEYS



	Team	Manager	Coach	Player	Game	Referee	Team Has Game
Primary Key	Team Name	ID	ID	ID	ID	ID	None
Foreign Key	Coach ID, Manager ID	None	None	Team Name	Referee ID	None	Team Name, Game ID, Referee ID

NON-NORMALIZED DATA SHEET UP TO 3RD NORMAL FORM

NAME	INITIALS	CONFERENCE	DIVISION	Champion	TotalSalary(\$million)	ManagerID	Manager Name	Manager Salary
Atlanta Hawks	Atl	East	Southeast	1	80.5	A01	Travis Schlenk	6.8
Boston Celtics	Bos	East	Atlantic	17	127.5	A02	Danny Ainge	6.6
Brooklyn Nets	Bro	East	Atlantic	0	120.8	A03	Sean Marks	4.5
Charlotte Hornets	Cha	East	Southeast	0	123.4	A04	Michell Kupchak	6.9
Chicago Bulls	Chi	East	Central	6	114.5	A05	Garr Forman	9.6
Cleveland Cavaliers	Cle	East	Central	1	125.3	A06	Koby Altman	6.2
Dallas Mavericks	Dal	West	Southwest	1	88.4	A07	Donnie Nelson	5.5
Denver Nuggets	Den	West	Northwest	0	120.3	A08	Arturas Karnisovas	2.4
Detroit Pistons	Det	East	Central	3	128.6	A09	Ed Stefanski	3.5
Golden State Warriors	Gol	West	Pacific	6	148.7	A10	Bob Myers	4.2
Houston Rockets	Hou	West	Southwest	2	128.6	A11	Daryl Morey	5.4
Indiana Pacers	Ind	East	Central	0	112.6	A12	Chad Buchunan	2.1
Los Angeles Clippers	Lac	West	Pacific	0	120	A13	Michael Winger	1.9
Los Angeles Lakers	Lal	West	Pacific	16	109	A14	Rob Pelinka	3.5
Memphis Grizzlies	Mem	West	Southwest	0	128.2	A15	Chris Wallace	4.6

TEAMCITY	TEAMNAME	INITIALS	CONFERENCE	DIVISION	Champion	TotalSalary	ManagerID
Atlanta	Hawks	Atl	East	Southeast	1	80.5	1
Boston	Celtics	Bos	East	Atlantic	17	127.5	2
Brooklyn	Nets	Bro	East	Atlantic	0	120.8	3
Charlotte	Hornets	Cha	East	Southeast	0	123.4	4
Chicago	Bulls	Chi	East	Central	6	114.5	5
Cleveland	Cavaliers	Cle	East	Central	1	125.3	6
Dallas	Mavericks	Dal	West	Southwest	1	88.4	7
Denver	Nuggets	Den	West	Northwest	0	120.3	8
Detroit	Pistons	Det	East	Central	3	128.6	9
Golden State	Warriors	Gol	West	Pacific	6	148.7	10
Houston	Rockets	Hou	West	Southwest	2	128.6	11
Indiana	Pacers	Ind	East	Central	0	112.6	12
Los Angeles	Clippers	Lac	West	Pacific	0	120	13
Los Angeles	Lakers	Lal	West	Pacific	16	109	14
Memphis	Grizzlies	Mem	West	Southwest	0	128.2	15

ManagerID	TEAMNAME	FirstName	LastName	Age	Salary	WorkingYears
1	Hawks	Travis	Schlenk	42	6.8	22
2	Celtics	Danny	Ainge	60	6.6	23
3	Nets	Sean	Marks	44	4.5	7
4	Hornets	Michell	Kupchak	65	6.9	25
5	Bulls	Garr	Forman	42	9.6	10
6	Cavaliers	Koby	Altman	37	6.2	3
7	Mavericks	Donnie	Nelson	45	5.5	18
8	Nuggets	Arturas	Karnisovas	48	2.4	4
9	Pistons	Ed	Stefanski	46	3.5	6
10	Warriors	Bob	Myers	44	4.2	8
11	Rockets	Daryl	Morey	47	5.4	13
12	Pacers	Chad	Buchunan	48	2.1	3
13	Clippers	Michael	Winger	42	1.9	2
14	Lakers	Rob	Pelinka	49	3.5	4
15	Grizzlies	Chris	Wallace	51	4.6	7

USER INTER FACE GUI

Thanks for using our NBA Database Management System



Select One of the Tables That You Want to Access:

[Game](#)

[Player](#)

[Team](#)

[Referee](#)

[Manager](#)

[Coach](#)

[Top/Bottom Players](#)

[Highest/Lowest GameScore](#)

[Best Manager](#)

[Luckiest Ref to A Team](#)

[MVP Potentials](#)

[Coming soon..](#)

Database Design and Practice Project

5 INTERESTING QUERIES



OLDEST PLAYER ON THE TORONTO RAPTORS

- SQL statement:

```
SELECT ID, FIRSTNAME,  
LASTNAME, Suffix, POS, AGE,  
AvgMin, GP, AvgPoints, TEAM  
FROM player  
WHERE TEAM = 'Raptors'  
ORDER BY age DESC;
```

Results:

ID	28
First Name	Marc
Last Name	Gasol
Suffix	
Position	C
Age	34
averageMinutes	30.62
gamePlay	24
averagePoints	9.42
TEAM	Raptors

ID	14
First Name	Kyle
Last Name	Lowry
Suffix	
Position	G
Age	33
averageMinutes	37.54
gamePlay	24
averagePoints	15.04
TEAM	Raptors

HIGHEST SCORING WIN IN A PLAYOFF GAME

- SQL statement:

```
SELECT team.TEAMCITY,  
team.TEAMNAME, game.WINorLOSE,  
game.FinalScore FROM team INNER JOIN  
(game INNER JOIN teamhasgame ON  
game.GameID = teamhasgame.GameID) ON  
team.TEAMNAME =  
teamhasgame.teamteam  
  
WHERE WINorLOSE = 'W'  
ORDER BY FinalScore DESC;
```

Results:

Team City	Philadelphia
Team Name	76ers
WIN or LOSE	W
Final Score	145

Team City	Portland
Team Name	Trail blazers
WIN or LOSE	W
Final Score	140

BEST MANAGER IN PLAYOFF SERIES

- SQL statement:

```
SELECT team.TEAMCITY, team.TEAMNAME, team.ManagerID, manager.FIRSTNAME, manager.LASTNAME,  
game.FinalScore, COUNT(WINorLOSE) AS WonTimes
```

```
FROM Manager INNER JOIN (team INNER JOIN (game INNER JOIN teamhasgame ON game.GameID =  
teamhasgame.GameID)
```

```
ON team.TEAMNAME = teamhasgame.teamteam) ON manager.ManagerID = team.ManagerID
```

```
WHERE WINorLOSE = 'W'
```

```
GROUP BY TEAMNAME
```

```
ORDER BY COUNT(WINorLOSE) DESC;
```

Results:

Team City	Philadelphia
Team Name	76ers
WIN or LOSE	W
Final Score	145

Team City	Portland
Team Name	Trail blazers
WIN or LOSE	W
Final Score	140

MVP POTENTIAL

- SQL statement:

```
SELECT Player.FirstName,      Player.LastName,  
((Player.AvgPoints/Player.AvgMin)*Player.GP) AS MVPFactor  
  
FROM Player  
  
WHERE Player.AvgPoints <> 0  
  
GROUP BY FirstName, LastName, MVPFactor;
```

First Name	Skal
Last Name	Labissiere
MVP Factor (Potential)	0.574285714286

First Name	Spencer
Last Name	Dinwiddie
MVP Factor (Potential)	2.77566539924

First Name	Stephen
Last Name	Curry
MVP Factor (Potential)	16.1237971391

MOST GAMES WON WITH CERTAIN REF

- SQL statement:

```
SELECT TEAMCITY, TEAMNAME, WINorLOSE, FinalScore, referee.RefID, FirstName, LastName, WorkingYears,  
COUNT(referee.RefID) AS RefTimes
```

```
FROM game INNER JOIN referee ON referee.RefID = game.RefID
```

```
WHERE WINorLOSE = 'W'
```

```
GROUP BY TEAMNAME
```

```
ORDER BY COUNT(referee.RefID) DESC;
```

Results:

Team City	Toronto
Team Name	Raptors
WinOrLose	W
RefID	3
Ref First Name	Sean
Ref Last Name	Corbin
Working Years	25
Team Won Games With This Ref	16

Team City	Golden State
Team Name	Warriors
WinOrLose	W
RefID	9
Ref First Name	Eric
Ref Last Name	Lewis
Working Years	16
Team Won Games With This Ref	14