

TRƯỜNG ĐẠI HỌC BÁCH KHOA HÀ NỘI
VIỆN CNTT & TT



BÁO CÁO THỰC HÀNH CSDL

ĐỀ TÀI: XÂY DỰNG HỆ CƠ SỞ DỮ LIỆU THỐNG KÊ CÁC SỐ LIỆU

LIÊN QUAN ĐẾN PREMIER LEAGUE

Giảng viên hướng dẫn: TS. Trần Việt Trung

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Hà Nội 2019

I. Giới thiệu bài toán

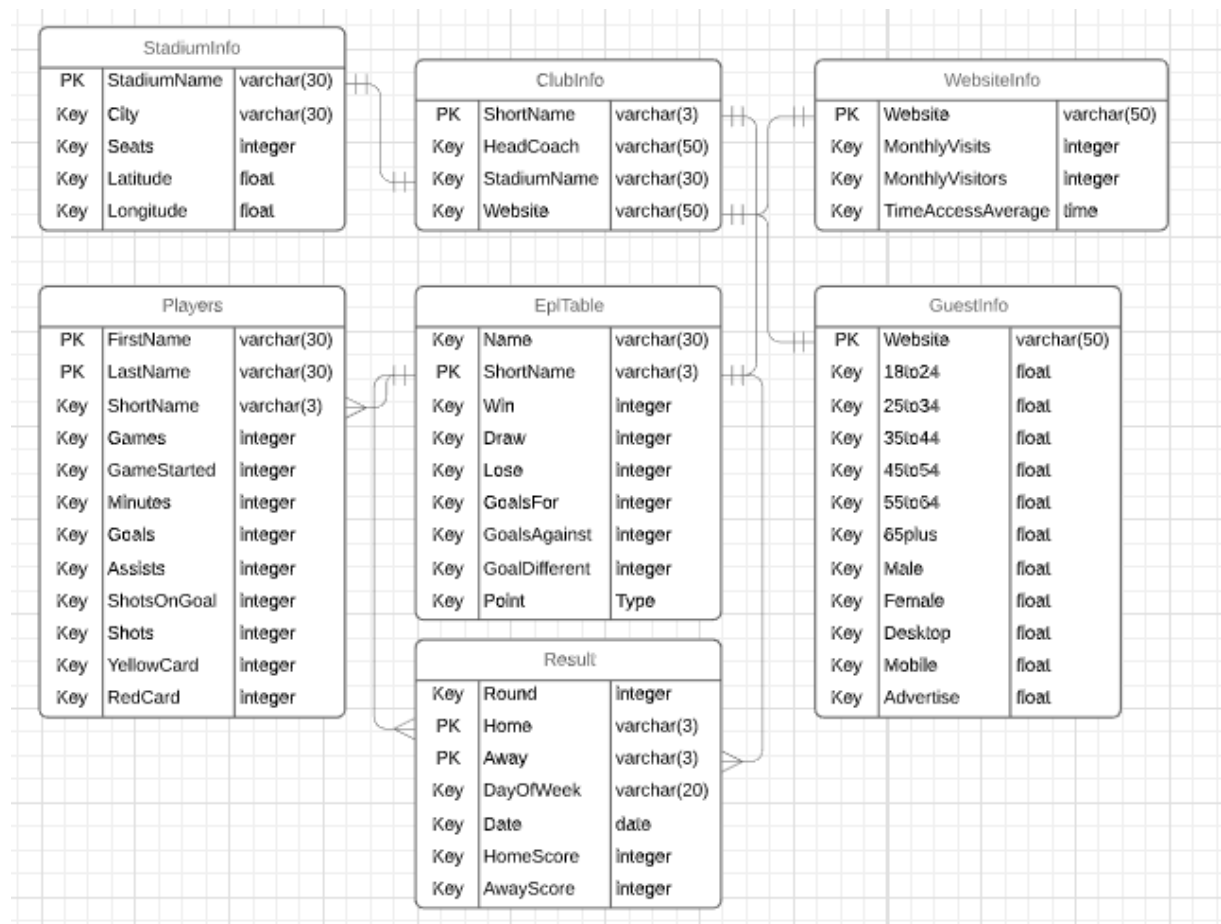
1. Ứng dụng của hệ cơ sở dữ liệu

- Thống kê các thông số liên quan đến Premier League 2018-2019.
- Giả lập kết quả các trận đấu.
- Tạo lịch thi đấu cho các đội bóng.

2. Các yêu cầu về dữ liệu cần lưu trữ

- Dữ liệu cần chính xác, dựa trên số liệu đã được ghi chép lại ở trên Internet.

3. Lược đồ quan hệ



- Bảng EplTable
 - ShortName là khóa chính, dùng để xác định đội bóng.
 - Name là thuộc tính lưu tên đầy đủ của đội bóng.
 - Win là thuộc tính lưu số trận thắng của đội bóng.
 - Draw là thuộc tính lưu số trận hòa của đội bóng.
 - Lose là thuộc tính lưu số trận thua của đội bóng.
 - GoalsFor là thuộc tính lưu số bàn thắng của đội bóng.
 - GoalsAgainst là thuộc tính lưu số bàn thua của đội bóng.
 - GoalDifferent là thuộc tính lưu hiệu số bàn thắng thua của đội bóng.
 - Point là thuộc tính lưu điểm của đội bóng,
- Bảng Players
 - FirstName là khóa chính, dùng để xác định tên của cầu thủ.
 - LastName là khóa chính, dùng để xác định tên của cầu thủ.
 - ShortName là thuộc tính lưu tên đội bóng chủ quản của cầu thủ.
 - Games là thuộc tính lưu số trận đấu cầu thủ được ra sân.
 - GameStarted là thuộc tính lưu số trận đấu cầu thủ được đưa vào đội hình xuất phát.
 - Minutes là thuộc tính lưu số phút cầu thủ được thi đấu ở trên sân.
 - Goals là thuộc tính lưu số bàn thắng của cầu thủ.
 - Assists là thuộc tính lưu số lần kiến tạo của cầu thủ.
 - ShotsOnGoal là thuộc tính lưu số cú sút trúng đích của cầu thủ.
 - Shots là thuộc tính lưu tổng số cú sút của cầu thủ.
 - YellowCard là thuộc tính lưu số thẻ vàng của cầu thủ.
 - RedCard là thuộc tính lưu số thẻ đỏ của cầu thủ.
- Bảng ClubInfo
 - ShortName là khóa chính, dùng để xác định đội bóng.
 - HeadCoach là thuộc tính lưu tên huấn luyện viên của đội bóng.
 - StadiumName là thuộc tính lưu tên sân vận động của đội bóng.
 - Website là thuộc tính lưu địa chỉ trang web của đội bóng.
- Bảng StadiumInfo
 - StadiumName là khóa chính dùng để xác định sân vận động.
 - City là thuộc tính lưu thành phố nơi có đội bóng.

- Seats là thuộc tính lưu số ghế của sân vận động.
- Latitude là thuộc tính lưu kinh độ của sân vận động.
- Longitude là thuộc tính lưu vĩ độ của sân vận động.
- Bảng WebsiteInfo
 - Website là khóa chính dùng để xác định trang web.
 - MonthlyVisits là thuộc tính lưu số lượt truy cập trang web hàng tháng.
 - MonthlyVisitors là thuộc tính lưu số người truy cập trang web hàng tháng.
 - TimeAccessAverage là thuộc tính lưu thời gian trung bình của một lượt truy cập.
- Bảng GuestInfo
 - Website là khóa chính dùng để xác định trang web.
 - 18to24 là thuộc tính dùng để lưu phần trăm người truy cập trang web từ 18 đến 24 tuổi.
 - 25to34 là thuộc tính dùng để lưu phần trăm người truy cập trang web từ 25 đến 34 tuổi.
 - 35to44 là thuộc tính dùng để lưu phần trăm người truy cập trang web từ 35 đến 44 tuổi.
 - 45to54 là thuộc tính dùng để lưu phần trăm người truy cập trang web từ 45 đến 54 tuổi.
 - 18to24 là thuộc tính dùng để lưu phần trăm người truy cập trang web từ 55 đến 64 tuổi.
 - 65plus là thuộc tính dùng để lưu phần trăm người truy cập trang web từ 65 tuổi trở lên.
 - Male là thuộc tính dùng để lưu phần trăm người truy cập trang web là nam.
 - Female là thuộc tính dùng để lưu phần trăm người truy cập trang web là nữ.
 - Desktop là thuộc tính dùng để lưu phần trăm số lượt sử dụng máy tính để truy cập trang web.
 - Mobile là thuộc tính dùng để lưu phần trăm số lượt sử dụng thiết bị di động để truy cập trang web.
- Bảng Result
 - Home là khóa chính dùng để xác định đội chủ nhà.
 - Away là khóa chính dùng để xác định đội khách.

- Round là thuộc tính dùng để xác định vòng đấu.
- DayOfWeek là thuộc tính dùng để lưu thứ diễn ra trận đấu.
- Date là thuộc tính dùng để lưu ngày diễn ra trận đấu.
- HomeScore là thuộc tính dùng để lưu số bàn thắng của đội chủ nhà.
- AwayScore là thuộc tính dùng để lưu số bàn thắng của đội khách.

II. Truy vấn

1. Đưa ra đội bóng có cầu thủ ghi bàn nhiều nhất, cầu thủ ghi bàn nhiều nhất và số bàn thắng của anh ta.

- Output

Name	Club	Goals
Pierre Emerick Aubameyang	Arsenal	22
Sadio Mane	Liverpool	22
Mohamed Salah	Liverpool	22

- Input

```
SELECT CONCAT(Players.LastName, ' ', Players.FirstName) Name, EpITable.Name
Club, Players.Goals
FROM EpITable, Players
WHERE (EpITable.ShortName = Players.ShortName AND Players.Goals = (SELECT
MAX(Goals) FROM Players));
```

2. Đưa ra đội bóng có nhiều cầu thủ ghi bàn nhất và số lượng cầu thủ ghi bàn.

- Output

Name	Player
Manchester United	16

- Input

```
SELECT EpITable.Name, COUNT(CONCAT(Players.LastName, ' ',
Players.FirstName))
```

```

FROM EpITable, Players
WHERE(EpITable.ShortName = Players.ShortName AND Players.Goals > 0)
GROUP BY Players.ShortName
ORDER BY COUNT(CONCAT(Players.LastName, ' ', Players.FirstName))
DESC LIMIT 1;

```

3. Thống kê số lượng thẻ vàng và thẻ đỏ của các đội bóng.

- Output

Name	YC	RC
Arsenal	72	1
Brighton and Hove Albion	60	3
Bournemouth	58	1
Burnley	75	1
Cardiff City	66	1
Chelsea	49	0
Crystal Palace	58	1
Everton	55	3
Fulham	68	0
Huddersfield Town	55	3
Leicester City	57	2
Liverpool	37	0
Manchester City	44	1
Manchester United	73	2
Newcastle United	57	2
Southampton	71	1
Tottenham Hotspur	56	2
Watford	77	3
West Ham United	59	1
Wolverhampton Wanderers	72	1

- Input

```

SELECT EpITable.Name, SUM(Players.YellowCard) YC, SUM(Players.RedCard) RC
FROM EpITable, Players
WHERE(EpITable.ShortName = Players.ShortName)
GROUP BY Players.ShortName;

```

4. Đưa ra đội bóng có nhiều thẻ vàng nhất và đội bóng có nhiều thẻ đỏ nhất.

- Output

Team	YC	Team	RC
Watford	77	Huddersfield Town	3

- Input

SELECT

```
(@name := (SELECT EplTable.Name FROM EplTable, Players
WHERE(EplTable.ShortName = Players.ShortName) GROUP BY Players.ShortName
ORDER BY SUM(Players.YellowCard) DESC LIMIT 1)) Team,
(@YC := (SELECT SUM(YellowCard) FROM Players GROUP BY ShortName ORDER
BY SUM(YellowCard) DESC LIMIT 1)) YC,
(@name := (SELECT EplTable.Name FROM EplTable, Players WHERE
(EplTable.ShortName = Players.ShortName) GROUP BY Players.ShortName ORDER
BY SUM(Players.RedCard) DESC LIMIT 1)) Team,
(@YC := (SELECT SUM(RedCard) FROM Players GROUP BY ShortName ORDER
BY SUM(RedCard) DESC LIMIT 1)) RC;
```

5. Đưa ra 3 đội bóng có điểm cao nhất và 3 đội bóng có điểm thấp nhất.

- Output

Name	ShortName	Win	Draw	Lose	GoalsFor	GoalsAgainst	GoalDifferent	Point
Manchester City	MCI	32	2	4	95	23	72	98
Liverpool	LIV	30	7	1	89	22	67	97
Chelsea	CHE	21	9	8	63	39	24	72
...
Cardiff City	CAR	10	4	24	34	69	-35	34
Fulham	FUL	7	5	26	34	81	-47	26
Huddersfield Town	HUD	3	7	28	22	76	-54	16

- Input

```
(SELECT * FROM EplTable ORDER BY Point DESC LIMIT 3)
UNION
(SELECT '...', '...', '...', '...', '...', '...', '...', '...', '...')
UNION
```

```
(SELECT * FROM EplTable ORDER BY Point DESC LIMIT 17,3);
```

6. Đưa ra đội bóng ghi nhiều bàn thắng trên sân nhà nhất, nhiều bàn thắng trên sân khách nhất, ít bàn thắng trên sân nhà nhất, ít bàn thắng trên sân khách nhất.

- Output

Home	Goals	Away	Goals
Manchester City	57	Liverpool	38
...
Huddersfield Town	10	Manchester United	12

- Input

```
(SELECT
(@a := (SELECT EplTable.Name FROM EplTable, Result WHERE
(EplTable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.HomeScore) DESC LIMIT 1)) Home,
(@b := (SELECT SUM(HomeScore) FROM Result GROUP BY Home ORDER BY
SUM(HomeScore) DESC LIMIT 1)) Goals,
(@c := (SELECT EplTable.Name FROM EplTable, Result WHERE
(EplTable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.Away) DESC LIMIT 1)) Away,
(@d := (SELECT SUM(AwayScore) FROM Result GROUP BY Away ORDER BY
SUM(AwayScore) DESC LIMIT 1)) Goals)
UNION
(SELECT '...', '...', '...', '...')
UNION
(SELECT
(@e := (SELECT EplTable.Name FROM EplTable, Result WHERE
(EplTable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.HomeScore) ASC LIMIT 1)) Home,
(@f := (SELECT SUM(HomeScore) FROM Result GROUP BY Home ORDER BY
SUM(HomeScore) ASC LIMIT 1)) Goals,
```



```
(@g := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.Away) ASC LIMIT 1)) Away,
(@h := (SELECT SUM(AwayScore) FROM Result GROUP BY Away ORDER BY
SUM(AwayScore) ASC LIMIT 1)) Goals);
```

7. Đưa ra 3 đội bóng ghi nhiều bàn thắng trên sân nhà nhất, nhiều bàn thắng trên sân khách nhất, ít bàn thắng trên sân nhà nhất, ít bàn thắng trên sân khách nhất.

- Output

Home	Goals	Away	Goals
Manchester City	57	Liverpool	38
Liverpool	55	Leicester City	34
Arsenal	42	Everton	33
...
Crystal Palace	19	Everton	13
Brighton and Hove Albion	19	Leicester City	12
Huddersfield Town	10	Manchester United	12

- Input

```
(SELECT
(@a1 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.HomeScore) DESC LIMIT 1)) Home,
(@b1 := (SELECT SUM(HomeScore) FROM Result GROUP BY Home ORDER BY
SUM(HomeScore) DESC LIMIT 1)) Goals,
(@c1 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.Away) DESC LIMIT 1)) Away,
(@d1 := (SELECT SUM(AwayScore) FROM Result GROUP BY Away ORDER BY
SUM(AwayScore) DESC LIMIT 1)) Goals)
UNION
(SELECT
```

```
(@a2 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.HomeScore) DESC LIMIT 1,1)),
(@b2 := (SELECT SUM(HomeScore) FROM Result GROUP BY Home ORDER BY
SUM(HomeScore) DESC LIMIT 1,1)),
(@c2 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.Away) DESC LIMIT 1,1)),
(@d2 := (SELECT SUM(AwayScore) FROM Result GROUP BY Away ORDER BY
SUM(AwayScore) DESC LIMIT 1,1)))
UNION
(SELECT
(@a3 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.HomeScore) DESC LIMIT 2,1)),
(@b3 := (SELECT SUM(HomeScore) FROM Result GROUP BY Home ORDER BY
SUM(HomeScore) DESC LIMIT 2,1)),
(@c3 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.Away) DESC LIMIT 2,1)),
(@d3 := (SELECT SUM(AwayScore) FROM Result GROUP BY Away ORDER BY
SUM(AwayScore) DESC LIMIT 2,1)))
UNION
(SELECT '...', '...', '...', '...')
UNION
(SELECT
(@a18 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.HomeScore) ASC LIMIT 2,1)),
(@b18 := (SELECT SUM(HomeScore) FROM Result GROUP BY Home ORDER BY
SUM(HomeScore) ASC LIMIT 2,1)),
```

```

(@c18 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.Away) ASC LIMIT 2,1)),
(@d18 := (SELECT SUM(AwayScore) FROM Result GROUP BY Away ORDER BY
SUM(AwayScore) ASC LIMIT 2,1)))
UNION
(SELECT
(@a19 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.HomeScore) ASC LIMIT 1,1)),
(@b19 := (SELECT SUM(HomeScore) FROM Result GROUP BY Home ORDER BY
SUM(HomeScore) ASC LIMIT 1,1)),
(@c19 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.Away) ASC LIMIT 1,1)),
(@d19 := (SELECT SUM(AwayScore) FROM Result GROUP BY Away ORDER BY
SUM(AwayScore) ASC LIMIT 1,1)))
UNION
(SELECT
(@a20 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.HomeScore) ASC LIMIT 1)),
(@b20 := (SELECT SUM(HomeScore) FROM Result GROUP BY Home ORDER BY
SUM(HomeScore) ASC LIMIT 1)),
(@c20 := (SELECT EpITable.Name FROM EpITable, Result WHERE
(EpITable.ShortName = Result.Home) GROUP BY Result.Home ORDER BY
SUM(Result.Away) ASC LIMIT 1)),
(@d20 := (SELECT SUM(AwayScore) FROM Result GROUP BY Away ORDER BY
SUM(AwayScore) ASC LIMIT 1)));

```

8. Đưa ra bảng xếp hạng giải Ngoại Hạng Anh.

- Output

Rank	Status	Name	Round	W	D	L	GF	GA	GD	P
1	UCL	Manchester City	38	32	2	4	95	23	72	98
2	UCL	Liverpool	38	30	7	1	89	22	67	97
3	UCL	Chelsea	38	21	9	8	63	39	24	72
4	UCL	Tottenham Hotspur	38	23	2	13	67	39	28	71
5	UEL	Arsenal	38	21	7	10	73	51	22	70
6		Manchester United	38	19	9	10	65	54	11	66
7		Wolverhampton Wanderers	38	16	9	13	47	46	1	57
8		Everton	38	15	9	14	54	46	8	54
9		Leicester City	38	15	7	16	51	48	3	52
10		West Ham United	38	15	7	16	52	55	-3	52
11		Watford	38	14	8	16	52	59	-7	50
12		Crystal Palace	38	14	7	17	51	53	-2	49
13		Newcastle United	38	12	9	17	42	48	-6	45
14		Bournemouth	38	13	6	19	56	70	-14	45
15		Burnley	38	11	7	20	45	68	-23	40
16		Southampton	38	9	12	17	45	65	-20	39
17		Brighton and Hove Albion	38	9	9	20	35	60	-25	36
18	EFL	Cardiff City	38	10	4	24	34	69	-35	34
19	EFL	Fulham	38	7	5	26	34	81	-47	26
20	EFL	Huddersfield Town	38	3	7	28	22	76	-54	16

- Input

```
SET @a=0;
```

```
SELECT
```

```
(@a := @a+1) Rank,
```

```
CASE
```

```
WHEN @a <= 4 THEN "UCL"
```

```
WHEN @a = 5 THEN "UEL"
```

```
WHEN @a >= 18 THEN "EFL"
```

```
ELSE "" END as Status,
```

```
Name, Win + Draw + Lose Round, Win W, Draw D, Lose L, GoalsFor GF, GoalsAgainst
```

```
GA, GoalDIFferent GD, Point P
```

```
FROM EplTable ORDER BY Point DESC, GoalDIFferent DESC, GoalsFor DESC;
```

9. Đưa ra tên đội bóng có tỉ lệ người truy cập trang web là Nam cao nhất.

- Output

Name	Male
Chelsea	75.83

- Input

```
SELECT EplTable.Name, GuestInfo.Male FROM EplTable, ClubInfo, GuestInfo
WHERE (EplTable.ShortName = ClubInfo.ShortName AND ClubInfo.Website =
GuestInfo.Website) ORDER BY GuestInfo.Male DESC LIMIT 1;
```

10. Đưa ra tên huấn luyện viên của đội bóng có nhiều hơn 8 trận thua.

- Output

Name	HeadCoach	Lose
Huddersfield Town	Jan Siewert	28
Fulham	Scott Parker	26
Cardiff City	Neil Warnock	24
Brighton and Hove Albion	Graham Potter	20
Burnley	Sean Dyche	20
Bournemouth	Eddie Howe	19
Newcastle United	Steve Bruce	17
Southampton	Ralph Hasenhuttl	17
Crystal Palace	Roy Hodgson	17
West Ham United	Manuel Pellegrini	16
Leicester City	Brendan Rodgers	16
Watford	Snchez Flores	16
Everton	Sean Lundon	14
Tottenham Hotspur	Jose Mourinho	13
Wolverhampton Wanderers	Nuno Espito Santo	13
Manchester United	Ole Gunnar Solskjaer	10
Arsenal	Unai Emery	10

- Input

```
SELECT EplTable.Name, ClubInfo.HeadCoach, EplTable.Lose FROM EplTable,
ClubInfo WHERE (EplTable.ShortName = ClubInfo.ShortName AND EplTable.Lose >
8) ORDER BY EplTable.Lose DESC;
```

11. Đưa ra tên huấn luyện viên của đội bóng thắng trên sân nhà nhiều nhất, ít nhất, thắng trên sân khách nhiều nhất, ít nhất, thua trên sân nhà nhiều nhất, ít nhất, thua trên sân khách nhiều nhất, ít nhất.

- Output

HeadCoach	Name	Home Match Win	HeadCoach	Name	Home Match Lose	HeadCoach	Name	Away Match Win	HeadCoach	Name	Away Match Lose
Josep Guardiola	Manchester City	18	Jan Siewert	Huddersfield Town	14	Josep Guardiola	Manchester City	14	Scott Parker	Fulham	16
Jan Siewert	Huddersfield Town	2	Josep Guardiola	Manchester City	1	Jan Siewert	Fulham	1	Jrgen Klopp	Liverpool	1

- Input

```
(SELECT
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'HeadCoach',
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Name',
(@c := (SELECT COUNT(Result.Home) 'Match Win' FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Home Match Win',
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'HeadCoach',
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Name',
(@c := (SELECT COUNT(Result.Home) 'Match Win' FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Home Match Lose',
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'HeadCoach',
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Name',
(@c := (SELECT COUNT(Result.Home) 'Match Win' FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Away Match Win',
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'HeadCoach',
```

```

(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Name',
(@c := (SELECT COUNT(Result.Home) 'Match Win' FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Away Match Lose')
UNION
(SELECT '...', '...', '...', '...', '...', '...', '...', '...', '...', '...', '...', '...', '...')
UNION
(SELECT
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =

```



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Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EpITable, Result
WHERE(ClubInfo.ShortName = EpITable.ShortName AND EpITable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EpITable, Result
WHERE(ClubInfo.ShortName = EpITable.ShortName AND EpITable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@b := (SELECT EpITable.Name FROM ClubInfo, EpITable, Result
WHERE(ClubInfo.ShortName = EpITable.ShortName AND EpITable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EpITable, Result
WHERE(ClubInfo.ShortName = EpITable.ShortName AND EpITable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1));

```

12. Đưa ra tên ba huấn luyện viên của ba đội bóng thắng trên sân nhà nhiều nhất, ít nhất, thắng trên sân khách nhiều nhất, ít nhất, thua trên sân nhà nhiều nhất, ít nhất, thua trên sân khách nhiều nhất, ít nhất.

- Output

HeadCoach	Name	Home Match Win	HeadCoach	Name	Home Match Lose	HeadCoach	Name	Away Match Win	HeadCoach	Name	Away Match Lose
Josep Guardiola	Manchester City	18	Jan Siewert	Huddersfield Town	14	Josep Guardiola	Manchester City	14	Scott Parker	Fulham	16
Jrgen Klopp	Liverpool	17	Nell Warnock	Cardiff City	11	Jrgen Klopp	Liverpool	13	Jan Siewert	Huddersfield Town	14
Unai Emery	Arsenal	14	Steve Bruce	Burnley	10	Jose Mourinho	Tottenham Hotspur	11	Nell Warnock	Bournemouth	13
...
Ralph Hasenhuttl	Southampton	5	Unai Emery	Arsenal	2	Graham Potter	Brighton and Hove Albion	3	Ole Gunnar Solskjaer	Newcastle United	7
Roy Hodgson	Crystal Palace	5	Josep Guardiola	Chelsea	1	Jan Siewert	Fulham	1	Josep Guardiola	Manchester City	3
Jan Siewert	Huddersfield Town	2	Frank Lampard	Manchester City	1	Scott Parker	Huddersfield Town	1	Jrgen Klopp	Liverpool	1

- Input

```

(SELECT
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EpITable, Result
WHERE(ClubInfo.ShortName = EpITable.ShortName AND EpITable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'HeadCoach',
(@b := (SELECT EpITable.Name FROM ClubInfo, EpITable, Result
WHERE(ClubInfo.ShortName = EpITable.ShortName AND EpITable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Name',
(@c := (SELECT COUNT(Result.Home) 'Match Win' FROM ClubInfo, EpITable, Result
WHERE(ClubInfo.ShortName = EpITable.ShortName AND EpITable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Home Match Win',
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EpITable, Result
WHERE(ClubInfo.ShortName = EpITable.ShortName AND EpITable.ShortName =

```



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Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'HeadCoach',
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Name',
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Home Match Lose',
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'HeadCoach',
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Name',
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Away Match Win',
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'HeadCoach',
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Name',
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1)) 'Away Match Lose')
UNION
(SELECT
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =

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Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 1,1)))
UNION

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(SELECT
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =

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Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) DESC LIMIT 2,1)))
UNION
(SELECT '...', '...', '...', '...', '...', '...', '...', '...', '...', '...', '...', '...', '...')
UNION
(SELECT
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),

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(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 2,1)))
UNION
(SELECT
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),

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```

(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1,1)))
UNION
(SELECT
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),

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(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Home AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Home
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore < Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@a := (SELECT ClubInfo.HeadCoach FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@b := (SELECT EplTable.Name FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)),
(@c := (SELECT COUNT(Result.Home) FROM ClubInfo, EplTable, Result
WHERE(ClubInfo.ShortName = EplTable.ShortName AND EplTable.ShortName =
Result.Away AND Result.HomeScore > Result.AwayScore) GROUP BY Result.Away
ORDER BY COUNT(Result.Home) ASC LIMIT 1)));

```

13. Liệt kê những trận hòa không có bàn thắng.

- Output

Round	Match	StadiumName	Seats
1	Southampton 0-0 Burnley	St. Mary's Stadium	32384
2	Cardiff City 0-0 Newcastle United	Cardiff City Stadium	33316
3	Huddersfield Town 0-0 Cardiff City	John Smith's Stadium	24169
6	West Ham United 0-0 Chelsea	London Stadium	60000
6	Crystal Palace 0-0 Newcastle United	Selhurst Park	25486
8	Liverpool 0-0 Manchester City	Anfield	53394
9	Bournemouth 0-0 Southampton	Vitality Stadium	11329
10	Southampton 0-0 Newcastle United	St. Mary's Stadium	32384
12	Leicester City 0-0 Burnley	King Power Stadium	32273
12	Chelsea 0-0 Everton	Stamford Bridge	40853
13	Manchester United 0-0 Crystal Palace	Old Trafford	74879
18	Newcastle United 0-0 Fulham	St. James' Park	52305
19	Crystal Palace 0-0 Cardiff City	Selhurst Park	25486
21	Chelsea 0-0 Southampton	Stamford Bridge	40853
22	Cardiff City 0-0 Huddersfield Town	Cardiff City Stadium	33316
23	Watford 0-0 Burnley	Vicarage Road	21000
25	Brighton and Hove Albion 0-0 Watford	Amex Stadium	30666
27	Manchester United 0-0 Liverpool	Old Trafford	74879
29	Everton 0-0 Liverpool	Goodison Park	39221
35	Wolverhampton Wanderers 0-0 Brighton and Hove Albion	Molineux Stadium	32050
36	Crystal Palace 0-0 Everton	Selhurst Park	25486
38	Leicester City 0-0 Chelsea	King Power Stadium	32273

- Input

```
SELECT Result.Round, CONCAT(a.Name, ' ', Result.HomeScore, '-', Result.AwayScore,
'', b.Name) 'Match', ClubInfo.StadiumName, StadiumInfo.Seats
FROM EplTable a, EplTable b, Result, ClubInfo, StadiumInfo
WHERE (a.ShortName = Result.Home AND b.ShortName = Result.Away AND
a.ShortName = ClubInfo.ShortName AND ClubInfo.StadiumName =
StadiumInfo.StadiumName AND Result.HomeScore + Result.AwayScore = 0)
ORDER BY Result.Round;
```

14. Đưa ra trận đấu có nhiều bàn thắng nhất.

- Output

Round	Match	StadiumName	Seats
18	Everton 2-6 Tottenham Hotspur	Goodison Park	39221
38	Crystal Palace 5-3 Bournemouth	Selhurst Park	25486

- Input

```
SELECT Result.Round, CONCAT(a.Name, ' ', Result.HomeScore, '-', Result.AwayScore,
'', b.Name) 'Match', ClubInfo.StadiumName, StadiumInfo.Seats
FROM EplTable a, EplTable b, Result, ClubInfo, StadiumInfo
WHERE (a.ShortName = Result.Home AND b.ShortName = Result.Away AND
a.ShortName = ClubInfo.ShortName AND ClubInfo.StadiumName =
StadiumInfo.StadiumName AND Result.HomeScore + Result.AwayScore = (SELECT
MAX(HomeScore + AwayScore) FROM Result)) ORDER BY Result.Round;
```

15. Đưa ra khoảng cách lớn nhất giữa hai đội bóng và khoảng cách nhỏ nhất giữa 2 đội bóng.

- Output

Name	Name	Distance
Newcastle United	Bournemouth	471.33
...
Liverpool	Everton	1.6600000000000001

- Input

```

SET @rad=3.14159/180;
(SELECT a.Name, b.Name, ROUND(ACOS(SIN(c.Latitude * @rad) * SIN(d.Latitude *
@rad) + COS(c.Latitude * @rad) * COS(d.Latitude * @rad) * COS((c.Longitude -
d.Longitude) * @rad)) * 6371, 2) Distance
FROM EplTable a, EplTable b, StadiumInfo c, StadiumInfo d, ClubInfo e, ClubInfo f
WHERE (a.ShortName = e.ShortName AND e.StadiumName = c.StadiumName AND
b.ShortName = f.ShortName AND f.StadiumName = d.StadiumName AND a.ShortName
!= b.ShortName)
ORDER BY ACOS (SIN (c.Latitude * @rad) * SIN (d.Latitude * @rad) + COS
(c.Latitude * @rad) * COS (d.Latitude * @rad) * COS ((c.Longitude - d.Longitude) *
@rad)) * 6371
DESC LIMIT 1)
UNION
(SELECT '...', '...', '...')
UNION
(SELECT a.Name, b.Name, ROUND(ACOS(SIN(c.Latitude * @rad) * SIN(d.Latitude *
@rad) + COS(c.Latitude * @rad) * COS(d.Latitude * @rad) * COS((c.Longitude -
d.Longitude) * @rad)) * 6371, 2) Distance
FROM EplTable a, EplTable b, StadiumInfo c, StadiumInfo d, ClubInfo e, ClubInfo f
WHERE (a.ShortName = e.ShortName AND e.StadiumName = c.StadiumName AND
b.ShortName = f.ShortName AND f.StadiumName = d.StadiumName AND a.ShortName
!= b.ShortName)
ORDER BY ACOS (SIN (c.Latitude * @rad) * SIN (d.Latitude * @rad) + COS
(c.Latitude * @rad) * COS (d.Latitude * @rad) * COS ((c.Longitude - d.Longitude) *
@rad)) * 6371
ASC LIMIT 1);

```

16. Đưa ra tổng thời gian truy cập website theo tháng của mỗi đội bóng.

- Output

Name	Total Time Access
Liverpool	2824 week(s) 0 day(s) 5 hour(s) 55 minute(s) 30 second(s)
Arsenal	1405 week(s) 4 day(s) 17 hour(s) 54 minute(s) 18 second(s)
Manchester United	1004 week(s) 2 day(s) 8 hour(s) 2 minute(s) 50 second(s)
Tottenham Hotspur	991 week(s) 4 day(s) 23 hour(s) 36 minute(s) 11 second(s)
Chelsea	984 week(s) 3 day(s) 1 hour(s) 35 minute(s) 44 second(s)
Manchester City	634 week(s) 4 day(s) 17 hour(s) 6 minute(s) 0 second(s)
Wolverhampton Wanderers	310 week(s) 2 day(s) 2 hour(s) 59 minute(s) 21 second(s)
Leicester City	219 week(s) 3 day(s) 19 hour(s) 41 minute(s) 12 second(s)
Brighton and Hove Albion	177 week(s) 1 day(s) 3 hour(s) 17 minute(s) 48 second(s)
West Ham United	158 week(s) 6 day(s) 19 hour(s) 16 minute(s) 48 second(s)
Everton	155 week(s) 3 day(s) 12 hour(s) 2 minute(s) 40 second(s)
Fulham	147 week(s) 4 day(s) 22 hour(s) 55 minute(s) 25 second(s)
Crystal Palace	126 week(s) 1 day(s) 15 hour(s) 30 minute(s) 48 second(s)
Newcastle United	117 week(s) 0 day(s) 23 hour(s) 47 minute(s) 28 second(s)
Watford	78 week(s) 4 day(s) 14 hour(s) 34 minute(s) 27 second(s)
Burnley	70 week(s) 5 day(s) 19 hour(s) 41 minute(s) 20 second(s)
Southampton	53 week(s) 4 day(s) 21 hour(s) 21 minute(s) 15 second(s)
Bournemouth	44 week(s) 6 day(s) 16 hour(s) 58 minute(s) 57 second(s)
Huddersfield Town	20 week(s) 4 day(s) 4 hour(s) 25 minute(s) 44 second(s)
Cardiff City	19 week(s) 1 day(s) 3 hour(s) 31 minute(s) 33 second(s)

- Input

```

SELECT EpITable.Name,
CONCAT(FLOOR(FLOOR((FLOOR((FLOOR(SECOND(WebsiteInfo.TimeAccessAve
rage) * WebsiteInfo.MonthlyVisits / 60) + MINUTE(WebsiteInfo.TimeAccessAverage)
* WebsiteInfo.MonthlyVisits) / 60) + HOUR(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) / 24) / 7), ' week(s) ',
(FLOOR((FLOOR((FLOOR(SECOND(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits / 60) + MINUTE(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) / 60) + HOUR(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) / 24) % 7), ' day(s) '
,(FLOOR((FLOOR(SECOND(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits / 60) + MINUTE(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) / 60) + HOUR(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) % 24, ' hour(s) ',
(FLOOR(SECOND(WebsiteInfo.TimeAccessAverage) * WebsiteInfo.MonthlyVisits /
60) + MINUTE(WebsiteInfo.TimeAccessAverage) * WebsiteInfo.MonthlyVisits) % 60, '
minute(s) ', (SECOND(WebsiteInfo.TimeAccessAverage) * WebsiteInfo.MonthlyVisits)
% 60, ' second(s)') 'Total Time Access'
FROM EpITable, ClubInfo, WebsiteInfo
WHERE (EpITable.ShortName = ClubInfo.ShortName AND ClubInfo.Website =
WebsiteInfo.Website)
ORDER BY
(FLOOR(FLOOR((FLOOR((FLOOR(SECOND(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits / 60) + MINUTE(WebsiteInfo.TimeAccessAverage) *

```

```

WebsiteInfo.MonthlyVisits) / 60) + HOUR(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) / 24) / 7)) DESC,
(FLOOR((FLOOR((FLOOR(SECOND(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits / 60) + MINUTE(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) / 60) + HOUR(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) / 24) % 7) DESC,
(FLOOR((FLOOR(SECOND(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits / 60) + MINUTE(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) / 60) + HOUR(WebsiteInfo.TimeAccessAverage) *
WebsiteInfo.MonthlyVisits) % 24 DESC,
(FLOOR(SECOND(WebsiteInfo.TimeAccessAverage) * WebsiteInfo.MonthlyVisits /
60) + MINUTE(WebsiteInfo.TimeAccessAverage) * WebsiteInfo.MonthlyVisits) % 60
DESC, (SECOND(WebsiteInfo.TimeAccessAverage) * WebsiteInfo.MonthlyVisits) %
60 DESC;

```

17. Đưa ra độ tuổi phổ biến (>20%), giới tính phổ biến (>50%), thiết bị truy cập phổ biến (>50%) của người truy cập trang web của mỗi đội bóng.

- Output

Name	18-24	25-34	35-44	45-54	55-64	65+	Male	Female	Desktop	Mobile
Arsenal	x	x	x				x			x
Brighton and Hove Albion		x	x				x			x
Bournemouth		x	x				x			x
Burnley		x	x				x			x
Cardiff City		x	x				x			x
Chelsea	x	x	x				x			x
Crystal Palace		x	x				x			x
Everton		x	x				x			x
Fulham		x	x				x			x
Huddersfield Town		x	x				x			x
Leicester City		x	x				x			x
Liverpool		x	x				x			x
Manchester City	x	x	x				x			x
Manchester United		x	x				x			x
Newcastle United		x	x				x			x
Southampton		x	x				x			x
Tottenham Hotspur		x	x				x			x
Watford		x	x				x			x
West Ham United		x	x				x			x
Wolverhampton Wanderers		x	x				x			x

- Input

```

SELECT
EplTable.Name,
CASE WHEN GuestInfo.18to24 > 20 THEN "x" ELSE "" END AS '18-24',
CASE WHEN GuestInfo.25to34 > 20 THEN "x" ELSE "" END AS '25-34',
CASE WHEN GuestInfo.35to44 > 20 THEN "x" ELSE "" END AS '35-44',
CASE WHEN GuestInfo.45to54 > 20 THEN "x" ELSE "" END AS '45-54',
CASE WHEN GuestInfo.55to64 > 20 THEN "x" ELSE "" END AS '55-64',
CASE WHEN GuestInfo.65plus > 20 THEN "x" ELSE "" END AS '65+',
CASE WHEN GuestInfo.Male >= 50 THEN "x" ELSE "" END AS 'Male',
CASE WHEN GuestInfo.Female >= 50 THEN "x" ELSE "" END AS 'Female',

```

```

CASE WHEN GuestInfo.Desktop >= 50 THEN "x" ELSE "" END AS 'Desktop',
CASE WHEN GuestInfo.Mobile >= 50 THEN "x" ELSE "" END AS 'Mobile'
FROM EpITable, ClubInfo, GuestInfo
WHERE(EpITable.ShortName = ClubInfo.ShortName AND ClubInfo.Website =
GuestInfo.Website);

```

18. Đưa ra số quảng cáo được người dùng desktop bấm vào của mỗi đội bóng.

- Output

Name	Advertise
Liverpool	12325
Arsenal	8006
Manchester United	5709
Manchester City	5406
Tottenham Hotspur	2725
Chelsea	2515
Everton	443
Wolverhampton Wanderers	189
Crystal Palace	83
Watford	43
Brighton and Hove Albion	32
Bournemouth	0
Burnley	0
Fulham	0
Cardiff City	0
West Ham United	0
Huddersfield Town	0
Newcastle United	0
Leicester City	0
Southampton	0

- Input

```

SELECT EpITable.Name, ROUND(WebsiteInfo.MonthlyVisits * GuestInfo.Desktop *
GuestInfo.Advertise / 10000) AS 'Advertise'
FROM EpITable, WebsiteInfo, ClubInfo, GuestInfo
WHERE(EpITable.ShortName = ClubInfo.ShortName AND ClubInfo.Website =
WebsiteInfo.Website AND ClubInfo.Website = GuestInfo.Website)
ORDER BY WebsiteInfo.MonthlyVisits * GuestInfo.Desktop * GuestInfo.Advertise /
10000
DESC;

```

19. Đưa ra 10 cầu thủ có tần suất ghi bàn cao nhất.

- Output

Team Name	Player Name	Min/Goals
Arsenal	Danny Welbeck	31.00
Burnley	Ben Gibson	62.00
Arsenal	Eddie Nketiah	62.00
Newcastle United	Joselu	75.00
Manchester City	Sergio Aguero	87.29
Tottenham Hotspur	Harry Kane	95.47
Arsenal	Pierre Emerick Aubameyang	96.18
Chelsea	Alvaro Morata	100.20
Manchester City	Gabriel Jesus	103.43
Watford	Andre Gray	108.00

- Input

```
SELECT EplTable.Name 'Team Name', CONCAT(Players.LastName, '',
Players.FirstName) 'Player Name', ROUND(Players.Minutes / Players.Goals, 2)
'Min/Goals'
FROM EplTable, Players
WHERE(EplTable.ShortName = Players.ShortName AND Players.Goals > 0 AND
Players.Minutes > 0)
ORDER BY Players.Minutes / Players.Goals
ASC LIMIT 10;
```

20. Đưa ra kết quả các trận đấu ở vòng 13.

- Output

Match	StadiumName	Seats
Brighton and Hove Albion 1-1 Leicester City	Amex Stadium	30666
Bournemouth 1-2 Arsenal	Vitality Stadium	11329
Burnley 1-2 Newcastle United	Turf Moor	21944
Everton 1-0 Cardiff City	Goodison Park	39221
Fulham 3-2 Southampton	Craven Cottage	25700
Manchester United 0-0 Crystal Palace	Old Trafford	74879
Tottenham Hotspur 3-1 Chelsea	Tottenham Hotspur Stadium	62062
Watford 0-3 Liverpool	Vicarage Road	21000
West Ham United 0-4 Manchester City	London Stadium	60000
Wolverhampton Wanderers 0-2 Huddersfield Town	Molineux Stadium	32050

- Input

```
SELECT CONCAT(a.Name, '', Result.HomeScore, '-', Result.AwayScore, '', b.Name)
'Match', ClubInfo.StadiumName, StadiumInfo.Seats
FROM EplTable a, EplTable b, Result, ClubInfo, StadiumInfo
WHERE (a.ShortName = Result.Home AND b.ShortName = Result.Away AND
a.ShortName = ClubInfo.ShortName AND ClubInfo.StadiumName =
StadiumInfo.StadiumName AND Result.Round = 13);
```

21. Giả sử có trận đấu Arsenal 3-1 Bournemouth, tạo bảng EplTable2 giống bảng EplTable và cập nhật bảng xếp hạng.

- Output

Rank	Status	Name	Round	W	D	L	GF	GA	GD	P
1 -	UCL	Manchester City	38	32	2	4	95	23	72	98
2 -	UCL	Liverpool	38	30	7	1	89	22	67	97
3 ^	UCL	Arsenal	39	22	7	10	76	52	24	73
4 v	UCL	Chelsea	38	21	9	8	63	39	24	72
5 v	UEL	Tottenham Hotspur	38	23	2	13	67	39	28	71
6 -		Manchester United	38	19	9	10	65	54	11	66
7 -		Wolverhampton Wanderers	38	16	9	13	47	46	1	57
8 -		Everton	38	15	9	14	54	46	8	54
9 -		Leicester City	38	15	7	16	51	48	3	52
10 -		West Ham United	38	15	7	16	52	55	-3	52
11 -		Watford	38	14	8	16	52	59	-7	50
12 -		Crystal Palace	38	14	7	17	51	53	-2	49
13 -		Newcastle United	38	12	9	17	42	48	-6	45
14 -		Bournemouth	39	13	6	20	57	73	-16	45
15 -		Burnley	38	11	7	20	45	68	-23	40
16 -		Southampton	38	9	12	17	45	65	-20	39
17 -		Brighton and Hove Albion	38	9	9	20	35	60	-25	36
18 -	EFL	Cardiff City	38	10	4	24	34	69	-35	34
19 -	EFL	Fulham	38	7	5	26	34	81	-47	26
20 -	EFL	Huddersfield Town	38	3	7	28	22	76	-54	16

- Input

```

CREATE TABLE EplTable2 AS SELECT * FROM EplTable;
ALTER TABLE EplTable2 ADD COLUMN (PreviousRank INTEGER, CurrentRank
INTEGER);
SET @a=0;
UPDATE EplTable2 SET PreviousRank = (@a:= @a+1)
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
UPDATE EplTable2
SET Win = Win + 1, Draw = Draw + 0, Lose = Lose + 0, GoalsFor = GoalsFor + 3,
GoalsAgainst = GoalsAgainst + 1, GoalDifferent= GoalsFor - GoalsAgainst, Point =
Point + 3
WHERE Name = 'Arsenal';
UPDATE EplTable2
SET Win = Win + 0, Draw = Draw + 0, Lose = Lose + 1, GoalsFor = GoalsFor + 1,
GoalsAgainst = GoalsAgainst + 3, GoalDifferent= GoalsFor - GoalsAgainst, Point =
Point + 0
WHERE Name = 'Bournemouth';
SET @a = 0;
UPDATE EplTable2 SET CurrentRank = (@a:= @a+1)
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
SET @a=0;
SELECT
CASE
WHEN PreviousRank = CurrentRank THEN CONCAT((@a := @a+1), ',', '-')
WHEN PreviousRank > CurrentRank THEN CONCAT((@a := @a+1), ',', '^')
ELSE CONCAT((@a := @a+1), ',', 'v')

```



```

END AS 'Rank',
CASE
WHEN @a <= 4 THEN "UCL"
WHEN @a = 5 THEN "UEL"
WHEN @a >= 18 THEN "EFL"
ELSE ""
END AS Status,
Name, Win + Draw + Lose Round, Win W, Draw D, Lose L, GoalsFor GF, GoalsAgainst
GA, GoalDifferent GD, Point P FROM EplTable2
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
DROP TABLE EplTable2;

```

22. Giả sử kết quả vòng đấu thứ 39 là kết quả của vòng đấu số 18, tạo bảng EplTable2 giống bảng EplTable và cập nhật bảng xếp hạng.

- Output

Rank	Status	Name	Round	W	D	L	GF	GA	GD	P
1 ^	UCL	Liverpool	39	31	7	1	91	22	69	100
2 v	UCL	Manchester City	39	32	2	5	97	26	71	98
3 ^	UCL	Tottenham Hotspur	39	24	2	13	73	41	32	74
4 ^	UCL	Arsenal	39	22	7	10	76	52	24	73
5 v	UEL	Chelsea	39	21	9	9	63	40	23	72
6 -		Manchester United	39	20	9	10	70	55	15	69
7 -		Wolverhampton Wanderers	39	16	9	14	47	48	-1	57
8 ^		Leicester City	39	16	7	16	52	48	4	55
9 v		Everton	39	15	9	15	56	52	4	54
10 ^		Watford	39	15	8	16	54	59	-5	53
11 ^		Crystal Palace	39	15	7	17	54	55	-1	52
12 v		West Ham United	39	15	7	17	52	57	-5	52
13 ^		Bournemouth	39	14	6	19	58	70	-12	48
14 v		Newcastle United	39	12	10	17	42	48	-6	46
15 ^		Southampton	39	10	12	17	48	66	-18	42
16 v		Burnley	39	11	7	21	46	71	-25	40
17 -		Brighton and Hove Albion	39	9	9	21	35	62	-27	36
18 -	EFL	Cardiff City	39	10	4	25	35	74	-39	34
19 -	EFL	Fulham	39	7	6	26	34	81	-47	27
20 -	EFL	Huddersfield Town	39	3	7	29	23	79	-56	16

- Input

```

CREATE TABLE EplTable2 AS SELECT * FROM EplTable;
ALTER TABLE EplTable2 ADD COLUMN (PreviousRank INTEGER, CurrentRank
INTEGER);
SET @a=0;
UPDATE EplTable2 SET PreviousRank = (@a:= @a+1)
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
DELIMITER //
FOR i IN 0..9 DO
UPDATE EplTable2 SET
Win = CASE

```

```

WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) > (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Win + 1
ELSE Win
END,
Draw = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) = (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Draw + 1
ELSE Draw
END,
Lose = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) < (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Lose + 1
ELSE Lose
END,
GoalsFor = GoalsFor + (SELECT HomeScore FROM Result WHERE(Round = 18)
ORDER BY Home ASC, Away ASC LIMIT i,1),
GoalsAgainst = GoalsAgainst + (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1),
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) > (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Point + 3
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) = (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Point + 1
ELSE Point
END
WHERE ShortName = (SELECT Home FROM Result WHERE(Round = 18) ORDER
BY Home ASC, Away ASC LIMIT i,1);
UPDATE EplTable2 SET
Win = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) < (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)

```



```

THEN Win + 1
ELSE Win
END,
Draw = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) = (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Draw + 1
ELSE Draw
END,
Lose = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) > (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Lose + 1
ELSE Lose
END,
GoalsFor = GoalsFor + (SELECT AwayScore FROM Result WHERE(Round = 18)
ORDER BY Home ASC, Away ASC LIMIT i,1),
GoalsAgainst = GoalsAgainst + (SELECT HomeScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1),
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) < (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Point + 3
WHEN (SELECT HomeScore FROM Result WHERE(Round = 18) ORDER BY Home
ASC, Away ASC LIMIT i,1) = (SELECT AwayScore FROM Result WHERE(Round =
18) ORDER BY Home ASC, Away ASC LIMIT i,1)
THEN Point + 1
ELSE Point
END
WHERE ShortName = (SELECT Away FROM Result WHERE(Round = 18) ORDER
BY Home ASC, Away ASC LIMIT i,1);
END FOR;
//
DELIMITER ;
SET @a = 0;
UPDATE EplTable2 SET CurrentRank = (@a:= @a+1) ORDER BY EplTable2.Point
DESC, GoalDifferent DESC, GoalsFor DESC;
SET @a = 0;
UPDATE EplTable2 SET CurrentRank = (@a:= @a+1)

```

```

ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
SET @a=0;
SELECT
CASE
WHEN PreviousRank = CurrentRank THEN CONCAT((@a := @a+1), ',', '-')
WHEN PreviousRank > CurrentRank THEN CONCAT((@a := @a+1), ',', '^')
ELSE CONCAT((@a := @a+1), ',', 'v')
END AS 'Rank',
CASE
WHEN @a <= 4 THEN "UCL"
WHEN @a = 5 THEN "UEL"
WHEN @a >= 18 THEN "EFL"
ELSE ""
END AS Status,
Name, Win + Draw + Lose Round, Win W, Draw D, Lose L, GoalsFor GF, GoalsAgainst
GA, GoalDifferent GD, Point P FROM EplTable2
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
DROP TABLE EplTable2;

```

23. Đưa ra 10 cầu thủ được xuất hiện trên sân lâu nhất.

- Output

Team	Name	Minutes
Liverpool	Alisson Ramses Becker	2610
Manchester United	David De Gea	2610
Burnley	Charlie Taylor	2610
Arsenal	Bernd Leno	2610
Leicester City	Kasper Schmeichel	2610
Burnley	Ben Mee	2610
Crystal Palace	Luka Milivojevic	2610
Everton	Jordan Pickford	2610
Fulham	Sergio Rico	2610
Liverpool	Virgil van Dijk	2610

- Input

```

SELECT EplTable.Name 'Team', CONCAT(Players.LastName, ',', Players.FirstName)
'Name', Players.Minutes
FROM EplTable, Players
WHERE(EplTable.ShortName = Players.ShortName)
ORDER BY Players.Minutes
DESC LIMIT 10;

```

24. Đưa ra 10 cầu thủ được vào sân từ ghế dự bị nhiều nhất.

- Output

Team	Name	Games
Bournemouth	Lys Mousset	23
Manchester City	Gabriel Jesus	21
Wolverhampton Wanderers	Morgan Gibbs White	21
Leicester City	Kelechi Iheanacho	21
Watford	Isaac Success	21
Wolverhampton Wanderers	Adama Traore	21
Leicester City	Shinji Okazaki	20
Chelsea	Olivier Giroud	20
Everton	Ademola Lookman	18
Chelsea	Ruben Loftus Cheek	18

- Input

```
SELECT EplTable.Name 'Team', CONCAT(Players.LastName, ' ', Players.FirstName)
'Name', Players.Games - Players.GameStarted 'Games'
FROM EplTable, Players
WHERE(EplTable.ShortName = Players.ShortName)
ORDER BY Players.Games - Players.GameStarted
DESC LIMIT 10;
```

25. Đưa ra 10 cầu thủ có hiệu suất ghi bàn tốt nhất.

- Output

Team	Name	Shots/Goals
Everton	Phil Jagielka	1.00
Burnley	Ben Gibson	1.00
Arsenal	Laurent Koscielny	1.67
Brighton and Hove Albion	Leon Balogun	2.00
Crystal Palace	Joel Ward	2.00
Arsenal	Mesut Ozil	2.20
Newcastle United	Ciaran Clark	2.33
Southampton	Yann Valery	3.00
Huddersfield Town	Mathias Jorgensen	3.00
Arsenal	Eddie Nketiah	3.00

- Input

```
SELECT EplTable.Name 'Team', CONCAT(Players.LastName, ' ', Players.FirstName)
'Name', ROUND(Players.Shots / Players.Goals, 2) 'Shots/Goals'
FROM EplTable, Players
WHERE(EplTable.ShortName = Players.ShortName AND Players.Goals > 0 AND
Players.Shots > 0)
ORDER BY ROUND(Players.Shots / Players.Goals, 2)
ASC LIMIT 10;
```

26. Chọn ngẫu nhiên một vòng đấu (từ 1 đến 38, 10 trận 1 vòng) và chọn ngẫu nhiên tỉ số của 10 trận đấu đó, hiển thị kết quả 10 trận đấu và cập nhật bảng xếp hạng. Chú ý mỗi lần chạy lệnh phải ra một kết quả khác nhau.

- Output

Match				StadiumName				Seats		
Arsenal 5-1 Bournemouth				Emirates Stadium				60260		
Cardiff City 3-0 Everton				Cardiff City Stadium				33316		
Chelsea 3-5 Tottenham Hotspur				Stamford Bridge				40853		
Crystal Palace 5-2 Manchester United				Selhurst Park				25486		
Huddersfield Town 1-3 Wolverhampton Wanderers				John Smith's Stadium				24169		
Leicester City 4-1 Brighton and Hove Albion				King Power Stadium				32273		
Liverpool 4-5 Watford				Anfield				53394		
Manchester City 2-4 West Ham United				Etihad Stadium				55017		
Newcastle United 5-4 Burnley				St. James' Park				52305		
Southampton 5-3 Fulham				St. Mary's Stadium				32384		
Rank	Status	Name	Round	W	D	L	GF	GA	GD	P
1 -	UCL	Manchester City	39	32	2	5	97	27	70	98
2 -	UCL	Liverpool	39	30	7	2	93	27	66	97
3 ^	UCL	Tottenham Hotspur	39	24	2	13	72	42	30	74
4 ^	UCL	Arsenal	39	22	7	10	78	52	26	73
5 v	UEL	Chelsea	39	21	9	9	66	44	22	72
6 -		Manchester United	39	19	9	11	67	59	8	66
7 -		Wolverhampton Wanderers	39	17	9	13	50	47	3	60
8 ^		Leicester City	39	16	7	16	55	49	6	55
9 ^		West Ham United	39	16	7	16	56	57	-1	55
10 v		Everton	39	15	9	15	54	49	5	54
11 -		Watford	39	15	8	16	57	63	-6	53
12 -		Crystal Palace	39	15	7	17	56	55	1	52
13 -		Newcastle United	39	13	9	17	47	52	-5	48
14 -		Bournemouth	39	13	6	20	57	75	-18	45
15 ^		Southampton	39	10	12	17	50	68	-18	42
16 v		Burnley	39	11	7	21	49	73	-24	40
17 ^		Cardiff City	39	11	4	24	37	69	-32	37
18 v	EFL	Brighton and Hove Albion	39	9	9	21	36	64	-28	36
19 -	EFL	Fulham	39	7	5	27	37	86	-49	26
20 -	EFL	Huddersfield Town	39	3	7	29	23	79	-56	16

- Input

```

CREATE TABLE EplTable2 AS SELECT * FROM EplTable;
ALTER TABLE EplTable2 ADD COLUMN (PreviousRank INTEGER, CurrentRank
INTEGER);
SET @a=0, @round = FLOOR(1+38*RAND());
UPDATE EplTable2 SET PreviousRank = (@a:= @a+1) ORDER BY EplTable2.Point
DESC, GoalDifferent DESC, GoalsFor DESC;
CREATE TABLE Round39 (Home VARCHAR(3), Away VARCHAR(3), HomeScore
INTEGER, AwayScore INTEGER, CONSTRAINT PRIMARY KEY(Home, Away));
DELIMITER //
FOR i IN 0..9 DO
INSERT INTO Round39 VALUES(
(SELECT Home FROM Result WHERE(Round = @round) ORDER BY Home ASC,
Away ASC LIMIT i,1),
(SELECT Away FROM Result WHERE(Round = @round) ORDER BY Home ASC,
Away ASC LIMIT i,1), FLOOR(6*RAND()), FLOOR(6*RAND()));

```

```

END FOR;
//
FOR i IN 0..9 DO
UPDATE EplTable2 SET
Win = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) > (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Win + 1
ELSE Win
END,
Draw = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) = (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Draw + 1
ELSE Draw
END,
Lose = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) < (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Lose + 1
ELSE Lose
END,
GoalsFor = GoalsFor + (SELECT HomeScore FROM Round39 ORDER BY Home ASC,
Away ASC LIMIT i,1),
GoalsAgainst = GoalsAgainst + (SELECT AwayScore FROM Round39 ORDER BY
Home ASC, Away ASC LIMIT i,1),
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) > (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Point + 3
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) = (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Point + 1
ELSE Point
END
WHERE ShortName = (SELECT Home FROM Round39 ORDER BY Home ASC,
Away ASC LIMIT i,1);

```

```

UPDATE EplTable2 SET
Win = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) < (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Win + 1
ELSE Win
END,
Draw = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) = (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Draw + 1
ELSE Draw
END,
Lose = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) > (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Lose + 1
ELSE Lose
END,
GoalsFor = GoalsFor + (SELECT AwayScore FROM Round39 ORDER BY Home ASC,
Away ASC LIMIT i,1),
GoalsAgainst = GoalsAgainst + (SELECT HomeScore FROM Round39 ORDER BY
Home ASC, Away ASC LIMIT i,1),
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) < (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Point + 3
WHEN (SELECT HomeScore FROM Round39 ORDER BY Home ASC, Away ASC
LIMIT i,1) = (SELECT AwayScore FROM Round39 ORDER BY Home ASC, Away
ASC LIMIT i,1)
THEN Point + 1
ELSE Point
END
WHERE ShortName = (SELECT Away FROM Round39 ORDER BY Home ASC,
Away ASC LIMIT i,1);
END FOR;
//
DELIMITER ;

```

```

SET @a = 0;
UPDATE EplTable2 SET CurrentRank = (@a:= @a+1) ORDER BY EplTable2.Point
DESC, GoalDifferent DESC, GoalsFor DESC;
SET @a=0;
SELECT CONCAT(a.Name, ' ', Round39.HomeScore, '-', Round39.AwayScore, ' ',
b.Name) 'Match', ClubInfo.StadiumName, StadiumInfo.Seats
FROM EplTable a, EplTable b, Round39, ClubInfo, StadiumInfo
WHERE (a.ShortName = Round39.Home AND b.ShortName = Round39.Away AND
a.ShortName = ClubInfo.ShortName AND ClubInfo.StadiumName =
StadiumInfo.StadiumName);
SET @a=0;
SELECT
CASE
WHEN PreviousRank = CurrentRank THEN CONCAT((@a := @a+1), ' ', '-')
WHEN PreviousRank > CurrentRank THEN CONCAT((@a := @a+1), ' ', '^')
ELSE CONCAT((@a := @a+1), ' ', 'v')
END AS 'Rank',
CASE
WHEN @a <= 4 THEN "UCL"
WHEN @a = 5 THEN "UEL"
WHEN @a >= 18 THEN "EFL"
ELSE ""
END AS Status,
Name, Win + Draw + Lose Round, Win W, Draw D, Lose L, GoalsFor GF, GoalsAgainst
GA, GoalDifferent GD, Point P FROM EplTable2
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
DROP TABLE EplTable2, Round39;

```

27. Chọn ngẫu nhiên 2 đội bóng, in ra đội hình xuất phát, lịch sử đối đầu và tỉ số trận đấu giữa 2 đội, cập nhật bảng xếp hạng. Chú ý mỗi lần chạy lệnh phải ra một kết quả khác nhau.

- Output

Manchester City starting lineup				Southampton starting lineup					
Ederson				Nathan Redmond					
Aymeric Laporte				Pierre Hojbjerg					
Raheem Sterling				Jan Bednarek					
Bernardo Silva				Oriol Romeu					
Kyle Walker				James Ward Prowse					
Sergio Aguero				Yann Valery					
David Silva				Jannik Vestergaard					
Ilkay Gundogan				Alex McCarthy					
Fernandinho				Maya Yoshida					
Leroy Sane				Jack Stephens					
John Stones				Ryan Bertrand					
Round	History			StadiumName			Seats		
11	Manchester City 6-1 Southampton			Etihad Stadium			55017		
20	Southampton 1-3 Manchester City			St. Mary's Stadium			32384		
Match									
Manchester City 0 - 4 Southampton									

Rank	Status	Name	Round	W	D	L	GF	GA	GD	P
1 -	UCL	Manchester City	39	32	2	5	95	27	68	98
2 -	UCL	Liverpool	38	30	7	1	89	22	67	97
3 -	UCL	Chelsea	38	21	9	8	63	39	24	72
4 -	UCL	Tottenham Hotspur	38	23	2	13	67	39	28	71
5 -	UEL	Arsenal	38	21	7	10	73	51	22	70
6 -		Manchester United	38	19	9	10	65	54	11	66
7 -		Wolverhampton Wanderers	38	16	9	13	47	46	1	57
8 -		Everton	38	15	9	14	54	46	8	54
9 -		Leicester City	38	15	7	16	51	48	3	52
10 -		West Ham United	38	15	7	16	52	55	-3	52
11 -		Watford	38	14	8	16	52	59	-7	50
12 -		Crystal Palace	38	14	7	17	51	53	-2	49
13 -		Newcastle United	38	12	9	17	42	48	-6	45
14 -		Bournemouth	38	13	6	19	56	70	-14	45
15 ^		Southampton	39	10	12	17	49	65	-16	42
16 v		Burnley	38	11	7	20	45	68	-23	40
17 -		Brighton and Hove Albion	38	9	9	20	35	60	-25	36
18 -	EFL	Cardiff City	38	10	4	24	34	69	-35	34
19 -	EFL	Fulham	38	7	5	26	34	81	-47	26
20 -	EFL	Huddersfield Town	38	3	7	28	22	76	-54	16

- Input

```

CREATE TABLE EpITable2 AS SELECT * FROM EpITable;ALTER TABLE
EpITable2 ADD COLUMN (PreviousRank INTEGER, CurrentRank INTEGER);
SET @a=0;
DELIMITER //
SET @home=FLOOR(19 * RAND()),@away=FLOOR(19 * RAND()),
@gh=FLOOR(6*RAND()), @ga=FLOOR(6*RAND()), @homename="",@awayname=";

```



```

WHILE @home=@away DO
SET @home=FLOOR(19 * RAND()), @away=FLOOR(19 * RAND());
END WHILE;
//
DELIMITER ;
UPDATE EplTable2 SET PreviousRank = (@a:= @a+1) ORDER BY Point DESC,
GoalDifferent DESC, GoalsFor DESC;
DELIMITER //
FOR i IN 0..19 DO
IF i = @home
THEN
SET @homename=(SELECT Name FROM EplTable LIMIT i,1);
UPDATE EplTable2 SET
Win = CASE WHEN @gh > @ga THEN Win + 1 ELSE Win END,
Draw = CASE WHEN @gh=@ga THEN Draw + 1 ELSE Draw END,
Lose = CASE WHEN @gh<@ga THEN Lose + 1 ELSE Lose END,
GoalsFor = GoalsFor + @gh,
GoalsAgainst = GoalsAgainst + @ga,
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN @gh>@ga THEN Point + 3
WHEN @gh=@ga THEN Point + 1
ELSE Point END
WHERE Name = (SELECT Name FROM EplTable LIMIT i,1);
(SELECT CONCAT(Name, ' ', 'starting lineup') "
FROM EplTable
WHERE Name = (SELECT Name FROM EplTable LIMIT i,1))
UNION
(SELECT CONCAT(LastName, ' ', FirstName) 'Name'
FROM Players
WHERE(ShortName = (SELECT ShortName FROM EplTable LIMIT i,1))
ORDER BY Minutes DESC LIMIT 11);
END IF;
IF i = @away THEN
SET @awayname=(SELECT Name FROM EplTable LIMIT i,1);
UPDATE EplTable2 SET
Win = CASE WHEN @gh < @ga THEN Win + 1 ELSE Win END,
Draw = CASE WHEN @gh=@ga THEN Draw + 1 ELSE Draw END,
Lose = CASE WHEN @gh>@ga THEN Lose + 1 ELSE Lose END,
GoalsFor = GoalsFor + @ga,
GoalsAgainst = GoalsAgainst + @gh,
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE

```

```

WHEN @gh<@ga THEN Point + 3
WHEN @gh=@ga THEN Point + 1
ELSE Point END
WHERE Name = (SELECT Name FROM EplTable LIMIT i,1);
(SELECT CONCAT(Name, ' ', 'starting lineup') "
FROM EplTable
WHERE Name = (SELECT Name FROM EplTable LIMIT i,1))
UNION
(SELECT CONCAT(LastName, ' ', FirstName) 'Name'
FROM Players
WHERE(ShortName = (SELECT ShortName FROM EplTable LIMIT i,1))
ORDER BY Minutes DESC LIMIT 11);
END IF;
END FOR;
//
DELIMITER ;
SELECT Result.Round, CONCAT(a.Name, ' ', Result.HomeScore, '-', Result.AwayScore,
'', b.Name) 'History', ClubInfo.StadiumName, StadiumInfo.Seats
FROM EplTable a, EplTable b, Result, ClubInfo, StadiumInfo
WHERE(a.ShortName = Result.Home AND b.ShortName = Result.Away AND
a.ShortName = ClubInfo.ShortName AND ClubInfo.StadiumName =
StadiumInfo.StadiumName AND ((a.Name = @homename AND b.Name =
@awayname) OR (b.Name = @homename AND a.Name = @awayname))) ORDER BY
Result.Round;
SELECT CONCAT(@homename, ' ', @gh, ' - ', @ga, ' ', @awayname) 'Match';
SET @a = 0;
UPDATE EplTable2 SET
CurrentRank = (@a := @a+1)
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
SET @a=0;
SELECT
CASE
WHEN PreviousRank = CurrentRank THEN CONCAT((@a := @a+1), ' ', '-')
WHEN PreviousRank > CurrentRank THEN CONCAT((@a := @a+1), ' ', '^')
ELSE CONCAT((@a := @a+1), ' ', 'v')
END AS 'Rank',
CASE
WHEN @a <= 4 THEN "UCL"
WHEN @a = 5 THEN "UEL"
WHEN @a >= 18 THEN "EFL"
ELSE ""
END AS Status,

```

```
Name, Win + Draw + Lose Round, Win W, Draw D, Lose L, GoalsFor GF, GoalsAgainst
GA, GoalDifferent GD, Point P FROM EplTable2
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
DROP TABLE EplTable2;
```

28. Đưa ra cặp đấu có tổng tỉ số lượt đi và lượt về lớn nhất.

- Output

```
+-----+
| Match |
+-----+
| Everton 4 - 8 Tottenham Hotspur |
+-----+
```

- Input

```
SELECT CONCAT(a.Name, ' ', c.HomeScore + d.AwayScore, ' - ', c.AwayScore +
d.HomeScore, ' ', b.Name) 'Match'
FROM EplTable a, EplTable b, Result c, Result d
WHERE(a.ShortName = c.Home AND b.ShortName = c.Away AND c.Round <= 19
AND a.ShortName = d.Away AND b.ShortName = d.Home AND d.Round >= 20 AND
c.HomeScore + c.AwayScore + d.HomeScore + d.AwayScore = (SELECT
MAX(c.HomeScore + c.AwayScore + d.HomeScore + d.AwayScore) FROM Result c,
Result d WHERE(c.Home = d.Away AND c.Away = d.Home)));
```

29. Thiết lập lịch thi đấu vòng 39, giả lập kết quả và cập nhật bảng xếp hạng.

- Output

```
+-----+
| Result |
+-----+
| Manchester City 4 - 0 Liverpool |
| Wolverhampton Wanderers 1 - 1 West Ham United |
| Bournemouth 4 - 4 Brighton and Hove Albion |
| Arsenal 0 - 0 Tottenham Hotspur |
| Southampton 4 - 2 Manchester United |
| Burnley 4 - 2 Huddersfield Town |
| Cardiff City 2 - 2 Chelsea |
| Newcastle United 3 - 3 Fulham |
| Watford 1 - 2 Everton |
| Crystal Palace 1 - 3 Leicester City |
+-----+
```

Rank	Status	Name	Round	W	D	L	GF	GA	GD	P
1 -	UCL	Manchester City	39	33	2	4	99	23	76	101
2 -	UCL	Liverpool	39	30	7	2	89	26	63	97
3 -	UCL	Chelsea	39	21	10	8	65	41	24	73
4 -	UCL	Tottenham Hotspur	39	23	3	13	67	39	28	72
5 -	UEL	Arsenal	39	21	8	10	73	51	22	71
6 -		Manchester United	39	19	9	11	67	58	9	66
7 -		Wolverhampton Wanderers	39	16	10	13	48	47	1	58
8 -		Everton	39	16	9	14	56	47	9	57
9 -		Leicester City	39	16	7	16	54	49	5	55
10 -		West Ham United	39	15	8	16	53	56	-3	53
11 -		Watford	39	14	8	17	53	61	-8	50
12 -		Crystal Palace	39	14	7	18	52	56	-4	49
13 -		Newcastle United	39	12	10	17	45	51	-6	46
14 -		Bournemouth	39	13	7	19	60	74	-14	46
15 -		Burnley	39	12	7	20	49	70	-21	43
16 -		Southampton	39	10	12	17	49	67	-18	42
17 -		Brighton and Hove Albion	39	9	10	20	39	64	-25	37
18 -	EFL	Cardiff City	39	10	5	24	36	71	-35	35
19 -	EFL	Fulham	39	7	6	26	37	84	-47	27
20 -	EFL	Huddersfield Town	39	3	7	29	24	80	-56	16

- Input

```

CREATE TABLE EplTable2 AS SELECT * FROM EplTable;
ALTER TABLE EplTable2 ADD COLUMN (PreviousRank INTEGER, CurrentRank
INTEGER, Num FLOAT, Score INTEGER);
SET @a=0;
UPDATE EplTable2 SET PreviousRank = (@a:= @a+1) ORDER BY Point DESC,
GoalDifferent DESC, GoalsFor DESC;
CREATE TABLE Round39(Id INTEGER PRIMARY KEY AUTO_INCREMENT,
Home VARCHAR(30), Away VARCHAR(30), HomeScore INTEGER, AwayScore
INTEGER);
DELIMITER //
FOR i IN 0..19 DO
UPDATE EplTable2 SET Num = RAND(), Score = FLOOR(6 * RAND())
WHERE ShortName = (SELECT ShortName FROM EplTable LIMIT i,1);
END FOR;
//
FOR i IN 0..19 DO
IF i%2=0 THEN
INSERT INTO Round39(Home, HomeScore)
VALUES((SELECT Name FROM EplTable2 ORDER BY Num LIMIT i,1), (SELECT
Score FROM EplTable2 ORDER BY Num LIMIT i,1));
END IF;
IF i%2=1 THEN
UPDATE Round39
SET
Away = (SELECT Name FROM EplTable2 ORDER BY Num LIMIT i,1),

```

```

AwayScore = (SELECT Score FROM EplTable2 ORDER BY Num LIMIT i,1)
WHERE(Home = (SELECT Home FROM Round39 ORDER BY Id DESC LIMIT 1));
END IF;
END FOR;
//
FOR i IN 0..9 DO
UPDATE EplTable2
SET
Win = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) > (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Win + 1
ELSE Win
END,
Draw = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) = (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Draw + 1
ELSE Draw
END,
Lose = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) < (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Lose + 1
ELSE Lose
END,
GoalsFor = GoalsFor + (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT
i,1),
GoalsAgainst = GoalsAgainst + (SELECT AwayScore FROM Round39 ORDER BY Id
LIMIT i,1),
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) > (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Point + 3
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) = (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Point + 1
ELSE Point
END
WHERE Name = (SELECT Home FROM Round39 ORDER BY Id LIMIT i,1);
END FOR;
//

```

```

FOR i IN 0..9 DO
UPDATE EplTable2
SET
Win = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) < (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Win + 1
ELSE Win
END,
Draw = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) = (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Draw + 1
ELSE Draw
END,
Lose = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) > (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Lose + 1
ELSE Lose
END,
GoalsFor = GoalsFor + (SELECT AwayScore FROM Round39 ORDER BY Id LIMIT
i,1),
GoalsAgainst = GoalsAgainst + (SELECT HomeScore FROM Round39 ORDER BY Id
LIMIT i,1),
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) < (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Point + 3
WHEN (SELECT HomeScore FROM Round39 ORDER BY Id LIMIT i,1) = (SELECT
AwayScore FROM Round39 ORDER BY Id LIMIT i,1)
THEN Point + 1
ELSE Point END
WHERE Name = (SELECT Away FROM Round39 ORDER BY Id LIMIT i,1);
END FOR;
//
DELIMITER ;
SET @a = 0;
UPDATE EplTable2 SET CurrentRank = (@a:= @a+1) ORDER BY Point DESC,
GoalDifferent DESC, GoalsFor DESC;
SET @a=0;

```

```

SELECT CONCAT(a.Name, ' ', Round39.HomeScore, '-', Round39.AwayScore, ' ',
b.Name) 'Match', ClubInfo.StadiumName, StadiumInfo.Seats
FROM EplTable a, EplTable b, Round39, ClubInfo, StadiumInfo
WHERE(a.ShortName = Round39.Home AND b.ShortName = Round39.Away AND
a.ShortName = ClubInfo.ShortName AND ClubInfo.StadiumName =
StadiumInfo.StadiumName);
SELECT CONCAT(Home, ' ', HomeScore, ' - ', AwayScore, ' ', Away) 'Result'
FROM Round39;
SELECT
CASE
WHEN PreviousRank = CurrentRank THEN CONCAT((@a := @a+1), ' ', '-')
WHEN PreviousRank > CurrentRank THEN CONCAT((@a := @a+1), ' ', '^')
ELSE CONCAT((@a := @a+1), ' ', 'v')
END AS 'Rank',
CASE
WHEN @a <= 4 THEN "UCL"
WHEN @a = 5 THEN "UEL"
WHEN @a >= 18 THEN "EFL"
ELSE ""
END AS Status,
Name, Win + Draw + Lose Round, Win W, Draw D, Lose L, GoalsFor GF, GoalsAgainst
GA, GoalDifferent GD, Point P FROM EplTable2
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
DROP TABLE EplTable2, Round39;

```

30. Thiết lập lịch thi đấu cho 20 đội ở mùa tiếp theo (38 vòng đấu).

- Output

Round	Home	Away
1	Chelsea	Crystal Palace
1	Manchester United	Burnley
1	Arsenal	Bournemouth
1	Cardiff City	Southampton
1	Huddersfield Town	Wolverhampton Wanderers
1	Watford	Leicester City
1	Liverpool	Everton
1	Brighton and Hove Albion	Fulham
1	West Ham United	Manchester City
1	Tottenham Hotspur	Newcastle United
2	Burnley	Chelsea
2	Bournemouth	Crystal Palace
2	Manchester United	Southampton
2	Arsenal	Huddersfield Town
2	Cardiff City	Leicester City
2	Everton	Wolverhampton Wanderers
2	Brighton and Hove Albion	Watford
2	West Ham United	Liverpool
2	Fulham	Tottenham Hotspur
2	Manchester City	Newcastle United
3	Chelsea	Bournemouth
37	Newcastle United	Chelsea
37	Leicester City	Burnley
37	Crystal Palace	Manchester United
37	Liverpool	Tottenham Hotspur
37	Fulham	Cardiff City
37	Bournemouth	Manchester City
38	West Ham United	Watford
38	Wolverhampton Wanderers	Huddersfield Town
38	Southampton	Everton
38	Newcastle United	Arsenal
38	Brighton and Hove Albion	Leicester City
38	Manchester United	Chelsea
38	Tottenham Hotspur	Burnley
38	Cardiff City	Crystal Palace
38	Liverpool	Bournemouth
38	Fulham	Manchester City

- Input

```

CREATE TABLE EpITable2 AS SELECT * FROM EpITable;
ALTER TABLE EpITable2 ADD COLUMN (Num FLOAT, Rank INTEGER);
CREATE TABLE Fixtures(Round INTEGER, Home VARCHAR(30), Away
VARCHAR(30));
DELIMITER //
FOR i IN 0..19 DO
UPDATE EpITable2 SET Num = RAND() WHERE ShortName = (SELECT ShortName
FROM EpITable LIMIT i,1);
END FOR;
//
DELIMITER ;
SET @a=0;

```

```

UPDATE EpITable2 SET Rank = (@a:=@a+1) ORDER BY Num;
DELIMITER //
FOR i IN 1..19 DO
SET @c=ROUND(RAND());
IF @c = 0
THEN
INSERT INTO Fixtures
VALUES(i, (SELECT Name FROM EpITable2 WHERE(Rank = i)), (SELECT Name
FROM EpITable2 WHERE(Rank = 20)));
ELSE
INSERT INTO Fixtures VALUES(i, (SELECT Name FROM EpITable2 WHERE(Rank
= 20)), (SELECT Name FROM EpITable2 WHERE(Rank = i)));
END IF;
FOR j IN 1..9 DO
IF i-j<=0
THEN SET @a=19-j+i;
ELSE SET @a=i-j;
END IF;
IF i+j>19
THEN SET @b=i+j-19;
ELSE SET @b=i+j;
END IF;
SET @c=ROUND(RAND());
IF @c = 0
THEN
INSERT INTO Fixtures
VALUES(i, (SELECT Name FROM EpITable2 WHERE(Rank = @a)), (SELECT Name
FROM EpITable2 WHERE(Rank = @b)));
ELSE
INSERT INTO Fixtures
VALUES(i, (SELECT Name FROM EpITable2 WHERE(Rank = @b)), (SELECT Name
FROM EpITable2 WHERE(Rank = @a)));
END IF;
END FOR;
END FOR;
//
DELIMITER ;
DELIMITER //
FOR i IN 0..19 DO
UPDATE EpITable2 SET Num = RAND() WHERE ShortName = (SELECT ShortName
FROM EpITable LIMIT i,1);
END FOR;
//

```

```

DELIMITER ;
SET @a=0;
UPDATE EplTable2 SET Rank = (@a:=@a+1) ORDER BY Num;
DELIMITER //
FOR i IN 1..19 DO
INSERT INTO Fixtures(Round,Home, Away)
SELECT i+19, (SELECT Name FROM EplTable2 WHERE(Rank = i)), (SELECT Name
FROM EplTable2 WHERE(Rank = 20))
WHERE NOT EXISTS (SELECT Home, Away FROM Fixtures WHERE
(Fixtures.Home = (SELECT Name FROM EplTable2 WHERE(Rank = i)) AND
Fixtures.Away = (SELECT Name FROM EplTable2 WHERE(Rank = 20)))) LIMIT 1;
INSERT INTO Fixtures(Round,Home, Away)
SELECT i+19, (SELECT Name FROM EplTable2 WHERE(Rank = 20)), (SELECT
Name FROM EplTable2 WHERE(Rank = i))
WHERE NOT EXISTS (SELECT Home, Away FROM Fixtures WHERE
(Fixtures.Home = (SELECT Name FROM EplTable2 WHERE(Rank = 20)) AND
Fixtures.Away = (SELECT Name FROM EplTable2 WHERE(Rank = i)))) LIMIT 1;
FOR j IN 1..9 DO
IF i-j<=0 THEN SET @a=19-j+i;ELSE SET @a=i-j;END IF;
IF i+j>19 THEN SET @b=i+j-19;ELSE SET @b=i+j;END IF;
INSERT INTO Fixtures(Round,Home, Away)
SELECT i+19, (SELECT Name FROM EplTable2 WHERE(Rank = @a)), (SELECT
Name FROM EplTable2 WHERE(Rank = @b))
WHERE NOT EXISTS (SELECT Home, Away FROM Fixtures WHERE
(Fixtures.Home = (SELECT Name FROM EplTable2 WHERE(Rank = @a)) AND
Fixtures.Away = (SELECT Name FROM EplTable2 WHERE(Rank = @b)))) LIMIT 1;
INSERT INTO Fixtures(Round,Home, Away)
SELECT i+19, (SELECT Name FROM EplTable2 WHERE(Rank = @b)), (SELECT
Name FROM EplTable2 WHERE(Rank = @a))
WHERE NOT EXISTS (SELECT Home, Away FROM Fixtures WHERE
(Fixtures.Home = (SELECT Name FROM EplTable2 WHERE(Rank = @b)) AND
Fixtures.Away = (SELECT Name FROM EplTable2 WHERE(Rank = @a)))) LIMIT 1;
END FOR;
END FOR;
//
DELIMITER ;
SELECT * FROM Fixtures;
DROP TABLE EplTable2, Fixtures;

```

31. Đưa ra tổng số bàn thắng của mỗi đội bóng từ vòng 16 đến 25.

- Output

Name	SumOfGoals
Liverpool	26
Manchester United	25
Tottenham Hotspur	23
Manchester City	21
Wolverhampton Wanderers	18
Arsenal	17
Crystal Palace	15
Everton	15
Watford	15
Southampton	14
Chelsea	14
Bournemouth	12
Burnley	12
West Ham United	11
Fulham	10
Newcastle United	9
Leicester City	9
Cardiff City	8
Brighton and Hove Albion	8
Huddersfield Town	3

- Input

```

CREATE TABLE EplTable2 AS SELECT * FROM EplTable;
ALTER TABLE EplTable2 ADD COLUMN (Id INTEGER, SumOfGoals INTEGER
DEFAULT 0);
DELIMITER //
FOR i IN 16..25 DO
FOR j IN 0..9 DO
UPDATE EplTable2 SET SumOfGoals = SumOfGoals + (SELECT HomeScore FROM
Result WHERE (Round = i) ORDER BY Home, Away LIMIT j,1) WHERE (ShortName
= (SELECT Home FROM Result WHERE (Round = i) ORDER BY Home, Away
LIMIT j,1));
UPDATE EplTable2 SET SumOfGoals = SumOfGoals + (SELECT AwayScore FROM
Result WHERE (Round = i) ORDER BY Home, Away LIMIT j,1) WHERE (ShortName
= (SELECT Away FROM Result WHERE (Round = i) ORDER BY Home, Away LIMIT
j,1));
END FOR;
END FOR;
//
DELIMITER;
SELECT Name, SumOfGoals FROM EplTable2 ORDER BY SumOfGoals DESC;
DROP TABLE EplTable2;

```

32. Đưa ra bảng xếp hạng Ngoại hạng Anh sau vòng 23.

- Output

Rank	Status	Name	Round	W	D	L	GF	GA	GD	P
1	UCL	Liverpool	23	19	3	1	54	13	41	60
2	UCL	Manchester City	23	18	2	3	62	17	45	56
3	UCL	Tottenham Hotspur	23	17	0	6	48	23	25	51
4	UCL	Chelsea	23	14	5	4	40	19	21	47
5	UEL	Arsenal	23	13	5	5	48	32	16	44
6		Manchester United	23	13	5	5	46	33	13	44
7		Watford	23	9	6	8	32	32	0	33
8		Wolverhampton Wanderers	23	9	5	9	27	31	-4	32
9		Leicester City	23	9	4	10	29	29	0	31
10		West Ham United	23	9	4	10	30	34	-4	31
11		Everton	23	8	6	9	34	33	1	30
12		Bournemouth	23	9	3	11	33	42	-9	30
13		Brighton and Hove Albion	23	7	5	11	25	32	-7	26
14		Crystal Palace	23	6	4	13	23	32	-9	22
15		Southampton	23	5	7	11	25	40	-15	22
16		Burnley	23	6	4	13	23	43	-20	22
17		Newcastle United	23	5	6	12	19	31	-12	21
18	EFL	Cardiff City	23	5	4	14	19	44	-25	19
19	EFL	Fulham	23	3	5	15	21	51	-30	14
20	EFL	Huddersfield Town	23	2	5	16	13	40	-27	11

- Input

```

CREATE TABLE EplTable2 LIKE EplTable;
DELIMITER //
FOR i IN 0..19 DO
INSERT INTO EplTable2 VALUES ((SELECT Name FROM EplTable LIMIT i,1),
(SELECT ShortName FROM EplTable LIMIT i,1),0,0,0,0,0,0,0);
END FOR;
FOR i IN 1..23 DO
FOR j IN 0..9 DO
UPDATE EplTable2 SET
Win = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) > (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Win + 1
ELSE Win
END,
Draw = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) = (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Draw + 1
ELSE Draw
END,
Lose = CASE

```

```

WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) < (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Lose + 1
ELSE Lose
END,
GoalsFor = GoalsFor + (SELECT HomeScore FROM Result WHERE(Round = i)
ORDER BY Home ASC, Away ASC LIMIT j,1),
GoalsAgainst = GoalsAgainst + (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1),
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) > (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Point + 3
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) = (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Point + 1
ELSE Point
END
WHERE ShortName = (SELECT Home FROM Result WHERE(Round = i) ORDER BY
Home ASC, Away ASC LIMIT j,1);
UPDATE EplTable2 SET
Win = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) < (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Win + 1
ELSE Win
END,
Draw = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) = (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Draw + 1
ELSE Draw
END,
Lose = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) > (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)

```

```

THEN Lose + 1
ELSE Lose
END,
GoalsFor = GoalsFor + (SELECT AwayScore FROM Result WHERE(Round = i)
ORDER BY Home ASC, Away ASC LIMIT j,1),
GoalsAgainst = GoalsAgainst + (SELECT HomeScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1),
GoalDifferent= GoalsFor - GoalsAgainst,
Point = CASE
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) < (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Point + 3
WHEN (SELECT HomeScore FROM Result WHERE(Round = i) ORDER BY Home
ASC, Away ASC LIMIT j,1) = (SELECT AwayScore FROM Result WHERE(Round =
i) ORDER BY Home ASC, Away ASC LIMIT j,1)
THEN Point + 1
ELSE Point
END
WHERE ShortName = (SELECT Away FROM Result WHERE(Round = i) ORDER BY
Home ASC, Away ASC LIMIT j,1);
END FOR;
END FOR;
//
DELIMITER;
SET @a=0;
SELECT
(@a := @a+1) 'Rank',
CASE
WHEN @a <= 4 THEN "UCL"
WHEN @a = 5 THEN "UEL"
WHEN @a >= 18 THEN "EFL"
ELSE ""
END AS Status,
Name, Win + Draw + Lose Round, Win W, Draw D, Lose L, GoalsFor GF, GoalsAgainst
GA, GoalDifferent GD, Point P FROM EplTable2
ORDER BY Point DESC, GoalDifferent DESC, GoalsFor DESC;
DROP TABLE EplTable2;

```

33. Tạo game Minesweeper (Just for fun).

- Output

Row	col1	col2	col3	col4	col5	col6	col7	col8	col9	col10	col11	col12	col13	col14	col15	col16	col17	col18	col19	col20	col21	col22	col23	col24	col25	col26	col27	col28	col29	col30
1	1	1	0	1	F	F	3	F																						
2	F	3	1	1	1	4	4	F																						
3	F	F	1	0	0	2	F	4																						
4	4	F	2	0	0	2	F																							
5	F		1	1	1	2	2	1																						
6		3	2	2	F	3	1																							
7		1				3																								
8	2	3	2																											
9																														
10																														
11																														
12																														
13																														
14																														
15																														
16																														

- Input

CREATE TABLE Minesweeper(Row INTEGER PRIMARY KEY
AUTO_INCREMENT,

col1 INTEGER DEFAULT -1, col2 INTEGER DEFAULT -1,

col3 INTEGER DEFAULT -1, col4 INTEGER DEFAULT -1,

col5 INTEGER DEFAULT -1, col6 INTEGER DEFAULT -1,

col7 INTEGER DEFAULT -1, col8 INTEGER DEFAULT -1,

col9 INTEGER DEFAULT -1, col10 INTEGER DEFAULT -1,

col11 INTEGER DEFAULT -1, col12 INTEGER DEFAULT -1,

col13 INTEGER DEFAULT -1, col14 INTEGER DEFAULT -1,

col15 INTEGER DEFAULT -1, col16 INTEGER DEFAULT -1,

col17 INTEGER DEFAULT -1, col18 INTEGER DEFAULT -1,

col19 INTEGER DEFAULT -1, col20 INTEGER DEFAULT -1,

col21 INTEGER DEFAULT -1, col22 INTEGER DEFAULT -1,

col23 INTEGER DEFAULT -1, col24 INTEGER DEFAULT -1,

col25 INTEGER DEFAULT -1, col26 INTEGER DEFAULT -1,

col27 INTEGER DEFAULT -1, col28 INTEGER DEFAULT -1,

col29 INTEGER DEFAULT -1, col30 INTEGER DEFAULT -1);

CREATE TABLE Minesweeper2(Row INTEGER PRIMARY KEY
AUTO_INCREMENT,

col1 VARCHAR(1) DEFAULT "", col2 VARCHAR(1) DEFAULT "",

col3 VARCHAR(1) DEFAULT "", col4 VARCHAR(1) DEFAULT "",

col5 VARCHAR(1) DEFAULT "", col6 VARCHAR(1) DEFAULT "",

col7 VARCHAR(1) DEFAULT "", col8 VARCHAR(1) DEFAULT "",

col9 VARCHAR(1) DEFAULT "", col10 VARCHAR(1) DEFAULT "",

col11 VARCHAR(1) DEFAULT "", col12 VARCHAR(1) DEFAULT "",

col13 VARCHAR(1) DEFAULT "", col14 VARCHAR(1) DEFAULT "",

col15 VARCHAR(1) DEFAULT "", col16 VARCHAR(1) DEFAULT "",

col17 VARCHAR(1) DEFAULT "", col18 VARCHAR(1) DEFAULT "",

col19 VARCHAR(1) DEFAULT "", col20 VARCHAR(1) DEFAULT "",

col21 VARCHAR(1) DEFAULT "", col22 VARCHAR(1) DEFAULT "",

col23 VARCHAR(1) DEFAULT "", col24 VARCHAR(1) DEFAULT "",

col25 VARCHAR(1) DEFAULT "", col26 VARCHAR(1) DEFAULT "",

col27 VARCHAR(1) DEFAULT "", col28 VARCHAR(1) DEFAULT "",

col29 VARCHAR(1) DEFAULT "", col30 VARCHAR(1) DEFAULT "");

```

DELIMITER //
FOR i IN 1..16 DO
INSERT INTO Minesweeper() VALUES();
INSERT INTO Minesweeper2() VALUES();
END FOR;
//
DELIMITER ;
CREATE TABLE Bombs(Rank INTEGER, Number FLOAT, Id INTEGER PRIMARY
KEY AUTO_INCREMENT);
DELIMITER //
FOR i IN 1..480 DO
INSERT INTO Bombs(Number) VALUES(RAND());
END FOR;
//
DELIMITER ;
SET @a=0;
UPDATE Bombs SET Rank = (@a:=@a+1) ORDER BY Number;
DELIMITER //
FOR i IN 0..15 DO
UPDATE Minesweeper SET
col1 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 1+30*i) <= 99
THEN -1 ELSE NULL END,
col2 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 2+30*i) <= 99
THEN -1 ELSE NULL END,
col3 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 3+30*i) <= 99
THEN -1 ELSE NULL END,
col4 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 4+30*i) <= 99
THEN -1 ELSE NULL END,
col5 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 5+30*i) <= 99
THEN -1 ELSE NULL END,
col6 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 6+30*i) <= 99
THEN -1 ELSE NULL END,
col7 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 7+30*i) <= 99
THEN -1 ELSE NULL END,
col8 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 8+30*i) <= 99
THEN -1 ELSE NULL END,
col9 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 9+30*i) <= 99
THEN -1 ELSE NULL END,
col10 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 10+30*i) <= 99
THEN -1 ELSE NULL END,
col11 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 11+30*i) <= 99
THEN -1 ELSE NULL END,

```

```

col12 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 12+30*i) <= 99
THEN -1 ELSE NULL END,
col13 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 13+30*i) <= 99
THEN -1 ELSE NULL END,
col14 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 14+30*i) <= 99
THEN -1 ELSE NULL END,
col15 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 15+30*i) <= 99
THEN -1 ELSE NULL END,
col16 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 16+30*i) <= 99
THEN -1 ELSE NULL END,
col17 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 17+30*i) <= 99
THEN -1 ELSE NULL END,
col18 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 18+30*i) <= 99
THEN -1 ELSE NULL END,
col19 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 19+30*i) <= 99
THEN -1 ELSE NULL END,
col20 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 20+30*i) <= 99
THEN -1 ELSE NULL END,
col21 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 21+30*i) <= 99
THEN -1 ELSE NULL END,
col22 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 22+30*i) <= 99
THEN -1 ELSE NULL END,
col23 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 23+30*i) <= 99
THEN -1 ELSE NULL END,
col24 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 24+30*i) <= 99
THEN -1 ELSE NULL END,
col25 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 25+30*i) <= 99
THEN -1 ELSE NULL END,
col26 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 26+30*i) <= 99
THEN -1 ELSE NULL END,
col27 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 27+30*i) <= 99
THEN -1 ELSE NULL END,
col28 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 28+30*i) <= 99
THEN -1 ELSE NULL END,
col29 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 29+30*i) <= 99
THEN -1 ELSE NULL END,
col30 = CASE WHEN (SELECT Rank FROM Bombs WHERE Id = 30+30*i) <= 99
THEN -1 ELSE NULL END
WHERE Row = i;
END FOR;
FOR i IN 0..15 DO
UPDATE Minesweeper SET
col1 = CASE

```

```

WHEN (SELECT col1 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col1 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col2 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col2 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col2 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col1 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END
END,
col2 = CASE
WHEN (SELECT col2 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col2 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col3 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col3 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col3 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col2 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col1 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col1 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col1 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col3 = CASE
WHEN (SELECT col3 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col3 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col4 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col4 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +

```

```

CASE WHEN (SELECT col4 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col3 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col2 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col2 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col2 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col4 = CASE
WHEN (SELECT col4 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col4 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col5 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col5 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col5 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col4 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col3 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col3 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col3 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col5 = CASE
WHEN (SELECT col5 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col5 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col6 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col6 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col6 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +

```

```

CASE WHEN (SELECT col5 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col4 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col4 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col4 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col6 = CASE
WHEN (SELECT col6 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col6 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col7 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col7 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col7 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col6 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col5 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col5 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col5 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col7 = CASE
WHEN (SELECT col7 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col7 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col8 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col8 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col8 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col7 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +

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CASE WHEN (SELECT col6 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col6 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col6 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col8 = CASE
WHEN (SELECT col8 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col8 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col9 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col9 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col9 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col8 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col7 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col7 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col7 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col9 = CASE
WHEN (SELECT col9 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col9 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col10 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col10 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col10 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col9 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col8 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +

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CASE WHEN (SELECT col8 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col8 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col10 = CASE
WHEN (SELECT col10 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col10 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col11 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col11 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col11 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col10 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col9 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col9 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col9 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col11 = CASE
WHEN (SELECT col11 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col11 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col12 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col12 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col12 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col11 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col10 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col10 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +

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CASE WHEN (SELECT col10 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col12 = CASE
WHEN (SELECT col12 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col12 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col13 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col13 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col13 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col12 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col11 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col11 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col11 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col13 = CASE
WHEN (SELECT col13 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col13 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col14 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col14 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col14 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col13 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col12 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col12 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col12 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,

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col14 = CASE
WHEN (SELECT col14 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col14 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col15 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col15 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col15 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col14 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col13 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col13 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col13 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col15 = CASE
WHEN (SELECT col15 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col15 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col16 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col16 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col16 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col15 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col14 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col14 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col14 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col16 = CASE
WHEN (SELECT col16 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE

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CASE WHEN (SELECT col16 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col17 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col17 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col17 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col16 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col15 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col15 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col15 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col17 = CASE
WHEN (SELECT col17 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col17 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col18 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col18 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col18 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col17 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col16 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col16 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col16 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col18 = CASE
WHEN (SELECT col18 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col18 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +

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```

CASE WHEN (SELECT col19 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col19 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col19 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col18 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col17 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col17 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col17 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col19 = CASE
WHEN (SELECT col19 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col19 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col20 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col20 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col20 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col19 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col18 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col18 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col18 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col20 = CASE
WHEN (SELECT col20 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col20 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col21 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +

```

```

CASE WHEN (SELECT col21 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col21 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col20 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col19 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col19 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col19 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col21 = CASE
WHEN (SELECT col21 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col21 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col22 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col22 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col22 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col21 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col20 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col20 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col20 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col22 = CASE
WHEN (SELECT col22 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col22 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col23 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col23 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +

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```

CASE WHEN (SELECT col23 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col22 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col21 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col21 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col21 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col23 = CASE
WHEN (SELECT col23 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col23 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col24 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col24 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col24 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col23 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col22 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col22 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col22 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col24 = CASE
WHEN (SELECT col24 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col24 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col25 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col25 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col25 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +

```



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CASE WHEN (SELECT col24 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col23 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col23 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col23 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col25 = CASE
WHEN (SELECT col25 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col25 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col26 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col26 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col26 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col25 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col24 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col24 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col24 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col26 = CASE
WHEN (SELECT col26 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col26 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col27 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col27 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col27 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col26 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +

```

```

CASE WHEN (SELECT col25 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col25 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col25 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col27 = CASE
WHEN (SELECT col27 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col27 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col28 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col28 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col28 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col27 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col26 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col26 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col26 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col28 = CASE
WHEN (SELECT col28 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col28 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col29 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col29 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col29 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col28 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col27 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +

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```

CASE WHEN (SELECT col27 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col27 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col29 = CASE
WHEN (SELECT col29 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col29 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col30 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col30 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col30 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col29 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col28 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col28 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col28 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END
END,
col30 = CASE
WHEN (SELECT col30 FROM Minesweeper WHERE Row = i) = -1 THEN -1
ELSE
CASE WHEN (SELECT col30 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col29 FROM Minesweeper WHERE Row = i-1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col29 FROM Minesweeper WHERE Row = i) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col29 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END +
CASE WHEN (SELECT col30 FROM Minesweeper WHERE Row = i+1) = -1 THEN 1
ELSE 0 END
END
WHERE Row = i;
END FOR;
//
DELIMITER ;

```

```
DROP TABLE Bombs;  
SELECT * FROM Minesweeper2;
```