CS F212
Database Management System

DBMS ASSIGNMENT
FOOTBALL LEAGUE MANAGEMENT SYSTEM
—

BITS Pilani
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Submitted To

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Requirement Specifications

Teams

1. User must specify TeamName, Stadium and League

Players

1. User must specify Playername, Country, Position, Number, PlayerID, TeamName
2. PlayerID is a primary key and must be unique

Stadium

1. Stadiums are derived from Teams table
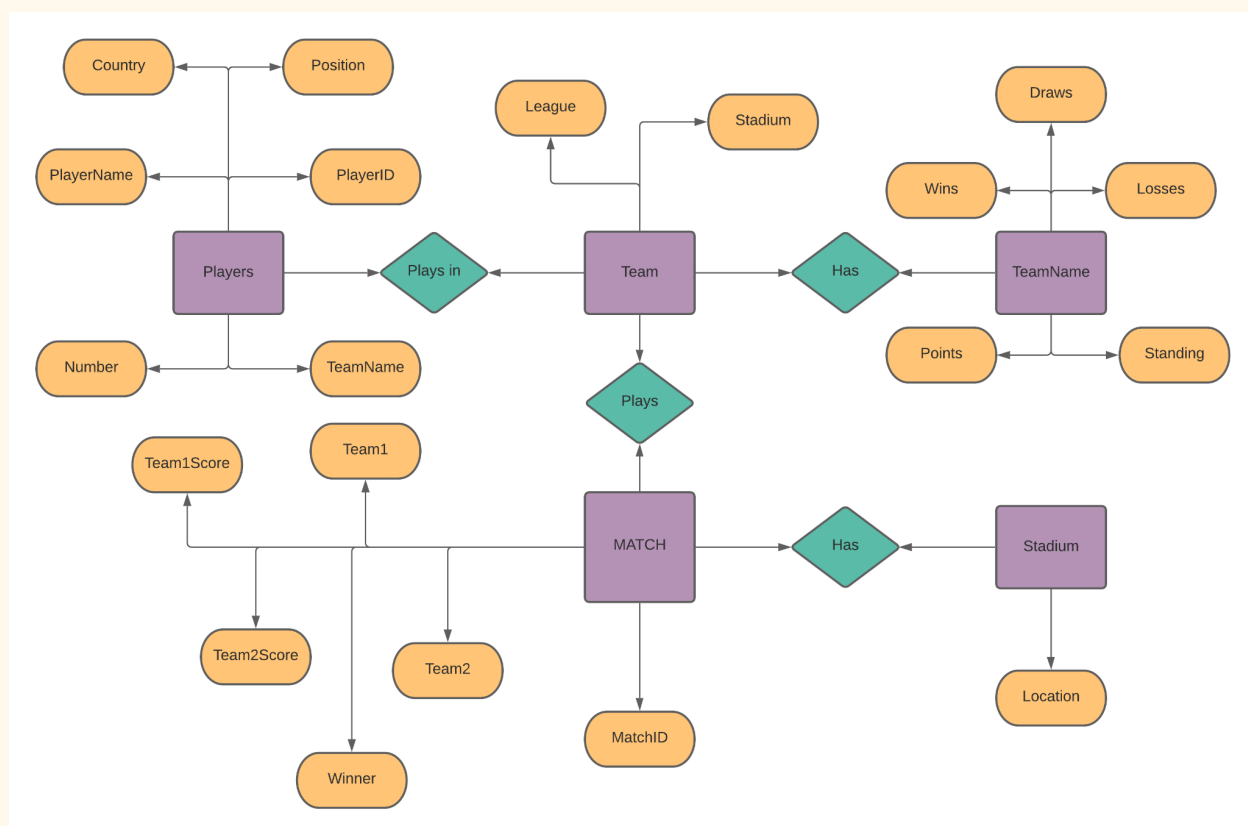2. User must specify Location

Match Information

1. User must specify both team names, stadium and scores.
2. Trigger set_winner will calculate the winner based on which team has the highest score and will set in the winner column accordingly.
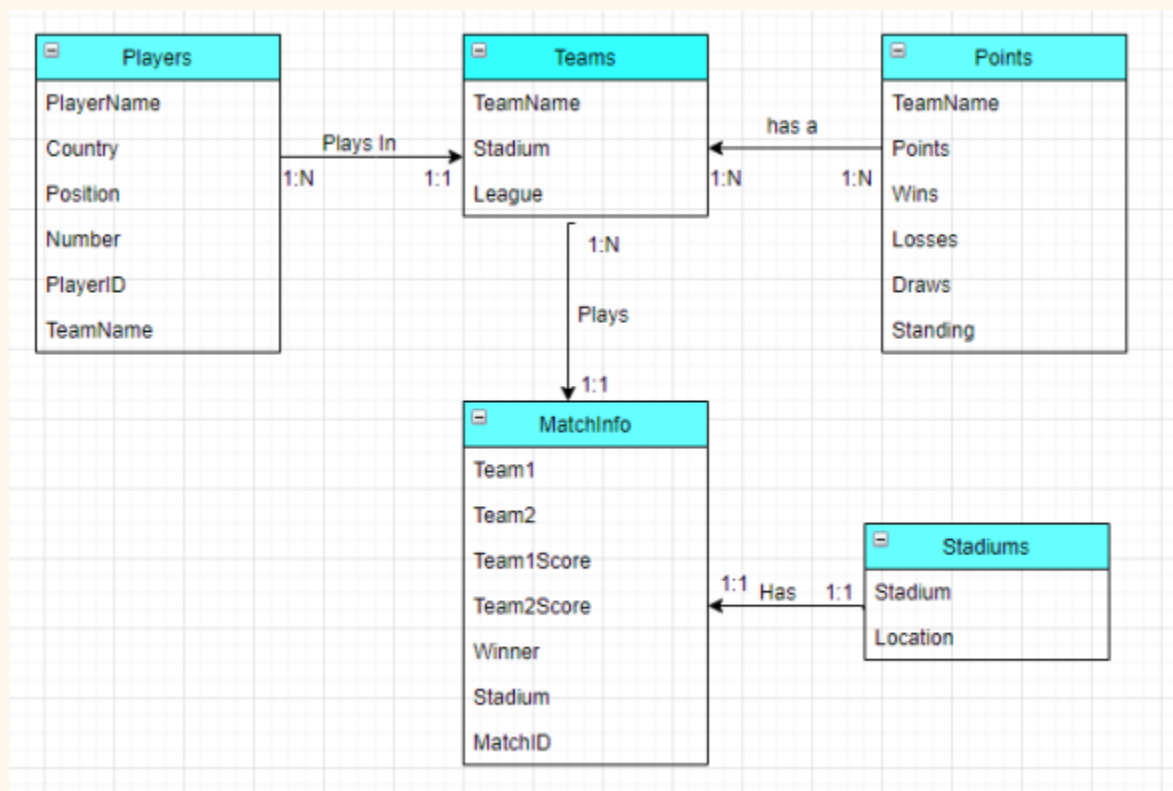
Points

1. Team names are derived from the teams table
2. Trigger pointsupdate will add 3 points to the winner from the match information table

ER Diagram

Relational Model

Players
- PlayerName
- Country
- Position
- Number
- PlayerID
- TeamName

Teams
- TeamName
- Stadium
- League

Points
- TeamName
- Points
- Wins
- Losses
- Draws
- Standing

Plays In 1:N 1:1

has a 1:N 1:N

1:N Plays

1:1

MatchInfo
- Team1
- Team2
- Team1Score
- Team2Score
- Winner
- Stadium
- MatchID

Stadiums
- Stadium
- Location

1:1 Has 1:1

Tables

Teams Table

TeamName	Stadium	League
Real Madrid	Santiago Bernabeu	La Liga
Juventus	Juventus Stadium	Serie A
Tottenham Hotspur	Tottenham Hotspur Stadium	Premier League
Borussia Dortmund	Westfalonstadion	Bundesliga
Bayern Munich	Allianz Arena	Bundesliga
FC Barcelona	Camp Nou	La Liga
Arsenal	Emirates Stadium	Premier League
Manchester United	Old Trafford	Premier League
Paris Saint Germain	Parc Des Princes	Ligue 1
Kerala Blasters	Jawaharlal Nehru Stadium	Indian Super League
Galatasaray	Turk Telekom Stadium	Super Lig
Los Angeles Galaxy	StubHub Center	Major League Soccer
Al Nasr	Maktoum Stadium	UAE Pro League
FC Porto	Estadio Do Dragao	Primeira Liga
Benfica	Estadio Da Luz	Primeira Liga
Sporting CP	Estadio Jose Alvalade	Primeira Liga
Manchester City	Etihad Stadium	Premier League
Wolves	Molineux Stadium	Premier League
Chelsea FC	Stamford Bridge	Premier League
Liverpool FC	Anfield	Premier League
AC Milan	San Siro Stadium	Serie A
Inter Milan	San Siro Stadium	Serie A
Atletico Madrid	Wanda Metropolitano Stadi...	La Liga
Everton	Goodison Park	Premier League
West Ham United	London Stadium	Premier League
Aston Villa	Villa Park	Premier League
Ajax	Johan Cruyff Arena	Eredivisie
Leicester City	King Power Stadium	Premier League
Newcastle United	Saint James Park	Premier League
Leeds United	Elland Road	Premier League
Dinamo Zagreb	Stadion Maksimir	HNL
RB Leipzig	Red Bull Arena	Bundesliga

```
insert into Teams values( 'Real Madrid    ','Santiago Bernabeu','La Liga    ');

insert into Teams values( 'Juventus','Juventus Stadium    ','Serie A');

insert into Teams values( 'Tottenham Hotspur','    Tottenham Hotspur Stadium','Premier
League');

insert into Teams values( 'Borussia Dortmund','    Westfalonstadion','Bundesliga');

insert into Teams values( 'Bayern Munich','Allianz Arena','Bundesliga');

insert into Teams values( 'FC Barcelona','Camp Nou','La Liga');

insert into Teams values( 'Arsenal','Emirates Stadium','Premier League');

insert into Teams values( 'Manchester United','    Old Trafford','    Premier League');

insert into Teams values( 'Paris Saint Germain','Parc Des Princes','Ligue 1');

insert into Teams values( 'Kerala Blasters','Jawaharlal Nehru Stadium','Indian Super League');

insert into Teams values( 'Galatasaray','Turk Telekom Stadium','Super Lig');

insert into Teams values( 'Los Angeles Galaxy','StubHub Center','Major League Soccer');

insert into Teams values( 'Al Nasr','Maktoum Stadium','UAE Pro League');

insert into Teams values( 'FC Porto','Estadio Do Dragao','Primeira Liga');

insert into Teams values( 'Benfica','Estadio Da Luz','Primeira Liga');

insert into Teams values( 'Sporting CP    ','Estadio Jose Alvalade','Primeira Liga');

insert into Teams values( 'Manchester City','Etihad Stadium','Premier League');

insert into Teams values( 'Wolves','Molineux Stadium','Premier League');

insert into Teams values( 'Chelsea FC','Stamford Bridge    ','Premier League');

insert into Teams values( 'Liverpool FC    ','Anfield','Premier League');

insert into Teams values( 'AC Milan','    San Siro Stadium','Serie A');

insert into Teams values( 'Inter Milan    ','San Siro Stadium','    Serie A    ');
```

```
insert into Teams values( 'Atletico Madrid','Wanda Metropolitano Stadium','La Liga');

insert into Teams values( 'Everton','Goodison Park','   Premier League   ');

insert into Teams values( 'West Ham United','London Stadium','Premier League');

insert into Teams values( 'Aston Villa    ','Villa Park','Premier League');

insert into Teams values( 'Ajax    ','Johan Cruyff Arena','Eredivisie');

insert into Teams values( 'Leicester City','King Power Stadium','Premier League');

insert into Teams values( 'Newcastle United','   Saint James Park','Premier League');

insert into Teams values( 'Leeds United    ','Elland Road','Premier League    ');

insert into Teams values( 'Dinamo Zagreb','Stadion Maksimir','HNL');

insert into Teams values( 'RB Leipzig','Red Bull Arena','Bundesliga');
```

<u>Players Table</u>

PlayerName	Country	Position	Number	PlayerID	TeamName
Cristiano Ronaldo	Portugal	Forward	7	1	Juventus
Luka Modric	Croatia	Midfield	10	2	Real Madrid
Robert Lewandowski	Poland	Forward	9	3	Bayern Munich
Sergio Ramos	Spain	Defender	4	4	Real Madrid
Thomas Muller	Germany	Midfield	25	5	Bayern Munich
Harry Kane	England	Forward	10	6	Tottenham Hotspus
Erling Haaland	Norway	Forward	9	7	Borussia Dortmund
Lionel Messi	Argentina	Midfielder	10	8	FC Barcelona
Bernd Leno	Germany	Goalkeeper	1	9	Arsenal
Edinson Cavani	Uruguay	Forward	7	10	Manchester United
Angel Di Maria	Argentina	Midfield	11	11	Paris Saint Germain
Sandesh Jhingan	India	Defender	5	12	Kerala Blasters
Henry Onyekuru	Nigeria	Forward	7	13	Galatasaray
Javier Hernández Balcázar	Mexico	Forward	14	14	Los Angeles Galaxy
Sergio Oliviera	Portugal	Forward	27	15	FC Porto
Jan Vertonghen	Belgium	Defender	5	16	Benfica
Kevin De Bruyne	Belgium	Midfielder	10	17	Manchester City
Pedro Neto	Portugal	Forward	7	18	Wolves
Timo Werner	Germany	Forward	11	19	Chelsea FC
Roberto Firmino	Brazil	Defender	9	20	Liverpool FC
Zlatan Ibrahimovic	Sweden	Forward	11	21	AC Milan
Romelu Lukaku	Belgium	Forward	9	22	Inter Milan
Luis Suarez	Uruguay	Forward	9	23	Atletico Madrid
Joao Felix	Portugal	Forward	11	24	Atletico Madrid
Karim Benzema	France	Forward	9	25	Real Madrid
Manuel Neuer	Germany	Goalkeeper	1	26	Bayern Munich
Neymar Jr	Brazil	Forward	10	27	Paris Saint Germain
Ter Stegen	Germany	Goalkeeper	1	28	FC Barcelona
Alvaro Morato	Spain	Forward	9	29	Juventus
Sergio Aguero	Argentina	Forward	11	30	Manchester City
Marcus Rashford	England	Forward	10	31	Manchester United
Gareth Bale	Wales	Forward	9	32	Tottenham Hotspur

```
insert into Players values ('Cristiano Ronaldo','Portugal','Forward',7,1,'Juventus');

insert into Players values ('Luka Modric','Croatia','Midfield',10,2,'Real Madrid');

insert into Players values ('Robert Lewandowski','Poland','Forward',9,3,'Bayern Munich');

insert into Players values ('Sergio Ramos','Spain','Defender',4,4,'Real Madrid');

insert into Players values ('Thomas Muller','Germany','Midfield',25,5,'Bayern Munich');

insert into Players values ('Harry Kane','England','Forward',10,6,'Tottenham Hotspus');

insert into Players values ('Erling Haaland','Norway','Forward',9,7,'Borussia Dortmund');

insert into Players values ('Lionel Messi','Argentina','Midfielder',10,8,'FC Barcelona');

insert into Players values ('Bernd Leno','Germany','Goalkeeper',1,9,'Arsenal');

insert into Players values ('Edinson Cavani','Uruguay','Forward',7,10,'Manchester United');

insert into Players values ('Angel Di Maria','Argentina','Midfield',11,11,'Paris Saint Germain');

insert into Players values ('Sandesh Jhingan','India','Defender',5,12,'Kerala Blasters');

insert into Players values ('Henry Onyekuru','Nigeria','Forward',7,13,'Galatasaray');

insert into Players values ('Javier Hernández Balcázar','Mexico','Forward',14,14,'Los Angeles Galaxy');

insert into Players values ('Sergio Oliviera','Portugal','Forward',27,15,'FC Porto');

insert into Players values ('Jan Vertonghen','Belgium','Defender',5,16,'Benefica');

insert into Players values ('Kevin De Bruyne','Belgium','Midfielder',10,17,'Manchester City');

insert into Players values ('Pedro Neto','Portugal','Forward',7,18,'Wolves');

insert into Players values ('Timo Werner','Germany','Forward',11,19,'Chelsea FC');

insert into Players values ('Roberto Firmino','Brazil','Defender',9,20,'Liverpool FC');

insert into Players values ('Zlatan Ibrahimovic','Sweden','Forward',11,21,'AC Milan');
```

insert into Players values ('Romelu Lukaku','Belgium','Forward',9,22,'Inter Milan');

insert into Players values ('Luis Suarez','Uruguay','Forward',9,23,'Atletico Madrid');

insert into Players values ('Joao Felix','Portugal','Forward',11,24,'Atletico Madrid');

insert into Players values ('Karim Benzema','France','Forward',9,25,'Real Madrid');

insert into Players values ('Manuel Neuer','Germany','Goalkeeper',1,26,'Bayern Munich');

insert into Players values ('Neymar Jr','Brazil','Forward',10,27,'Paris Saint Germain');

insert into Players values ('Ter Stegen','Germany','Goalkeeper',1,28,'FC Barcelona');

insert into Players values ('Alvaro Morato','Spain','Forward',9,29,'Juventus');

insert into Players values ('Sergio Aguero','Argentina','Forward',11,30,'Manchester City');

insert into Players values ('Marcus Rashford','England','Forward',10,31,'Manchester United');

insert into Players values ('Gareth Bale','Wales','Forward',9,32,'Tottenham Hotspur');

Points Table

TeamName	Pts
Real Madrid	31
Juventus	14
Tottenham Hotspur	8
Borussia Dortmund	39
Bayern Munich	17
FC Barcelona	69
Arsenal	76
Manchester United	2
Paris Saint Germain	67
Kerala Blasters	41
Galatasaray	23
Los Angeles Galaxy	67
Al Nasr	9
FC Porto	25
Benfica	30
Sporting CP	20
Manchester City	45
Wolves	59
Chelsea FC	52
Liverpool FC	55
AC Milan	24
Inter Milan	15
Atletico Madrid	74
Everton	12
West Ham United	11
Aston Villa	35
Ajax	51
Leicester City	36
Newcastle United	63
Leeds United	11
Dinamo Zagreb	70
RB Leipzig	41

```
update Points set Pts = 31 where TeamName = 'Real Madrid';

update Points set Pts = 14 where TeamName = 'Juventus';

update Points set Pts = 8 where TeamName = 'Tottenham Hotspur';

update Points set Pts = 39 where TeamName = 'Borussia Dortmund';

update Points set Pts = 17 where TeamName = 'Bayern Munich';

update Points set Pts = 69 where TeamName = 'FC Barcelona';

update Points set Pts = 76 where TeamName = 'Arsenal';

update Points set Pts = 2 where TeamName = 'Manchester United';

update Points set Pts = 67 where TeamName = 'Paris Saint Germain';

update Points set Pts = 41 where TeamName = 'Kerala Blasters';

update Points set Pts = 23 where TeamName = 'Galatasaray';

update Points set Pts = 67 where TeamName = 'Los Angeles Galaxy';

update Points set Pts = 9 where TeamName = 'Al Nasr';

update Points set Pts = 25 where TeamName = 'FC Porto';

update Points set Pts = 30 where TeamName = 'Benfica';

update Points set Pts = 20 where TeamName = 'Sporting CP';

update Points set Pts = 45 where TeamName = 'Manchester City';

update Points set Pts = 59 where TeamName = 'Wolves';

update Points set Pts = 52 where TeamName = 'Chelsea FC';

update Points set Pts = 55 where TeamName = 'Liverpool FC';

update Points set Pts = 24 where TeamName = 'AC Milan';

update Points set Pts = 15 where TeamName = 'Inter Milan';

update Points set Pts = 74 where TeamName = 'Atletico Madrid';
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update Points set Pts = 12 where TeamName = 'Everton';

update Points set Pts = 11 where TeamName = 'West Ham United';

update Points set Pts = 18 where TeamName = 'Aston Villa';

update Points set Pts = 51 where TeamName = 'Ajax';

update Points set Pts = 36 where TeamName = 'Leicester City';

update Points set Pts = 63 where TeamName = 'Newcastle United';

update Points set Pts = 11 where TeamName = 'Leeds United';

update Points set Pts = 70 where TeamName = Dinamo Zagreb';

update Points set Pts = 41 where TeamName = 'RB Leipzig';

update Points set Pts = 35 where TeamName = 'Aston Villa';

Stadiums Table

Stadium	Location
Santiago Bernabeu	Madrid
Juventus Stadium	Turin
Tottenham Hotspur Stadium	Tottenham
Westfalonstadion	Dortmund
Allianz Arena	Munich
Camp Nou	Barcelona
Emirates Stadium	North London
Old Trafford	Manchester
Parc Des Princes	Paris
Jawaharlal Nehru Stadium	Kerala
Turk Telekom Stadium	Istanbul
StubHub Center	Los Angeles
Maktoum Stadium	Dubai
Estadio Do Dragao	Porto
Estadio Da Luz	Lisbon
Estadio Jose Alvalade	Lisbon
Etihad Stadium	Manchester
Molineux Stadium	Wolverhampton
Stamford Bridge	Chelsea
Anfield	Liverpool
Wanda Metropolitano Stadi...	Madrid
Goodison Park	Liverpool
London Stadium	West Ham
Villa Park	Birmingham
Johan Cruyff Arena	Amsterdam
King Power Stadium	Leicester
Saint James Park	Newcastle
Elland Road	Leeds
Stadion Maksimir	Zagreb
San Siro Stadium	Milan
Red Bull Arena	Leipzig

```
insert into Stadiums values ('Santiago Bernabeu','Madrid');

insert into Stadiums values ('Juventus Stadium','Turin');

insert into Stadiums values ('Tottenham Hotspur Stadium','Tottenham');

insert into Stadiums values ('Westfalonstadion','Dortmund');

insert into Stadiums values ('Allianz Arena','Munich');

insert into Stadiums values ('Camp Nou','Barcelona');

insert into Stadiums values ('Emirates Stadium','North London');

insert into Stadiums values ('Old Trafford','Manchester');

insert into Stadiums values ('Parc Des Princes','Paris');

insert into Stadiums values ('Jawaharlal Nehru Stadium','Kerala');

insert into Stadiums values ('Turk Telekom Stadium','Istanbul');

insert into Stadiums values ('StubHub Center','Los Angeles');

insert into Stadiums values ('Maktoum Stadium','Dubai');

insert into Stadiums values ('Estadio Do Dragao','Porto');

insert into Stadiums values ('Estadio Da Luz','Lisbon');

insert into Stadiums values ('Estadio Jose Alvalade','Lisbon');

insert into Stadiums values ('Etihad Stadium','Manchester');

insert into Stadiums values ('Molineux Stadium','Wolverhampton');

insert into Stadiums values ('Stamford Bridge','Chelsea');

insert into Stadiums values ('Anfield','Liverpool');

insert into Stadiums values ('Wanda Metropolitano Stadium','Madrid');

insert into Stadiums values ('Goodison Park','Liverpool');

insert into Stadiums values ('London Stadium','West Ham');
```

```
insert into Stadiums values ('Villa Park','Birmingham');

insert into Stadiums values ('Johan Cruyff Arena','Amsterdam');

insert into Stadiums values ('King Power Stadium','Leicester');

insert into Stadiums values ('Saint James Park','Newcastle');

insert into Stadiums values ('Elland Road','Leeds');

insert into Stadiums values ('Stadion Maksimir','Zagreb');

insert into Stadiums values ('San Siro Stadium','Milan');

insert into Stadiums values ('Red Bull Arena','Leipzig');
```

Match Information

Team1	Team2	Team1Score	Team2Score	Winner	Stadium
Bayern Munich	Borussia Dortmund	2	1	Bayern Munich	Allianz Arena
FC Barcelona	Real Madrid	6	9	Real Madrid	Camp Nou
Manchester United	Manchester City	4	2	Manchester United	Etihad Stadium

insert into MatchInfo values ('Bayern Munich', 'Borussia Dortmund', 2, 1,   null, 'Allianz Arena');

insert into MatchInfo values ('FC Barcelona', 'Real Madrid', 6, 9, null, 'Camp Nou');

insert into MatchInfo values ('Manchester United',   'Manchester City', 4, 2, null, 'Etihad Stadium');

Nested Queries

1. Select TeamName from teams where Stadium in (select stadium from stadiums where location = "Lisbon");

	TeamName
▶	Benfica
	Sporting CP

<u>Functions</u>

delimiter $$

create function TopTeam (Pts int)

returns int

reads sql data

deterministic

begin

declare top int;

select (select Max(Pts) from Points) into top;

return top;

end$$

select * from Points

where TopTeam(Pts) = (select MAX(Pts) from Points);

	TeamName	Pts
▶	Kerala Blasters	70

Procedure and Triggers

Procedure :

delimiter $$

create procedure RankList (in points int)

begin

select * from Points order by Pts desc;

end;$$

call Ranklist(0);

Trigger 1 :

CREATE TRIGGER set_winner BEFORE INSERT

ON MatchInfo

FOR EACH ROW

SET NEW.Winner = CASE WHEN NEW.Team1Score IS NULL OR NEW.Team2Score IS NULL THEN NULL

WHEN NEW.Team1Score > NEW.Team2Score THEN NEW.Team1

WHEN NEW.Team2Score > NEW.Team1Score THEN NEW.Team2

ELSE "Tie"

END;

Trigger 2 :

```
delimiter $$

CREATE TRIGGER PointsUpdate

AFTER INSERT ON MatchInfo

FOR EACH ROW

BEGIN

   UPDATE Points P, MatchInfo M

SET P.Pts = P.Pts + 3

   WHERE P.TeamName = M.Winner;

END $$
```