INFSCI 2710
Database Management

MIDTERM REPORT

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Assignment 1:

1. Creating the player table in baseball database:

```
CREATE TABLE `baseball`.`player` (
  `playerID` VARCHAR(20) NOT NULL,
  `birthYear` INT NULL,
  `birthMonth` INT NULL,
  `birthDay` INT NULL,
  `birthCountry` VARCHAR(45) NULL,
  `birthState` VARCHAR(45) NULL,
  `birthCity` VARCHAR(45) NULL,
  `deathYear` YEAR NULL,
  `deathMonth` INT NULL,
  `deathDay` INT NULL,
  `deathCountry` VARCHAR(45) NULL,
  `deathState` VARCHAR(45) NULL,
  `deathCity` VARCHAR(45) NULL,
  `nameFirst` VARCHAR(45) NULL,
  `nameLast` VARCHAR(45) NULL,
  `nameGiven` VARCHAR(45) NULL,
  `weight` INT NULL,
  `height` INT NULL,
  `bats` VARCHAR(45) NULL,
  `throws` VARCHAR(45) NULL,
  `debut` DATE NULL,
  `finalGame` DATE NULL,
  `retroID` INT NULL,
  `bbrefID` INT NULL,
  PRIMARY KEY (`playerID`),
  UNIQUE INDEX `playerID_UNIQUE` (`playerID` ASC));
```

2. Creating the batting table in baseball database:

```
CREATE TABLE `baseball`.`batting` (
  `playerID` VARCHAR(20) NOT NULL,
```

```
`yearID` YEAR NULL,
`stint` INT NULL,
`teamID` VARCHAR(10) NULL,
`lgID` VARCHAR(45) NULL,
`G` INT NULL,
`AB` INT NULL,
`R` INT NULL,
`H` INT NULL,
`2B` INT NULL,
`HR` INT NULL,
`RBI` INT NULL,
`SB` INT NULL,
`CS` INT NULL,
`BB` INT NULL,
`SO` INT NULL,
`IBB` INT NULL,
`HBP` INT NULL,
`SH` INT NULL,
`SF` INT NULL,
`GIDP` INT NULL);
```

3. Creating the halloffame table in baseball database:

```
CREATE TABLE `baseball`.`hallOfFame` (
  `playerID` VARCHAR(20) NOT NULL,
  `yearID` INT NULL,
  `votedBy` VARCHAR(45) NULL,
  `ballots` INT NULL,
  `votes` INT NULL,
  `inducted` VARCHAR(4) NULL,
  `category` VARCHAR(45) NULL);
```

4. Creating the teams table in baseball database:

```
CREATE TABLE `baseball`.`teams` (
  `frachID` VARCHAR(10) NOT NULL,
  `franchName` VARCHAR(45) NULL,
  `active` VARCHAR(4) NULL,
  PRIMARY KEY (`frachID`));
```

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5. Adding Foreign Keys:

```
ALTER TABLE `baseball`.`hallOfFame`
ADD INDEX `pID_idx` (`pID` ASC);
ALTER TABLE `baseball`.`hallOfFame`
ADD CONSTRAINT `pID`
  FOREIGN KEY (`pID`)
  REFERENCES `baseball`.`player` (`playerID`)
  ON DELETE RESTRICT
  ON UPDATE RESTRICT;

 ALTER TABLE `baseball`.`batting`
ADD CONSTRAINT `playerID`
  FOREIGN KEY (`playerID`)
  REFERENCES `baseball`.`player` (`playerID`)
  ON DELETE RESTRICT
  ON UPDATE RESTRICT;

ALTER TABLE `baseball`.`batting`
ADD INDEX `teamID_idx` (`teamID` ASC);
ALTER TABLE `baseball`.`batting`
ADD CONSTRAINT `teamID`
  FOREIGN KEY (`teamID`)
  REFERENCES `baseball`.`teams` (`franchID`)
  ON DELETE RESTRICT
  ON UPDATE RESTRICT;
```

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6. ER diagram showing the relationships/constraints of the tables:

Fig 1: ER Diagram

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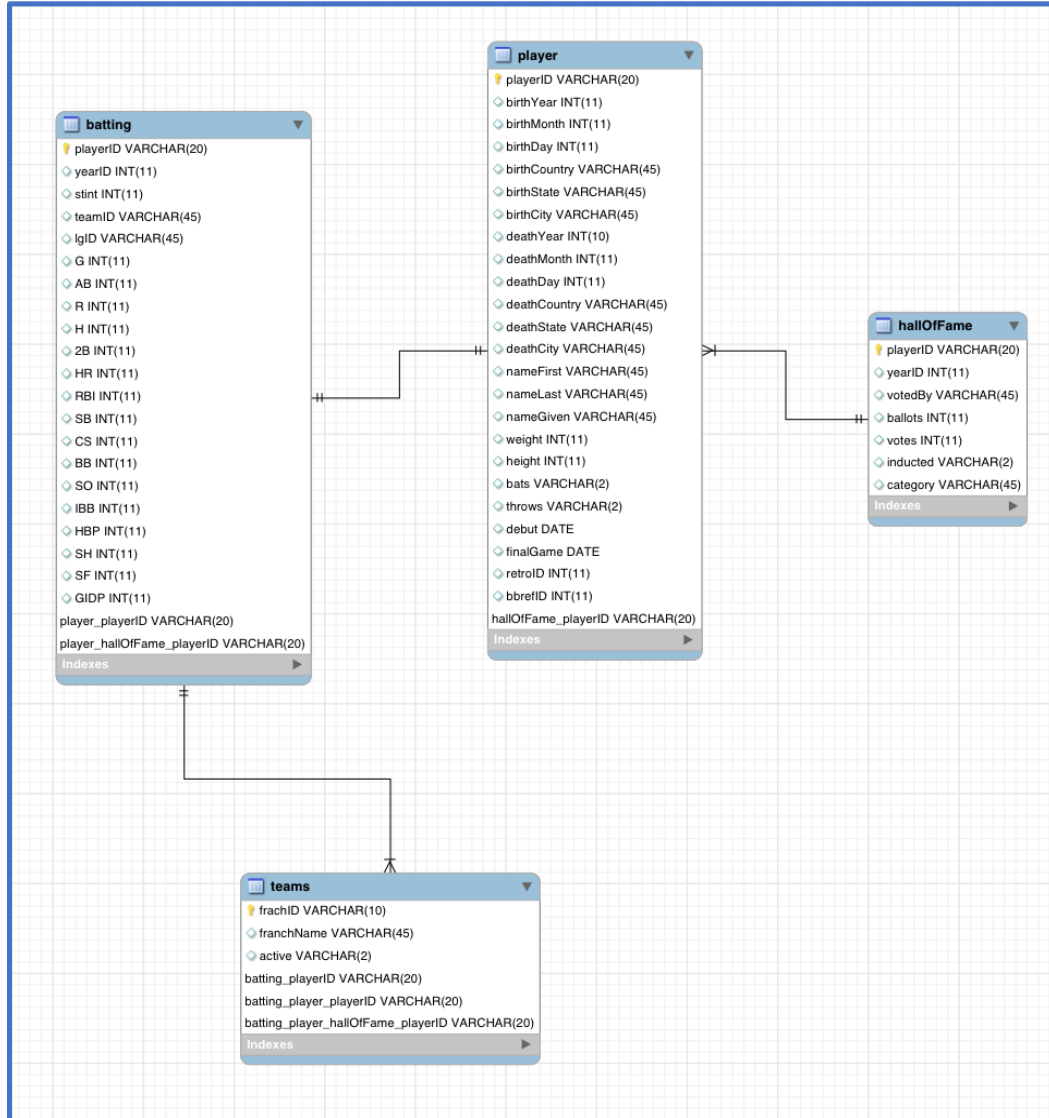
Assignment 2:

1. How many players were born before 1935?

```
USE baseball;
SELECT COUNT (*) FROM player
WHERE player.birthYear < 1935;
```
Result: 9215

2. What players were born in Pittsburgh? List all players names in ascend order.

```
USE baseball;
SELECT player.nameFirst, player.nameLast FROM player
WHERE player.birthCity =  "Pittsburgh"
ORDER BY player.nameFirst;
```
Result: Total 128 rows (snippet given below)

nameFirst	nameLast
Ad	Gumbert
Al	Krumm
Al	Lachowicz
Al	Mamaux
Al	Pratt
Andy	Bruckmiller
Art	Howe
Baldy	Louden
Bill	Bayne
Bill	Blair
Bill	Doak
Bill	Fulton
Bill	Hallman
Bill	Jackson
Bill	Regan

3. How many players weigh over 250 lbs?

```
USE baseball;
SELECT COUNT (*) FROM player
```

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```
WHERE player.weight > 250;
```
Result: 99

4. How many teams are active?

```
USE baseball;
SELECT COUNT (*) FROM teams
WHERE active= 'Y' ;
```
Result: 30

5. How many batting records are from the year 1871?

```
USE baseball;
SELECT COUNT (*) FROM batting
WHERE batting.yearID = 1871;
```
Result: 115

Assignment 3:

1.

a. What player has exactly 3000 hits total for his career?

```
SELECT newtable.playerID
FROM
(
SELECT batting.playerID,
SUM(batting.H) as Hits
FROM batting group by batting.playerID)
AS newtable WHERE newtable.Hits=3000;
```
Result: clemero01

b. What year was he inducted into the hall of fame?

```
USE baseball;
SELECT halloffame.yearID
FROM halloffame
WHERE halloffame.PlayerID=
(
SELECT newtable.playerID
FROM
```

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```
(
SELECT batting.playerID,
SUM(batting.H) as Hits
FROM batting group by batting.playerID)
AS newtable WHERE newtable.Hits=3000);
```
Result: 1973

2.

a. What team has had the most hits after the year 2000, how many?

```
SELECT teams.franchName, table2.hits FROM
(
SELECT table1.teamID,table1.HITS FROM
(
SELECT batting.teamID,SUM(batting.H) as HITS
FROM batting
WHERE batting.yearID >2000
GROUP BY batting.teamID) AS table1
ORDER BY table1.HITS DESC ) AS table2
INNER JOIN teams ON table2.teamID = teams.franchID
ORDER BY table2.hits DESC LIMIT 1;
```
Result: Boston Red Sox, 23029

3.

a. What player has the most cumulative hits?

Result: Pete Rose

b. How many does he have?

Result: 4256

c. Is he in the hall of fame?

Result: N

d. How many votes has he received total?

Result: 74

```
SELECT table2.nameFirst,table2.nameLast,table2.total as
total_hits,hall_of_fame.inducted,sum(hall_of_fame.votes) as Totalvotes FROM
```

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```
(
SELECT player.playerID, player.nameFirst, player.nameLast, table1.total FROM
(
SELECT batting.playerID, SUM(batting.H) AS TOTAL
FROM batting GROUP BY batting.playerID) AS table1
INNER JOIN player on table1.playerID = player.playerID
ORDER BY table1.total desc LIMIT 1)
AS table2
INNER JOIN hall_of_fame ON table2.playerID= hall_of_fame.PlayerID
GROUP BY table2.nameFirst, table2.nameLast, table2.total, hall_of_fame.inducted;
```

nameFirst	nameLast	total_hits	inducted	Totalvotes
Pete	Rose	4256	N	74

4.

a. show top 5 records ordered descending by total_atbats

`SELECT * FROM pstats ORDER BY total_atbats desc LIMIT 5;`

playerId	nameLast	nameFirst	total_games	total_atbats	total_runsScored	total_hits	total_hrs	total_rbis	total_walks	total_sos	inducted
aaronha01	Aaron	Hank	3298	12364	2174	3771	755	2297	1402	1383	Y
yastrca01	Yastrzemski	Carl	3308	11988	1816	3419	452	1844	1845	1393	Y
ripkeca01	Ripken	Cal	3001	11551	1647	3184	431	1695	1129	1305	Y
cobbty01	Cobb	Ty	3035	11434	2246	4189	117	1937	1249	357	Y
murraed02	Murray	Eddie	3026	11336	1627	3255	504	1917	1333	1516	Y

b. show top 5 records ordered descending by total strike outs

`SELECT * FROM pstats ORDER BY total_sos desc LIMIT 5;`

playerId	nameLast	nameFirst	total_games	total_atbats	total_runsScored	total_hits	total_hrs	total_rbis	total_walks	total_sos	inducted
jacksre01	Jackson	Reggie	2820	9864	1551	2584	563	1702	1375	2597	Y
stargwi01	Stargell	Willie	2360	7927	1195	2232	475	1540	937	1936	Y
schmimi01	Schmidt	Mike	2404	8352	1506	2234	548	1595	1507	1883	Y
perezto01	Perez	Tony	2777	9778	1272	2732	379	1652	925	1867	Y
griffke02	Griffey	Ken	2671	9801	1662	2781	630	1836	1312	1779	Y

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c. show top 5 records ordered descending by total total_hrs

```
SELECT * FROM pstats ORDER BY total_hrs desc LIMIT 5;
```

player Id	nameL ast	nameF irst	total_ga mes	total_at bats	total_runsS cored	total_ hits	total_ hrs	total_r bis	total_w alks	total_ sos	induc ted
aaronh a01	Aaron	Hank	3298	12364	2174	3771	**755**	2297	1402	1383	Y
ruthba 01	Ruth	Babe	2503	8398	2174	2873	**714**	2217	2062	1330	Y
maysw i01	Mays	Willie	2992	10881	2062	3283	**660**	1903	1464	1526	Y
griffke 02	Griffey	Ken	2671	9801	1662	2781	**630**	1836	1312	1779	Y
robinfr 02	Robins on	Frank	2808	10006	1829	2943	**586**	1812	1420	1532	Y

d. code for creating the view

```
create view pAggregate as
select player.playerId, nameLast, nameFirst,
       sum(G) as total_games,
       sum(AB) as total_atbats,
       sum(R) as total_runsScored,
       sum(H) as total_hits,
       sum(HR) as total_hrs,
       sum(RBI) as total_rbis,
       sum(BB) as total_walks,
       sum(SO) as total_sos
from  player, batting
where batting.playerID=player.playerID
Group by player.playerID;

create view pstats as
select paggregate.playerId, nameLast, nameFirst,
       total_games, total_atbats, total_runsScored, total_hits,
    total_hrs, total_rbis, total_walks,total_sos,
       halloffame.inducted
from  halloffame, paggregate
where
halloffame.inducted="Y" and halloffame.playerID=paggregate.playerID
Group by paggregate.playerID;
```