

CPSC 304 Project Cover Page

Milestone #: 2

Date: 20/08/2023

Group Number: 114

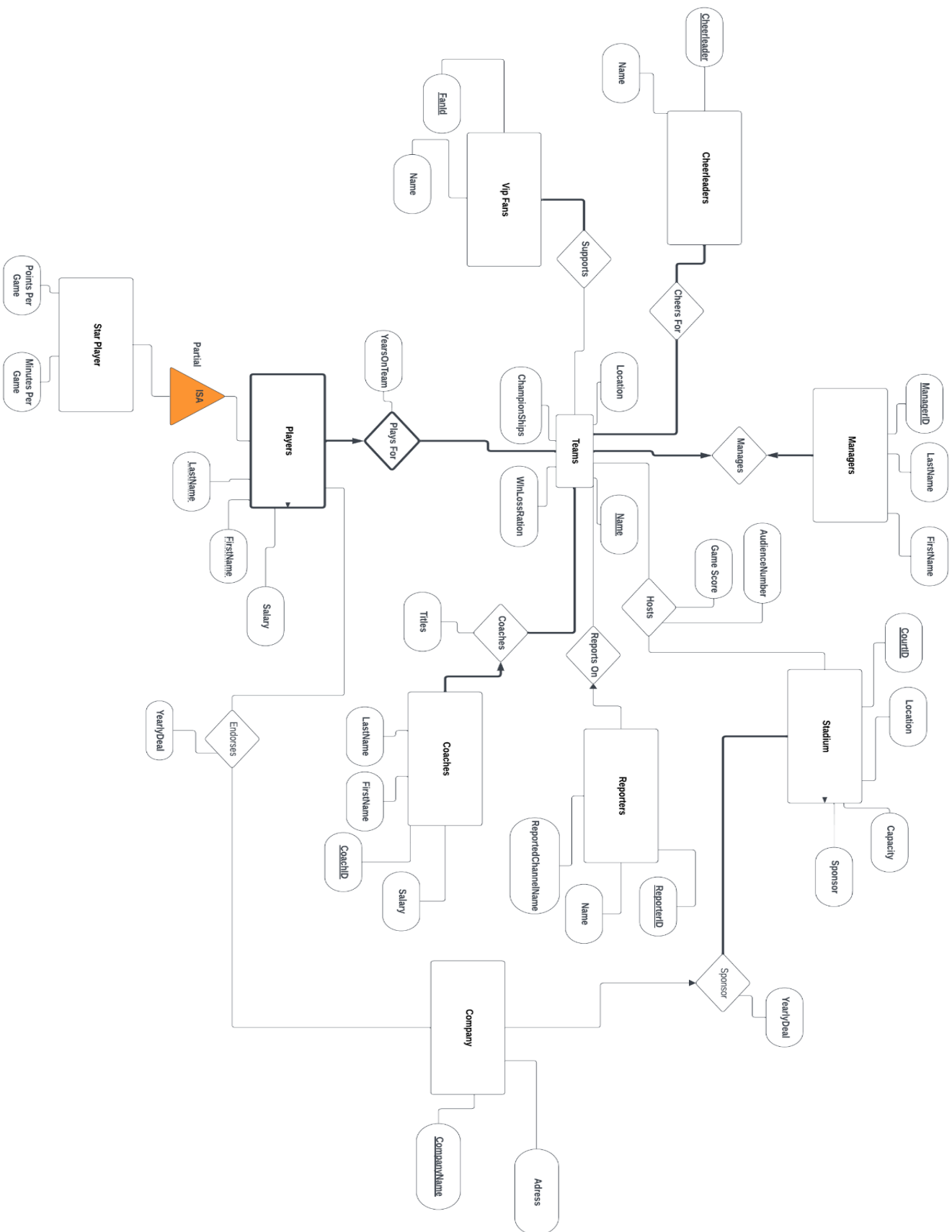
Name	Student Number	CS Alias (Userid)	Preferred E-mail Address
Hashim Syed	40818544	n4o7h	syedhashim2015@gmail.com
Sohayl Allibhai	94806650	z2f2x	sohaylA0@student.ubc.ca
Hao Xiang Gao	59757088	s0n6s	jackgao1540@gmail.com

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

2) My application simplifies NBA sports management and data tracking, benefiting both teams and fans. It helps teams manage rosters and performance while providing fans with updates on players and teams.

3)



4) RELATIONAL MODEL

CheersFor(CheerleaderID: INTEGER, Name: VARCHAR, **TeamName**: VARCHAR)
CK: {CheerleaderID, TeamName}
TeamName Not Null

Supports(FanID: INTEGER, Name: VARCHAR, **TeamName**: VARCHAR)
CK: {FanID, TeamName}

Teams(Name: VARCHAR, Location: VARCHAR, Championships: INTEGER, WLR:
CHAR(5), **ManagerID**: INTEGER)
Unique (ManagerID)
ManagerID Not Null

PlaysFor(FirstName: VARCHAR, LastName: VARCHAR, **TeamName**: VARCHAR,
YearsOnTeam: INTEGER, Salary: DOUBLE)
CK: {FirstName, LastName, TeamName}

StarPlayer(**FirstName**: VARCHAR, **LastName**: VARCHAR, **TeamName**: VARCHAR, ppg:
DOUBLE, mpg: DOUBLE)
CK: {FirstName, LastName, TeamName}

Coached(**CoachID**: INTEGER, **TeamName**: VARCHAR, Titles: INTEGER)

Coaches(FirstName: VARCHAR, LastName: VARCHAR, CoachID: INTEGER, Salary:
DOUBLE, **TeamName**: VARCHAR)
Unique (TeamName)
TeamName Not Null

Reporters(ReporterID: INTEGER, Name: VARCHAR, ReportedChannelName: VARCHAR,
TeamName: VARCHAR)

Managers(ManagerID: INTEGER, LastName: VARCHAR, FirstName: VARCHAR,
TeamName: VARCHAR)
Unique (TeamName)
TeamName Not Null

Hosts(**CourtID**: INTEGER, **TeamName**: VARCHAR, GameScore: VARCHAR,
AudienceNumber: INTEGER)
CK: {CourtID, TeamName}

Stadium(CourtID: INTEGER, Location: VARCHAR, Capacity: INTEGER)
Unique(location)

Sponsors(CourtID: INTEGER, CompanyName: VARCHAR, YearlyDeal: DOUBLE)

Company(Address: VARCHAR, CompanyName: VARCHAR, **CourtID**: INTEGER)

Endorses(**FirstName**: VARCHAR, **LastName**: VARCHAR, CompanyName: VARCHAR,
TeamName: VARCHAR, YearlyDeal: DOUBLE)
CK: {FirstName, LastName, CompanyName, TeamName}

5) FUNCTIONAL DEPENDENCIES

CheersFor (CheerleaderID, TeamName):
PK: (CheerleaderID, TeamName)

Supports (FanID, TeamName):
PK: (FanID, TeamName)

Teams (Name, Location, Championships, WLR, ManagerID):
PK: Name
FD: Name -> Location, Championships, WLR, ManagerID
FD: ManagerID -> WLR, Location

PlaysFor (FirstName, LastName, TeamName, YearsOnTeam, Salary):
CK: (FirstName, LastName, TeamName)
FD: FirstName, LastName, TeamName => Salary, YearsOnTeam

StarPlayer (FirstName, LastName, TeamName, ppg, mpg):
CK: (FirstName, LastName, TeamName)
FD: FirstName, LastName, TeamName => ppg, mpg

Coached (CoachID, TeamName, Titles):
CK: (CoachID, TeamName)
FD: CoachID, TeamName -> Titles

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

FD: (FirstName, LastName, TeamName) -> Salary,
FD: CoachID => TeamName, Salary, FirstName, LastName

Reporters (ReporterID, Name, ReportedChannelName, TeamName):
PK: ReporterID
FD: ReporterID => Name, ReportedChannelName, TeamName
FD: ReportedChannelName, TeamName => Name, TeamName

Managers (ManagerID, LastName, Firstname, TeamName):
PK: TeamName
FD: ManagerID -> LastName, Firstname, TeamName

Hosts (CourtID, TeamName, GameScore, AudienceNumber):
CK: (CourtID, TeamName)
FD: CourtID, TeamName -> GameScore, AudienceNumber

Stadium (CourtID, Location, Capacity):
PK: CourtID
FD: CourtID -> Location, Capacity
FD: Location -> Capacity

Sponsors (CourtID, CompanyName, YearlyDeal):
CK: (CourtID, CompanyName)
FD: CourtID, Companyname => YearlyDeal

Company (Address, CompanyName, CourtID):
PK: CompanyName
FD: CompanyName -> Address, CourtID

Endorses (FirstName, LastName, CompanyName, TeamName, YearlyDeal):
CK: (FirstName, LastName, CompanyName, TeamName)
FD: FirstName, LastName, CompanyName, TeamName => YearlyDeal

6) NORMALIZATION

Cheerleaders(CheerleaderID: INTEGER, Name: VARCHAR) – entity

CheersFor(CheerleaderID: INTEGER, TeamName: VARCHAR) – relationship
CK: {CheerleaderID, TeamName}

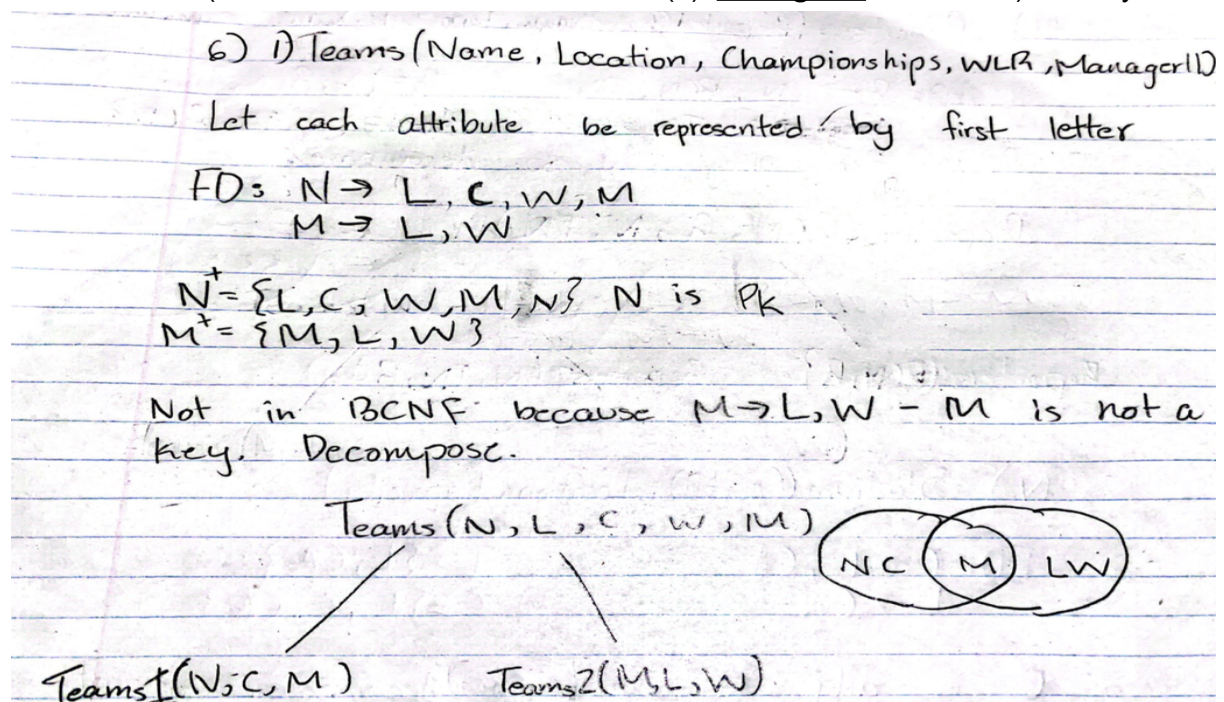
Vip Fans(FanID: INTEGER, Name: VARCHAR) – entity

Supports(FanID: INTEGER, TeamName: VARCHAR) – relationship

CK: {FanID, TeamName}

Teams \Rightarrow

- Teams1(Name: VARCHAR, Championships: INTEGER, ManagerID: INTEGER) – entity
 - Unique (ManagerID)
 - ManagerID Not Null
- Teams2(Location: VARCHAR, WLR: CHAR(5), ManagerID: INTEGER) – entity



PlaysFor(FirstName: VARCHAR, LastName: VARCHAR, TeamName: VARCHAR,

YearsOnTeam: INTEGER, Salary: DOUBLE) – relationship

CK: {FirstName, LastName, TeamName}

StarPlayer(FirstName: VARCHAR, LastName: VARCHAR, TeamName: VARCHAR, ppg: DOUBLE, mpg: DOUBLE) – entity

CK: {FirstName, LastName, TeamName}

Coached(CoachID: INTEGER, TeamName: VARCHAR, Titles: INTEGER) – relationship

Coaches \Rightarrow

- Coaches1 (CoachID: INTEGER, FirstName: VARCHAR, LastName: VARCHAR, TeamName) – entity
 - Unique (TeamName)

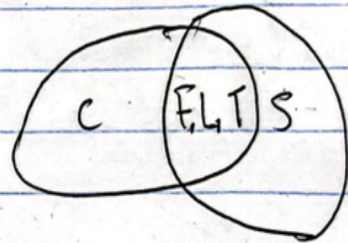
- TeamName Not Null
- Coaches2 (FirstName: VARCHAR, LastName: VARCHAR, TeamName: VARCHAR, Salary: DOUBLE) – entity
 - Unique (TeamName)
 - TeamName Not Null

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

FD: $C \rightarrow T, S, F, L$ $C^+ = \{T, S, F, L, C\}$
 $F, L, T \rightarrow S$ $F, L, T^+ = \{F, L, T, S\}$

FLT not a key so decompose

Coaches (C, F, L, S, T)



Coaches1 (C, F, L, T)

Coaches2 (F, L, T, S)

Reporters \Rightarrow

- Reporters1 (ReporterID: INTEGER, ReportedChannelName: VARCHAR) – entity
- Reporters2 (Name: VARCHAR, ReportedChannelName: VARCHAR, TeamName: VARCHAR) – entity

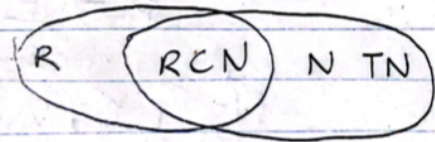
III) Reporters (ReportedChannelName, ReporterID, Name, TeamName)

FD: $R \rightarrow N, RCN, TN$ $R^+ = \{N, RCN, TN, R\}$

$RCN \rightarrow N, TN$ $RCN^+ = \{N, TN, RCN\}$

R is the only key so decompose.

Reporters (RCN, R, N, TN)



Reporters1(RCN, R)

Reporters2(N, TN, RCN)

Managers(ManagerID: INTEGER, LastName: VARCHAR, Firstname: VARCHAR,

TeamName: VARCHAR) – entity

Unique (TeamName)

TeamName Not Null

Hosts(CourtID: INTEGER, TeamName: VARCHAR, GameScore: VARCHAR,

AudienceNumber: INTEGER) – Relationship

CK: {CourtID, TeamName}

Stadium \Rightarrow

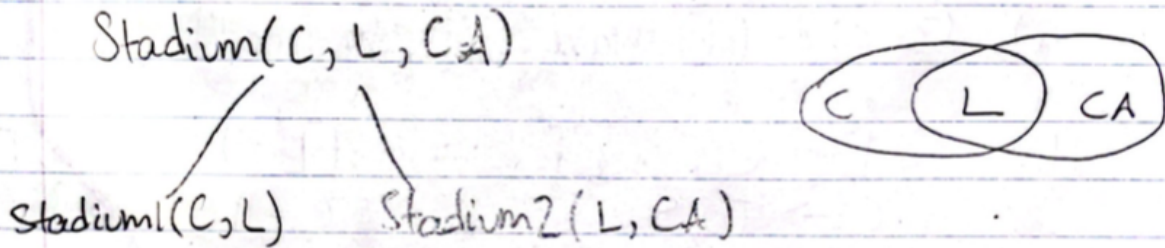
- Stadium1(CourtID: INTEGER, Location: VARCHAR) – entity
 - Unique(Location)
- Stadium2(Location: VARCHAR, Capacity: INTEGER) – entity
 - Unique(Location)

(V) Stadium(CourtID, Location, Capacity)

FD: $C \rightarrow L, CA$
 $L \rightarrow CA$

$L^+ = \{L, CA\}$
 $C = \{L, C, CA\}$

C is only key so decompose.



Sponsors(CourtID: INTEGER, CompanyName: VARCHAR, YearlyDeal: DOUBLE) – relationship

Company(Address: VARCHAR, CompanyName: VARCHAR, CourtID: INTEGER) – entity

Endorses(FirstName: VARCHAR, LastName: VARCHAR, CompanyName: VARCHAR, TeamName: VARCHAR, YearlyDeal: DOUBLE) – relationship

CK: {FirstName, LastName, CompanyName, TeamName}

7) SQL DDL

```
CREATE TABLE Managers (  
    ManagerID INT PRIMARY KEY,  
    LastName VARCHAR,  
    FirstName VARCHAR,  
    TeamName VARCHAR UNIQUE NOT NULL,  
    FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE Teams (  
    Name VARCHAR PRIMARY KEY,  
    WinLossRatio CHAR(5),  
    Location VARCHAR NOT NULL,  
    Championships INT  
    ManagerID INT UNIQUE NOT NULL,  
    FOREIGN KEY (ManagerID) REFERENCES Managers(ManagerID)
```

);

```
CREATE TABLE CheersFor (  
    CheerleaderID INT,  
    Name VARCHAR,  
    TeamName VARCHAR NOT NULL,  
    PRIMARY KEY (CheerleaderID, TeamName),  
    FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE Supports (  
    FanID INT,  
    Name VARCHAR,  
    TeamName VARCHAR,  
    PRIMARY KEY (FanID, TeamName)  
    FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE PlaysFor (  
    FirstName VARCHAR,  
    LastName VARCHAR,  
    TeamName VARCHAR,  
    PRIMARY KEY (FirstName, LastName, TeamName),  
    FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE StarPlayer (  
    FirstName VARCHAR,  
    LastName VARCHAR,  
    TeamName VARCHAR,  
    PPG DOUBLE PRECISION,  
    MPG DOUBLE PRECISION,  
    PRIMARY KEY (FirstName, LastName, TeamName),  
    FOREIGN KEY (FirstName, LastName) REFERENCES PlaysFor(FirstName,  
    LastName),  
    FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE Company (  
    CompanyName VARCHAR PRIMARY KEY,  
    Address VARCHAR,  
    CourtID INT,  
    FOREIGN KEY (CourtID) REFERENCES Stadium(CourtID)
```

);

```
CREATE TABLE Endorses (  
    CompanyName VARCHAR,  
    FirstName VARCHAR,  
    LastName VARCHAR,  
    TeamName VARCHAR,  
    YearlyDeal DOUBLE PRECISION,  
    PRIMARY KEY (CompanyName, FirstName, LastName, TeamName),  
    FOREIGN KEY (CompanyName) REFERENCES Company(CompanyName),  
    FOREIGN KEY (FirstName, LastName) REFERENCES Players(FirstName,  
    LastName)  
    FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE Stadium (  
    CourtID INT PRIMARY KEY,  
    Location VARCHAR UNIQUE,  
    Capacity INT  
);
```

```
CREATE TABLE Sponsor (  
    CompanyName VARCHAR,  
    CourtID INT,  
    YearlyDeal INT,  
    PRIMARY KEY (CompanyName, CourtID),  
    FOREIGN KEY (CompanyName) REFERENCES Company(CompanyName),  
    FOREIGN KEY (CourtID) REFERENCES Stadium(CourtID)  
);
```

```
CREATE TABLE Coaches (  
    CoachID INT PRIMARY KEY,  
    LastName VARCHAR,  
    FirstName VARCHAR,  
    Salary DOUBLE PRECISION,  
    TeamName VARCHAR, UNIQUE NOT NULL,  
    FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE Coached (  
    CoachID INT,  
    TeamName VARCHAR,  
    Title VARCHAR,  
    PRIMARY KEY (CoachID, TeamName),
```

```
FOREIGN KEY (CoachID) REFERENCES Coaches(CoachID),  
FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE Reporters (  
ReporterID INT PRIMARY KEY,  
Name VARCHAR,  
ReportedChannelName VARCHAR,  
TeamName VARCHAR,  
FOREIGN KEY (TeamName) REFERENCES Teams(Name)  
);
```

```
CREATE TABLE Hosts (  
GameScore VARCHAR,  
AudienceNumber INT,  
TeamName VARCHAR,  
CourtID INT,  
PRIMARY KEY (CourtID, TeamName),  
FOREIGN KEY (TeamName) REFERENCES Teams(Name),  
FOREIGN KEY (CourtID) REFERENCES Stadium(CourtID)  
);
```

8) INSERTS

```
INSERT INTO Managers VALUES  
(1, 'Buchanan', 'Nick', Toronto Raptors),  
(2, 'Smith', 'Anna', Orlando Magic),  
(3, 'Johnson', 'Harold', Boston Celtics),  
(4, 'Rogers', 'Mandy', Charlotte Hornets),  
(5, 'Patterson', 'Louise', Sacramento Kings);
```

```
INSERT INTO Teams VALUES  
( 'Sacramento Kings', 2:8, 'Sacramento', 3, 5),  
( 'Charlotte Hornets', 1:9, 'Springfield', 2,4),  
( 'Boston Celtics', 9:1, 'Greenville', 5,3),  
( 'Orlando Magic', 5:5, 'Waterbay', 1,2),  
( 'Toronto Raptors', 6:4, 'Mount Valley', 4,1);
```

INSERT INTO CheersFor VALUES

(1, 'Brenda', 'Sacramento Kings'),
(2, 'Treesha', 'Charlotte Hornets'),
(3, 'Uniqua', 'Boston Celtics'),
(4, 'Joy', 'Orlando Magic'),
(5, 'Skeeza', 'Toronto Raptors');

INSERT INTO Supports VALUES

(1, 'FoxFan1', 'Sacramento Kings'),
(2, 'MeloFan1', 'Charlotte Hornets'),
(3, 'Nav', 'Boston Celtics'),
(4, 'Fanatic4', 'Orlando Magic'),
(5, 'Loyal5', 'Toronto Raptors');

INSERT INTO PlaysFor VALUES

('Kevin', 'Huerter', 'Sacramento Kings'),
('Lamelo', 'Ball', 'Charlotte Hornets'),
('Jrue', 'Holiday', 'Boston Celtics'),
('Jalen', 'Suggs', 'Orlando Magic'),
('Dennis', 'Shroder', 'Toronto Raptors');

INSERT INTO StarPlayer VALUES

('Kevin', 'Huerter', 'Sacramento Kings', 22.4, 25),
('Lamelo', 'Ball', 'Charlotte Hornets', 27.3, 30.3),
('Jrue', 'Holiday', 'Boston Celtics', 25.4, 29.4),
('Jalen', 'Suggs', 'Orlando Magic', 20.3, 17),
('Dennis', 'Shroder', 'Toronto Raptors', 29.3, 24.5);

INSERT INTO Endorses(CompanyName, Years, PlayerID) VALUES

('Nike', 'Dennis', 'Shroder', 'Toronto Raptors', 23),
('Under Armor', 'Jalen', 'Suggs', 'Orlando Magic', 17),
('Jordan', 'Jrue', 'Holiday', 'Boston Celtics', 3),
('Nike', 'Lamelo', 'Ball', 'Charlotte Hornets', 4),
('Adidas', 'Kevin', 'Huerter', 'Sacramento Kings', 5);

INSERT INTO Company VALUES

('Nike', 15 Walnut street, 1),
('UnderArmor', 69 Butox street, 2),
('Jordan', 24 Fern street, 3),
('Adidas', 43 Hastings Lane, 4),
('Arc'Teryx', 13 Dusk Street, 5);

INSERT INTO Sponsor VALUES

('Nike', 10, 1),
('UnderArmor', 15, 2),
('Jordan', 80, 3),
('Adidas', 75, 4),
('ArcTeryx', 60, 5);

INSERT INTO Coaches VALUES
(1, 'Gregg', 'Popovich', 60.1, 'Sacramento Kings'),
(2, 'Steve', 'Kerr', 50.44, 'Charlotte Hornets'),
(3, 'Erik', 'Spoelstra', 30.3, 'Boston Celtics'),
(4, 'Rick', 'Carlisle', 40.3, 'Orlando Magic'),
(5, 'Tom', 'Thibodeau', 37.56, 'Toronto Raptors');

INSERT INTO Coached (ContractID, Title, CoachID, TeamName, StartDate, EndDate) VALUES
(1, 'Sacramento Kings', 3),
(2, 'Charlotte Hornets', 20),
(3, 'Boston Celtics', 0),
(4, 'Orlando Magic', 5),
(5, 'Toronto Raptors', 1);

INSERT INTO Reporters VALUES
(1, 'Doris Burke', 'ESPN', 'Sacramento Kings'),
(2, 'Shaquille O'Neal', 'TNT', 'Charlotte Hornets'),
(3, 'Charles Barkley', 'ESPN', 'Boston Celtics'),
(4, 'Ernie Johnson', 'TNT', 'Orlando Magic'),
(5, 'Kenny Smith', 'TNT', 'Toronto Raptors');

INSERT INTO Stadium VALUES
(1, 'Sacramento', 18218),
(2, 'Charlotte', 19596),
(3, 'Boston', 19600),
(4, 'Orlando', 17923),
(5, 'Toronto', 19812);

INSERT INTO Hosts VALUES
('102:99', 18000, 'Sacramento Kings', 1),
('121:112', 19500, 'Charlotte Hornets', 2),
('115:103', 19200, 'Boston Celtics', 3),
('89:88', 17000, 'Orlando Magic', 4),
('104:101', 19700, 'Toronto Raptors', 5);