

Sione Fangaiuiha

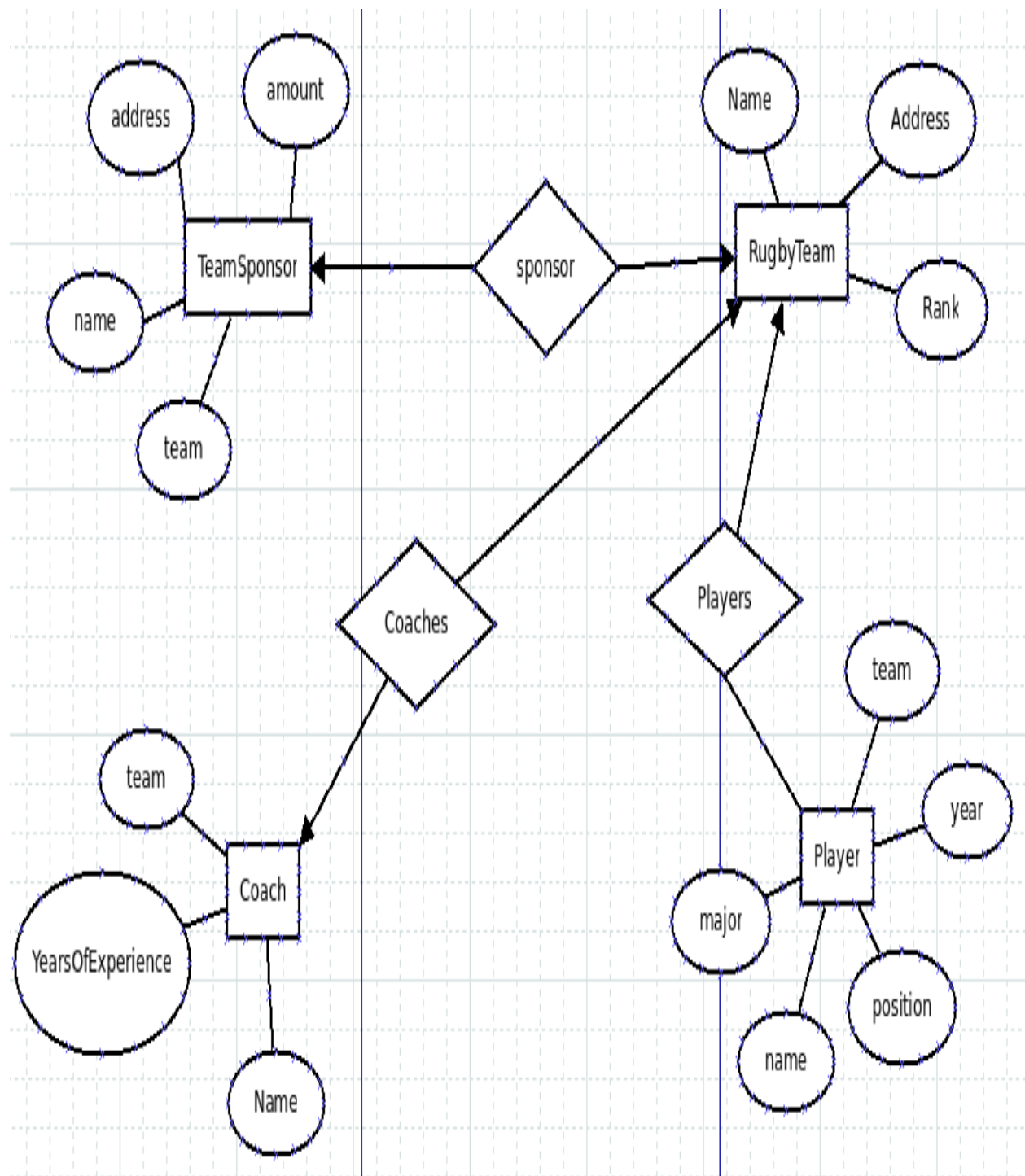
Database Systems

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Final Project

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For my DIA diagram I chose to do rugby teams, its players and coach, and also the team sponsor. The functionalities of this is that you can find which team is sponsored by which sponsor and how much money that sponsor gives to the team, find players of certain teams and their names, find the rank of a team and also find their address, find coaches that coach which team and how much experience they have, find position, major and what year at school of players etc.



Sione Fangaiuiha
Phase III
Database Systems

```
--*****--
--***** ER TO RELATIONS *****--
--*****--
```

--Coaches Relationship--

Team	Coach	YearsOfExperience
ArkansasState	Potty	3
BYU	John	6
Cal	David	12
LifeU	Henry	5
UCLA	Jack	9

--Sponsor Relationship--

Team	TeamSponsor	amount
ArkansasState	Canterbury	2000
BYU	RhinoRugby	5000
Cal	Nike	2500
LifeU	Adidas	3000
UCLA	UnderArmour	5500

--Players Relationship--

Players	Position	Team
Zach	Center	ArkansasState
Connor	Fullback	ArkansasState
Mike	Prop	ArkansasState
James	Wing	ArkansasState
Jake	Center	ArkansasState

```
--*****--
--***** CREATE THE TABLES *****--
--*****--
```

-- create table RugbyTeam, with constraint of unique 'name'

```
CREATE TABLE RugbyTeam (
    name VARCHAR(20),
    address VARCHAR(20) UNIQUE,
    rank INT,
    PRIMARY KEY (name, rank)
);
```

-- create table TeamSponsor, with constraint of Primary Key ('name', 'amount', 'team')

```
CREATE TABLE TeamSponsor (
    name VARCHAR(20),
    team VARCHAR(20),
    address VARCHAR(20)
    DEFAULT 'N/A',
    amount REAL,
    PRIMARY KEY (name, amount, team)
);
```

-- create table Player, with constraint of Primary Key ('name', 'position', 'team')

```
CREATE TABLE Player (
    name VARCHAR(20),
    position VARCHAR(20),
    team VARCHAR(20),
    major VARCHAR(20),
    --DEFAULT 'N/A',
    year VARCHAR(20)
    DEFAULT 'N/A',
    PRIMARY KEY (name, position, team)
);
```

-- create table Coach, with constraint of
Primary Key ('name', 'YearsOfExperience', 'team')

```
CREATE TABLE Coach (
    name VARCHAR(20),
    YearsOfExperience INT,
    team VARCHAR(20),
    PRIMARY KEY (name, YearsOfExperience, team)
);
```

```
--*****--
--***** INSERT VALUES INTO TABLES *****--
--*****--
```

--Insert values into RugbyTeam table--

```
INSERT INTO RugbyTeam(name, rank, address)
VALUES ('ArkansasState', 3, '2105 Aggie Rd');
INSERT INTO RugbyTeam(name, rank, address)
VALUES ('BYU', 4, 'Provo,UT 84602');
INSERT INTO RugbyTeam(name, rank, address)
```

```
VALUES ('Cal', 1, 'Berkeley, CA');
INSERT INTO RugbyTeam(name, rank, address)
VALUES ('LifeU', 2, '1269 Barclay Cir');
INSERT INTO RugbyTeam(name, rank, address)
VALUES ('UCLA', 5, 'Los Angeles, CA');
```

--Insert values into TeamSponsor--

```
INSERT INTO TeamSponsor(name, amount, team)
VALUES ('Canterbury', 2000, 'ArkansasState');
INSERT INTO TeamSponsor(name, amount, team)
VALUES ('RhinoRugby', 5000, 'BYU');
INSERT INTO TeamSponsor(name, amount, team)
VALUES ('Nike', 2500, 'Cal');
INSERT INTO TeamSponsor(name, amount, team)
VALUES ('Adidas', 3000, 'LifeU');
INSERT INTO TeamSponsor(name, amount, team)
VALUES ('UnderArmour', 5500, 'UCLA');
```

--Insert values into Player--

--Arkansas State players--

```
INSERT INTO Player(name, position, team, year, major)
VALUES ('Zach', 'Center', 'ArkansasState', 'Freshmen', 'Business');
INSERT INTO Player(name, position, team, major)
VALUES ('Connor', 'Fullback', 'ArkansasState', 'Business');
INSERT INTO Player(name, position, team, major)
VALUES ('Mike', 'Prop', 'ArkansasState', 'Mathematics');
INSERT INTO Player(name, position, team, major)
VALUES ('James', 'Wing', 'ArkansasState', 'SportsManagement');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Jake', 'Center', 'ArkansasState', 'Senior', 'ComputerScience');
```

--BYU players--

```
INSERT INTO Player(name, position, team, year)
VALUES ('Cory', 'Hooker', 'BYU', 'Sophomore');
INSERT INTO Player(name, position, team, year)
VALUES ('Jimmy', 'Flyhalf', 'BYU', 'Freshmen');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Piri', 'Scrumhalf', 'BYU', 'Junior', 'Spanish');
INSERT INTO Player(name, position, team, major)
VALUES ('Greg', 'Wing', 'BYU', 'ExerciseScience');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Tim', 'Center', 'BYU', 'Senior', 'Business');
```

--Life University players--

```
INSERT INTO Player(name, position, team, year, major)
VALUES ('Tadgh', 'Flyhalf', 'LifeU', 'Senior', 'ExerciseScience');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Adam', 'Lock', 'LifeU', 'Freshmen', 'SportsManagement');
INSERT INTO Player(name, position, team, major)
VALUES ('Nick', 'Number8', 'LifeU', 'PhysicalEducation');
INSERT INTO Player(name, position, team, year)
VALUES ('Johnny', 'Flanker', 'LifeU', 'Sophomore');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Jerry', 'Center', 'LifeU', 'Junior', 'SportsManagement');
```

--Cal players--

```
INSERT INTO Player(name, position, team, year, major)
VALUES ('Ty', 'Wing', 'Cal', 'Freshmen', 'ComputerScience');
INSERT INTO Player(name, position, team, major)
VALUES ('Thomas', 'Flanker', 'Cal', 'Business');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Tyrone', 'Center', 'Cal', 'Junior', 'Spanish');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Jackson', 'Fullback', 'Cal', 'Junior', 'Mathematics');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Harry', 'Hooker', 'Cal', 'Senior', 'PhysicalEducation');
```

--UCLA players--

```
INSERT INTO Player(name, position, team, year, major)
VALUES ('Calvin', 'Center', 'UCLA', 'Freshmen', 'Nutrition');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Stewart', 'Wing', 'UCLA', 'Sophomore', 'Business');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Cole', 'Prop', 'UCLA', 'Junior', 'ComputerScience');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Brock', 'Lock', 'UCLA', 'Junior', 'Mathematics');
INSERT INTO Player(name, position, team, year, major)
VALUES ('Neil', 'Number8', 'UCLA', 'Senior', 'Physical Education');
```

--Insert values into Coach--

```
INSERT INTO Coach(name, YearsOfExperience, team) VALUES ('Potty', 3, 'ArkansasState');
INSERT INTO Coach(name, YearsOfExperience, team) VALUES ('John', 6, 'BYU');
INSERT INTO Coach(name, YearsOfExperience, team) VALUES ('David', 12, 'Cal');
INSERT INTO Coach(name, YearsOfExperience, team) VALUES ('Henry', 5, 'LifeU');
INSERT INTO Coach(name, YearsOfExperience, team) VALUES ('Jack', 9, 'UCLA');
```

 _____ SIMPLE QUERIES _____

--1) Get all names of Coaches

```
SELECT name
From Coach;

name
```

```
-----
Potty
John
David
Henry
Jack
(5 rows)
```

--2) Get Players name that play for BYU

```
-----
SELECT name
FROM Player
Where team = 'BYU';
```

```
name
-----
Cory
Jimmy
Piri
Greg
Tim
(5 rows)
```

--3) Get the amount given to Arkansas State rugby team by its sponsor

```
-----
SELECT amount
FROM TeamSponsor
Where team = 'ArkansasState';
```

```
amount
-----
2000
(1 row)
```

--4) Get the names of top 3 teams

```
-----
SELECT name
FROM RugbyTeam
Where rank < 4;
```

```
name
-----
ArkansasState
Cal
LifeU
(3 rows)
```

--5) Get name of players that their major is not NULL

```
-----
SELECT name
FROM Player
Where major IS NOT NULL;
```

```
name
-----
Zach
Connor
Mike
James
Jake
Piri
Greg
Tim
Tadgh
Adam
Nick
Jerry
Ty
Thomas
Tyrone
Jackson
Harry
Calvin
Stewart
Cole
Brock
Neil
(22 rows)
```

--6) Get name of players whos major is NULL

```
-----
SELECT name, team
FROM Player
WHERE major is NULL;
```

```
name
-----
Cory
Jimmy
Johnny
(3 rows)
```

--7) Get name of players who play for BYU and majors in Business

```
-----
SELECT name
FROM Player
WHERE team = 'BYU' AND major = 'Business';
```

```

name
-----
Tim
(1 row)

--*****
--***** MULTIRELATION QUERIES *****
--*****

--8) get players name and their position who play for UCLA
-----

SELECT name, position
FROM Player
WHERE team = 'UCLA';

  name | position
-----+-----
Calvin | Center
Stewart | Wing
Cole | Prop
Brock | Lock
Neil | Number8
(5 rows)

--9) Get name and address of ASU rugby team
-----

SELECT name, address
FROM RugbyTeam
WHERE name = 'ArkansasState';

  name | address
-----+-----
ArkansasState | 2105 Aggie Rd
(1 row)

--10) get team name, player name and players major that is in 'Business' or 'Spanish'
-----

SELECT Player.name, Player.major, Player.team
FROM Player
WHERE Player.major = 'Business' OR Player.major = 'Spanish';

  name | major | team
-----+-----+-----
Zach | Business | ArkansasState
Connor | Business | ArkansasState
Piri | Spanish | BYU
Tim | Business | BYU
Thomas | Business | Cal
Tyrone | Spanish | Cal
Stewart | Business | UCLA
(7 rows)

--11) Get the name of players and majors except for Business Majors
-----

SELECT name, major
FROM Player
WHERE NOT (Player.major = 'Business');

  name | major
-----+-----
Mike | Mathematics
James | SportsManagement
Jake | ComputerScience
Piri | Spanish
Greg | ExerciseScience
Tadgh | ExerciseScience
Adam | SportsManagement
Nick | PhysicalEducation
Jerry | SportsManagement
Ty | ComputerScience
Tyrone | Spanish
Jackson | Mathematics
Harry | PhysicalEducation
Calvin | Nutrition
Cole | ComputerScience
Brock | Mathematics
Neil | Physical Education
(17 rows)

--*****
--***** SUB-QUERIES *****
--*****

--12) get the team who is ranked 3rd
-----

SELECT name
FROM RugbyTeam
WHERE RugbyTeam.Name = (SELECT name FROM RugbyTeam WHERE RugbyTeam.rank = 3);

  name
-----
ArkansasState
(1 row)

--13) Get the team ranking numbers in order
-----

```

```

SELECT ranking
FROM (SELECT rank FROM RugbyTeam) AS ranking
ORDER BY ranking;

```

```

ranking
-----
(1)
(2)
(3)
(4)
(5)
(5 rows)

```

```

--14) Get team sponsors whos sponsor amount is more than $2000
-----

```

```

SELECT *
FROM TeamSponsor
WHERE amount IN (SELECT amount FROM TeamSponsor WHERE amount > 2000);

```

name	team	address	amount
RhinoRugby	BYU	N/A	5000
Nike	Cal	N/A	2500
Adidas	LifeU	N/A	3000
UnderArmour	UCLA	N/A	5500

(4 rows)

```

--15) Get name of players who dont play position Center
-----

```

```

SELECT name
FROM Player
WHERE position = ANY (SELECT position FROM Player WHERE position <> 'Center');

```

```

name
-----
Connor
Mike
James
Cory
Jimmy
Piri
Greg
Tadgh
Adam
Nick
Johnny
Ty
Thomas
Jackson
Harry
Stewart
Cole
Brock
Neil
(19 rows)

```

```

--16) Get players name and position whos name is Alphabetically comes after 'Johnny'
-----

```

```

SELECT a.name, a.position
FROM Player AS a
WHERE EXISTS
(SELECT *
FROM Player AS b
WHERE a.position = b.position
AND a.name > 'Johnny');

```

name	position
Zach	Center
Mike	Prop
Piri	Scrumhalf
Tim	Center
Tadgh	Flyhalf
Nick	Number8
Ty	Wing
Thomas	Flanker
Tyrone	Center
Stewart	Wing
Neil	Number8

(11 rows)

```

--17) Get the sponsor of the number 1 ranked team
-----

```

```

SELECT name
FROM TeamSponsor
WHERE team = (SELECT name FROM RugbyTeam WHERE rank = 1);

```

```

name
-----
Nike
(1 row)

```

```

-----
--***** UNION, INTERSECT, DIFFERENCE *****--
-----

```

```

--18) Get players names who plays for Arkansas State or Life University
-----

```

```

SELECT Player.name
FROM Player
WHERE team = 'ArkansasState'
UNION
SELECT Player.name
FROM Player
WHERE team = 'LifeU';

```

```

    name
-----
Tadgh
Nick
Johnny
Connor
Zach
Mike
Adam
Jerry
Jake
James
(10 rows)

```

--19) Get teams who are sponsored and who have players

```

SELECT team
FROM Player
INTERSECT
SELECT team
FROM TeamSponsor;

```

```

team
-----
LifeU
Cal
ArkansasState
BYU
UCLA
(5 rows)

```

--20) Find the position that only appears in either Astate or UCLA but not both

```

SELECT Player.position
FROM Player
WHERE Player.team = 'ArkansasState'
EXCEPT
SELECT Player.position
FROM Player
WHERE Player.team = 'UCLA';

```

```

    position
-----
Fullback
(1 row)

```

```

--*****
--***** JOIN SQL *****
--*****

```

--21) Cross join ruby teams and team sponsors

```

SELECT *
FROM TeamSponsor
CROSS JOIN RugbyTeam;

```

name	team	address	amount	name	address	rank
Canterbury	ArkansasState	N/A	2000	ArkansasState	2105 Aggie Rd	3
RhinoRugby	BYU	N/A	5000	BYU	Provo,UT 84602	4
Nike	Cal	N/A	2500	Cal	Berkeley, CA	1
Adidas	LifeU	N/A	3000	LifeU	1269 Barclay Cir	2
UnderArmour	UCLA	N/A	5500	UCLA	Los Angeles, CA	5

(5 rows)

--22) Find rugby team who are sponsored and their sponsors

```

SELECT *
FROM RugbyTeam
INNER JOIN TeamSponsor
ON TeamSponsor.team = RugbyTeam.name;

```

name	address	rank	name	team	address	amount
ArkansasState	2105 Aggie Rd	3	Canterbury	ArkansasState	N/A	2000
BYU	Provo,UT 84602	4	RhinoRugby	BYU	N/A	5000
Cal	Berkeley, CA	1	Nike	Cal	N/A	2500
LifeU	1269 Barclay Cir	2	Adidas	LifeU	N/A	3000
UCLA	Los Angeles, CA	5	UnderArmour	UCLA	N/A	5500

(5 rows)

```

--*****
--***** OUTER JOIN *****
--*****

```

--23) Get the only team that are sponsored

```

SELECT *
FROM RugbyTeam
LEFT JOIN TeamSponsor

```


ON TeamSponsor.team = RugbyTeam.name;

name	address	rank	name	team	address	amount
ArkansasState	2105 Aggie Rd	3	Canterbury	ArkansasState	N/A	2000
BYU	Provo,UT 84602	4	RhinoRugby	BYU	N/A	5000
Cal	Berkeley, CA	1	Nike	Cal	N/A	2500
LifeU	1269 Barclay Cir	2	Adidas	LifeU	N/A	3000
UCLA	Los Angeles, CA	5	UnderArmour	UCLA	N/A	5500

(5 rows)

--24) get teams who has players playing for them

```
SELECT *
FROM RugbyTeam
LEFT JOIN Player
ON Player.team = RugbyTeam.name;
```

name	address	rank	name	position	team	major	year
ArkansasState	2105 Aggie Rd	3	Jake	Center	ArkansasState	ComputerScience	Senior
ArkansasState	2105 Aggie Rd	3	James	Wing	ArkansasState	SportsManagement	N/A
ArkansasState	2105 Aggie Rd	3	Mike	Prop	ArkansasState	Mathematics	N/A
ArkansasState	2105 Aggie Rd	3	Connor	Fullback	ArkansasState	Business	N/A
ArkansasState	2105 Aggie Rd	3	Zach	Center	ArkansasState	Business	Freshmen
BYU	Provo,UT 84602	4	Tim	Center	BYU	Business	Senior
BYU	Provo,UT 84602	4	Greg	Wing	BYU	ExerciseScience	N/A
BYU	Provo,UT 84602	4	Piri	Scrumhalf	BYU	Spanish	Junior
BYU	Provo,UT 84602	4	Jimmy	Flyhalf	BYU		Freshmen
BYU	Provo,UT 84602	4	Cory	Hooker	BYU		Sophomore
Cal	Berkeley, CA	1	Harry	Hooker	Cal	PhysicalEducation	Senior
Cal	Berkeley, CA	1	Jackson	Fullback	Cal	Mathematics	Junior
Cal	Berkeley, CA	1	Tyrone	Center	Cal	Spanish	Junior
Cal	Berkeley, CA	1	Thomas	Flanker	Cal	Business	N/A
Cal	Berkeley, CA	1	Ty	Wing	Cal	ComputerScience	Freshmen
LifeU	1269 Barclay Cir	2	Jerry	Center	LifeU	SportsManagement	Junior
LifeU	1269 Barclay Cir	2	Johnny	Flanker	LifeU		Sophomore
LifeU	1269 Barclay Cir	2	Nick	Number8	LifeU	PhysicalEducation	N/A
LifeU	1269 Barclay Cir	2	Adam	Lock	LifeU	SportsManagement	Freshmen
LifeU	1269 Barclay Cir	2	Tadgh	Flyhalf	LifeU	ExerciseScience	Senior
UCLA	Los Angeles, CA	5	Neil	Number8	UCLA	Physical Education	Senior
UCLA	Los Angeles, CA	5	Brock	Lock	UCLA	Mathematics	Junior
UCLA	Los Angeles, CA	5	Cole	Prop	UCLA	ComputerScience	Junior
UCLA	Los Angeles, CA	5	Stewart	Wing	UCLA	Business	Sophomore
UCLA	Los Angeles, CA	5	Calvin	Center	UCLA	Nutrition	Freshmen

(25 rows)

--25) Get players who are playing for rugby teams

```
SELECT *
FROM RugbyTeam
RIGHT JOIN Player
ON Player.team = RugbyTeam.name;
```

name	address	rank	name	position	team	major	year
ArkansasState	2105 Aggie Rd	3	Jake	Center	ArkansasState	ComputerScience	Senior
ArkansasState	2105 Aggie Rd	3	James	Wing	ArkansasState	SportsManagement	N/A
ArkansasState	2105 Aggie Rd	3	Mike	Prop	ArkansasState	Mathematics	N/A
ArkansasState	2105 Aggie Rd	3	Connor	Fullback	ArkansasState	Business	N/A
ArkansasState	2105 Aggie Rd	3	Zach	Center	ArkansasState	Business	Freshmen
BYU	Provo,UT 84602	4	Tim	Center	BYU	Business	Senior
BYU	Provo,UT 84602	4	Greg	Wing	BYU	ExerciseScience	N/A
BYU	Provo,UT 84602	4	Piri	Scrumhalf	BYU	Spanish	Junior
BYU	Provo,UT 84602	4	Jimmy	Flyhalf	BYU		Freshmen
BYU	Provo,UT 84602	4	Cory	Hooker	BYU		Sophomore
Cal	Berkeley, CA	1	Harry	Hooker	Cal	PhysicalEducation	Senior
Cal	Berkeley, CA	1	Jackson	Fullback	Cal	Mathematics	Junior
Cal	Berkeley, CA	1	Tyrone	Center	Cal	Spanish	Junior
Cal	Berkeley, CA	1	Thomas	Flanker	Cal	Business	N/A
Cal	Berkeley, CA	1	Ty	Wing	Cal	ComputerScience	Freshmen
LifeU	1269 Barclay Cir	2	Jerry	Center	LifeU	SportsManagement	Junior
LifeU	1269 Barclay Cir	2	Johnny	Flanker	LifeU		Sophomore
LifeU	1269 Barclay Cir	2	Nick	Number8	LifeU	PhysicalEducation	N/A
LifeU	1269 Barclay Cir	2	Adam	Lock	LifeU	SportsManagement	Freshmen
LifeU	1269 Barclay Cir	2	Tadgh	Flyhalf	LifeU	ExerciseScience	Senior
UCLA	Los Angeles, CA	5	Neil	Number8	UCLA	Physical Education	Senior
UCLA	Los Angeles, CA	5	Brock	Lock	UCLA	Mathematics	Junior
UCLA	Los Angeles, CA	5	Cole	Prop	UCLA	ComputerScience	Junior
UCLA	Los Angeles, CA	5	Stewart	Wing	UCLA	Business	Sophomore
UCLA	Los Angeles, CA	5	Calvin	Center	UCLA	Nutrition	Freshmen

(25 rows)

```
--*****--
--***** AGRREGATE FUNCTION *****--
--*****--
```

--26) Get the smallest sponsor amount

```
SELECT MIN(amount) as minAmount
FROM TeamSponsor;
```

```
minamount
-----
2000
(1 row)
```

--27) get the biggest sponsor amount

```
SELECT MAX(amount) as maxAmount
FROM TeamSponsor;
```

```
maxamount
-----
      5500
(1 row)
```

```
--27) get the total of all the sponsor amounts
-----
```

```
SELECT SUM(amount) as sumAmount
FROM TeamSponsor;
```

```
sumamount
-----
     18000
(1 row)
```

```
--28) get the average of all the sponsor amounts
-----
```

```
SELECT AVG(amount) as avgAmount
FROM TeamSponsor;
```

```
avgamount
-----
      3600
(1 row)
```

```
--29) get how many players are majoring in computer science
-----
```

```
SELECT name, COUNT(Player) as playersMajor
FROM Player
WHERE Player.major = 'ComputerScience'
GROUP BY name;
```

```
name | playersmajor
-----+-----
 Jake |             1
  Cole |             1
   Ty |             1
(3 rows)
```

```
--*****
--***** DATABASE MODIFICATION *****
--*****
```

```
--30)Insert new player into Arkansas State team
-----
```

```
INSERT INTO Player(name, position, team, year, major)
VALUES ('Tibbs', 'Prop', 'ArkansasState', 'Freshmen', 'Nutrition');
```

```
INSERT 0 1
```

```
--31)Insert a new player named "Luke" that has the same position,
      year and major as "Tibbs" into the UCLA team
-----
```

```
INSERT INTO Player(name, position, team, year, major)
SELECT 'Luke', position, 'UCLA', year, major)
FROM Player
WHERE name = 'Tibbs'
```

```
INSERT 0 1
```

```
--32)Delete player named 'Tibbs' and 'Luke' from the database
-----
```

```
DELETE FROM Player
WHERE name = 'Tibbs';
```

```
DELETE 1
```

```
--33)Delete any player from Player table that is named 'Luke'
-----
```

```
DELETE FROM Player
WHERE Player.name=ANY(
SELECT name FROM Player
WHERE name='Luke');
```

```
DELETE 1
```

```
--34)Update coaches table for all coaches to increase their years of experience by 1
-----
```

```
UPDATE Coach
SET YearsOfExperience = YearsOfExperience + 1;
```

```
UPDATE 5
```

```
--35)Update team sponsor with sponsor amount of less than $3000 to $3000
-----
```

```
UPDATE Teamsponsor
SET amount = 3000
WHERE amount < 3000;
```

```
UPDATE 2
```

```

--*****
--***** VIEW *****
--*****

--36)Create a view for names of everyone who is involved with Arkansas State Rugby
-----
CREATE VIEW Centers AS
SELECT name
FROM Player
WHERE Position = 'Center';

name
-----
Zach
Jake
Tim
Jerry
Tyrone
Calvin
(6 rows)

--*****
--***** PSM *****
--*****

37) Update the ranks of team, if one team moves down or up the ranks, adjust
other teams accordingly (TRIGGER)
-----

CREATE TRIGGER updateRanks
BEFORE UPDATE OF rank ON RugbyTeam
FOR EACH ROW
BEGIN
UPDATE RugbyTeam SET rank = rank + 1
WHERE rank <> OLD.rank AND rank > NEW.rank OR rank < OLD.rank;
UPDATE RugbyTeam SET rank = rank - 1
WHERE rank <> OLD.rank AND rank < NEW.rank OR rank > OLD.rank;
END;

38) Create a function that counts how many players major in physical education
and also count players majoring in business and compare the numbers and
determine which major is more popular or if its even (PSM)
-----

CREATE FUNCTION comparePhysBus()
RETURNS CHAR(20)
DECLARE physEdu INTEGER;
DECLARE busiEdu INTEGER;
BEGIN
SET physEdu = (SELECT COUNT(*) FROM Player
WHERE year <> 'Senior' AND major = 'PhysicalEducation');
SET busiEdu = (SELECT COUNT(*) FROM Player
WHERE year <> 'Senior' AND major = 'Business');
IF physEdu > busiEdu THEN RETURN 'PhysEducation Wins';
ELSEIF physEdu < busiEdu THEN RETURN 'BusiEducation Wins';
ELSEIF physEdu = busiEdu THEN RETURN 'Both Even';
END IF;
END;

--*****
--***** CONSTRAINTS *****
--*****

--39) REDO: create table RugbyTeam, with Attribute constraint of UNIQUE address
-----

CREATE TABLE RugbyTeam (
name VARCHAR(20),
address VARCHAR(20) UNIQUE,
rank INT,
PRIMARY KEY (name, rank)
);

--40) REDO: create table TeamSponsor, with constraint of
Primary Key ('name', 'amount', 'team') and Tuple Constraint Check (amount > 0)
-----

CREATE TABLE TeamSponsor (
name VARCHAR(20),
team VARCHAR(20),
address VARCHAR(20)
DEFAULT 'N/A',
amount REAL,
CHECK (amount > 0)
PRIMARY KEY (name, amount, team)
FOREIGN KEY (team) REFERENCE RugbyTeam(name)
);

--41) REDO: create table Player, with constraint of Foreign Key (team)
-----

CREATE TABLE Player (
name VARCHAR(20),
position VARCHAR(20),
team VARCHAR(20),
major VARCHAR(20),
DEFAULT 'N/A',
year VARCHAR(20)
DEFAULT 'N/A',
PRIMARY KEY (name, position, team)
FOREIGN KEY (team) REFERENCE RugbyTeam(name)
);

```

```
--42) RED0: create table Coach, with constraint of
      Primary Key ('name', 'YearsOfExperience', 'team')
-----
```

```
CREATE TABLE Coach (
  name VARCHAR(20),
  YearsOfExperience INT
    DEFAULT 0,
  team VARCHAR(20),
  PRIMARY KEY (name, team)
  FOREIGN KEY (team) REFERENCE RugbyTeam(name)
);
```

```
--*****_
--***** RELATIONAL ALGEBRA *****_
--*****_
```

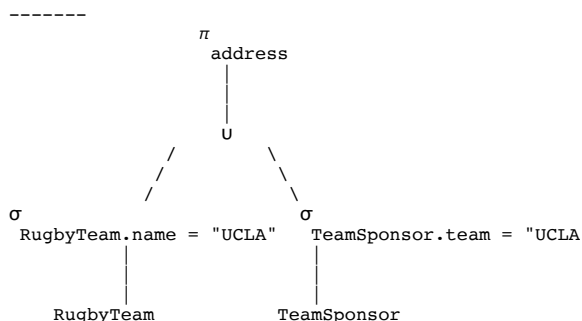
```
--43) Get the amount given to UCLA team by its sponsor
-----
```

```
SELECT address
FROM RugbyTeam
WHERE name = 'UCLA'
UNION
SELECT address
FROM TeamSponsor
WHERE team = 'UCLA';
```

```
RELATIONAL ALGEBRA
-----
```

```
 $\pi$       ( $\sigma$       ( $\sigma$       (RugbyTeam U TeamSponsor))
address  RugbyTeam.team = "UCLA" AND TeamSponsor.team = "UCLA"
```

```
RA TREE
```



```
--44) Functional Dependencies & BCNF, 3NF AND 4NF
-----
```

```
RugbyTeam(name, address, rank)
FD:
name->address
name->rank
```

```
{name}+ = {name, address, rank}
=BCNF
```

```
TeamSponsor(name, team, address, amount)
FD:
name->team
name->address
name->amount
team->name
team->amount
```

```
{name}+ = {name, team, address, amount}
{team}+ = {team, name, amount}
=3NF
```

```
Player(name, position, team, major, year)
FD:
name->position
name->team
name->major
name->year
team->position
```

```
{name}+ = {name, position, team, major, year}
{team}+ = {team, position}
=3NF
```

```
Coach(name, YearsOfExperience, team)
FD:
name->yearsOfExperience
name->team
team->name
```

```
{name}+ = {name, YearOfExperience, team}
{team}+ = {team, name}
=3NF
```


--LINK TO INTERFACE: <http://147.97.156.242/~sione.fangaiui/sionesInterface.php>

```
<html>
<head>
<title> Show </title>
</head>
<body>
<?PHP
    $dsn="pgsql:host=localhost;dbname=sione.fangaiui";
    $dbuser='sione.fangaiui';
    $password = 'Dcba1234';

    $conn = new PDO($dsn, $dbuser, $password);

    if (!$conn)
    {
        echo "Could not connect!!!!\n";
        exit;
    }

    //get records for those who plays position Center
    $query = "SELECT * FROM Player WHERE position=:position";
    echo "<h4> $query </h4> \n";

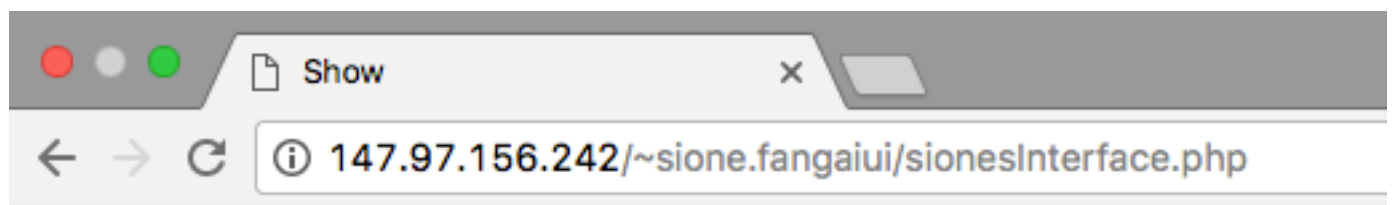
    //prepare the SQL statement
    $sqlquery=$conn->prepare($query, array(PDO::ATTR_CURSOR => PDO::CURSOR_FWDONLY));

    // execute the SQL statement
    $sqlquery->execute(array(':position' => 'Center'));

    // get the results of the sql statement
    if ($row = $sqlquery->fetch(PDO::FETCH_ASSOC))
    {
        echo "<table border=\"1\">\n"; //table
        echo "<tr>";
        foreach ($row as $key=>$value)
            echo "<th>".strtoupper($key)."</th> ";
        echo "</tr>\n";
        do {
            echo "<tr>";
            foreach ($row as $key => $value)
            {
                //echo "$key: $value ";
                echo "<td>" . $row["$key"] . "</td> ";
            }
            echo "</tr>\n";
        } while($row = $sqlquery->fetch(PDO::FETCH_ASSOC));
        echo "</table>";
    }
?>

<h3>Done!</h3>

</body>
</html>
```



SELECT * FROM Player WHERE position=:position

NAME	POSITION	TEAM	MAJOR	YEAR
Zach	Center	ArkansasState	Business	Freshmen
Jake	Center	ArkansasState	ComputerScience	Senior
Tim	Center	BYU	Business	Senior
Jerry	Center	LifeU	SportsManagement	Junior
Tyrone	Center	Cal	Spanish	Junior
Calvin	Center	UCLA	Nutrition	Freshmen

Done!