The JOIN operation

1.

The first example shows the goal scored by a player with the last name 'Bender'. The `*` says to list all the columns in the table - a shorter way of saying `matchid, teamid, player, gtime`

Modify it to show the *matchid* and *player* name for all goals scored by Germany. To identify German players, check for: `teamid = 'GER'`

```
SELECT matchid,player FROM goal
WHERE teamid= 'GER'
```

2.

From the previous query you can see that Lars Bender's scored a goal in game 1012. Now we want to know what teams were playing in that match.

Notice in the that the column `matchid` in the `goal` table corresponds to the `id` column in the `game` table. We can look up information about game 1012 by finding that row in the **game** table.

Show id, stadium, team1, team2 for just game 1012

```
SELECT distinct id,stadium,team1,team2
FROM game ga join goal g on
ga.id=g.matchid
where g.matchid=1012
```

3.

You can combine the two steps into a single query with a `JOIN`.

```
SELECT *
  FROM game JOIN goal ON (id=matchid)
```

The **FROM** clause says to merge data from the goal table with that from the game table. The **ON** says how to figure out which rows in **game** go with which rows in **goal** - the **matchid** from **goal** must match **id** from **game**. (If we wanted to be more clear/specific we could say

```
ON (game.id=goal.matchid)
```

The code below shows the player (from the goal) and stadium name (from the game table) for every goal scored.

Modify it to show the player, teamid, stadium and mdate for every German goal.

```
SELECT player,teamid,stadium,mdate
FROM game JOIN goal ON (id=matchid)
where teamid ='GER'
```

4.

Use the same `JOIN` as in the previous question.

Show the team1, team2 and player for every goal scored by a player called Mario `player LIKE 'Mario%'`

```
Select team1,team2,g.player from game ga
join goal g on ga.id=g.matchid
where g.player like 'Mario%'
```

5.

The table `eteam` gives details of every national team including the coach. You can `JOIN` `goal` to `eteam` using the phrase `goal JOIN eteam on teamid=id`

Show `player`, `teamid`, `coach`, `gtime` **for all goals scored in the first 10 minutes** `gtime<=10`

```
SELECT player, teamid, coach, gtime
FROM goal g join eteam on
g.teamid=eteam.id
WHERE gtime<=10
```

6.

To `JOIN` `game` with `eteam` you could use either

`game JOIN eteam ON (team1=eteam.id)` or `game JOIN eteam ON (team2=eteam.id)`

Notice that because `id` is a column name in both `game` and `eteam` you must specify `eteam.id` instead of just `id`

List the dates of the matches and the name of the team in which 'Fernando Santos' was the team1 coach.

```
select mdate,teamname from eteam
join game on game.team1=eteam.id
where coach like 'Fernando Santos'
```

7.

List the player for every goal scored in a game where the stadium was 'National Stadium, Warsaw'

```
select player from goal
join game on game.id=goal.matchid
where stadium = 'National Stadium, Warsaw'
```

8.

The example query shows all goals scored in the Germany-Greece quarterfinal.

Instead show the name of all players who scored a goal against Germany.

HINT

Select goals scored only by non-German players in matches where GER was the id of either **team1** or **team2**.

You can use `teamid!='GER'` to prevent listing German players.

You can use `DISTINCT` to stop players being listed twice.

```
SELECT distinct player
FROM game JOIN goal ON matchid = id
```

```
WHERE (team1='GER' or team2='GER')
and teamid!='GER'
```

9.

Show teamname and the total number of goals scored.

COUNT and GROUP BY

```
SELECT teamname, count(*)
FROM eteam JOIN goal ON id=teamid
group by 1
ORDER BY teamname
```

10.

Show the stadium and the number of goals scored in each stadium.

```
select stadium, count(*) as number_of_goals from goal
join game on goal.matchid=game.id
group by 1
```

11.

For every match involving 'POL', show the matchid, date and the number of goals scored.

```
SELECT matchid,mdate, count(teamid)
FROM game JOIN goal ON matchid = id
WHERE (team1 = 'POL' OR team2 = 'POL')
group by 1
```

12.

For every match where 'GER' scored, show matchid, match date and the number of goals scored by 'GER'

```
select matchid,mdate,count(matchid) from goal
join game on matchid = id
```

```
where teamid='GER'
group by 1
```

13.

List every match with the goals scored by each team as shown. This will use "CASE WHEN" which has not been explained in any previous exercises.

mdate	team1	score1	team2	score2
1 July 2012	ESP	4	ITA	0
10 June 2012	ESP	1	ITA	1
10 June 2012	IRL	1	CRO	3
...				

Notice in the query given every goal is listed. If it was a team1 goal then a 1 appears in score1, otherwise there is a 0. You could SUM this column to get a count of the goals scored by team1. **Sort your result by mdate, matchid, team1 and team2.**

```
SELECT DISTINCT mdate, team1,
SUM(CASE WHEN teamid=team1 THEN 1 ELSE 0 END) score1,
team2,
SUM(CASE WHEN teamid=team2 THEN 1 ELSE 0 END) score2
FROM game
JOIN goal ON game.id = goal.matchid
GROUP BY id, mdate, team1, team2
ORDER BY mdate, matchid, team1, team2
```

QUIZ:

1. You want to find the stadium where player 'Dimitris Salpingidis' scored. Select the JOIN condition to use:

```
game  JOIN goal ON (id=matchid)
```

2. You JOIN the tables **goal** and **eteam** in an SQL statement. Indicate the list of column names that may be used in the SELECT line:

```
matchid, teamid, player, gtime, id, teamname, coach
```

3. Select the code which shows players, their team and the amount of goals they scored against Greece(GRE).

```
SELECT player, teamid,COUNT(*)
FROM gameJOIN goalON matchid = id
WHERE (team1 = "GRE"OR team2 = "GRE")
AND teamid != 'GRE'
GROUPBY player, teamid
```

4. Select the result that would be obtained from this code:

```
SELECT  DISTINCT  teamid, mdate

FROM  goal  JOIN  game  on  (matchid=id)

WHERE  mdate = '9 June 2012'
```

DEN	9 June 2012
GER	9 June 2012

5. Select the code which would show the player and their team for those who have scored against Poland(POL) in National Stadium, Warsaw.

```
SELECT DISTINCT player, teamid
FROM gameJOIN goalON matchid = id
WHERE stadium = 'National Stadium, Warsaw'
AND (team1 = 'POL'OR team2 = 'POL')
AND teamid != 'POL'
```

6. Select the code which shows the player, their team and the time they scored, for players who have played in Stadion Miejski (Wroclaw) but not against Italy(ITA).

```
SELECT DISTINCT player, teamid, gtime
FROM gameJOIN goalON matchid = id
WHERE stadium = 'Stadion Miejski (Wroclaw)'
AND (( teamid = team2AND team1 != 'ITA')OR ( teamid = team1AN
D team2 != 'ITA'))
```

7. Select the result that would be obtained from this code:

```
SELECT teamname, COUNT (*)

FROM eteam JOIN goal ON teamid = id

GROUP BY teamname

HAVING COUNT (*) < 3
```

Netherlands	2
Poland	2
Republic of Ireland	1
Ukraine	2