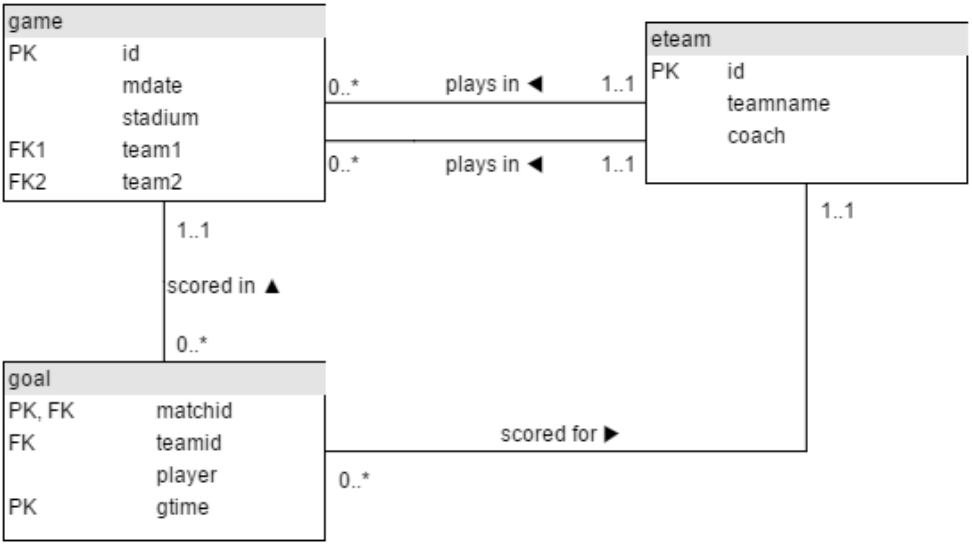
The JOIN operation

Language:	English • 日本語 • 中文



game

id	mdate	stadium	team1	team2
1001	8 June 2012	National Stadium, Warsaw	POL	GRE
1002	8 June 2012	Stadion Miejski (Wroclaw)	RUS	CZE
1003	12 June 2012	Stadion Miejski (Wroclaw)	GRE	CZE
1004	12 June 2012	National Stadium, Warsaw	POL	RUS
...				

goal

matchid	teamid	player	gtime
1001	POL	Robert Lewandowski	17
1001	GRE	Dimitris Salpingidis	51

1002	RUS	Alan Dzagoev	15
1002	RUS	Roman Pavlyuchenko	82
...			

eteam

id	teamname	coach
POL	Poland	Franciszek Smuda
RUS	Russia	Dick Advocaat
CZE	Czech Republic	Michal Bilek
GRE	Greece	Fernando Santos
...		

JOIN and UEFA EURO 2012

This tutorial introduces `JOIN` which allows you to use data from two or more tables. The tables contain all matches and goals from UEFA EURO 2012 Football Championship in Poland and Ukraine.

The data is available (mysql format) at http://sqlzoo.net/euro2012.sql

Summary

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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';
```

Submit SQL restore default

Correct answer

matchid	player
1008	Mario Gómez
1010	Mario Gómez
1010	Mario Gómez
1012	Lukas Podolski
1012	Lars Bender
1026	Philipp Lahm
1026	Sami Khedira

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 id, stadium, team1, team2
FROM game
WHERE id = 1012;
```

Submit SQL restore default

Correct answer

id	stadium	team1	team2
1012	Arena Lviv	DEN	GER

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 game.id = goal.matchid
WHERE teamid = 'GER';
```

Submit SQL restore default

Correct answer

player	teamid	stadium	mdate
Mario Gómez	GER	Arena Lviv	9 June 2012
Mario Gómez	GER	Metalist Stadium	13 June 2012

Mario Gómez	GER	Metalist Stadium	13 June 2012
Lukas Podolski	GER	Arena Lviv	17 June 2012
Lars Bender	GER	Arena Lviv	17 June

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, player
FROM game
JOIN goal
ON game.id = goal.matchid
WHERE player LIKE 'Mario%';
```

Submit SQL restore default

Correct answer

team1	team2	player
GER	POR	Mario Gómez
NED	GER	Mario Gómez

NED	GER	Mario Gómez
IRL	CRO	Mario Mandžukic
IRL	CRO	Mario Mandžukic
ITA	CRO	Mario Mandžukic

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
JOIN eteam on teamid=id
 WHERE gtime<=10
```

Submit SQL restore default

Correct answer

player	teamid	coach	gtime
Petr Jirácek	CZE	Michal Bílek	3

Václav Pilar	CZE	Michal Bílek	6
Mario Mandžukic	CRO	Slaven Bilic	3
Fernando Torres	ESP	Vicente del Bosque	4

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 game
JOIN eteam ON game.team1 = eteam.id
WHERE coach = 'Fernando Santos';
```

Submit SQL restore default

Correct answer

mdate	teamname
12 June 2012	Greece
16 June 2012	Greece

7. 

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

```
SELECT goal.player FROM goal
JOIN game
ON goal.matchid = game.id
WHERE game.stadium = 'National Stadium, Warsaw';
```

Submit SQL restore default

Correct answer

player
Robert Lewandowski
Dimitris Salpingidis
Alan Dzagoev
Jakub Blaszczykowski
Giorgos Karagounis
Cristiano Ronaldo
Mario Balotelli

More difficult questions

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 DISTINCT goal.player
FROM goal
JOIN game
ON goal.matchid = game.id
WHERE (game.team1 = 'GER' OR game.team2 = 'GER')
  AND goal.teamid != 'GER';
```

Submit SQL restore default

Correct answer

player
Robin van Persie
Michael Krohn-Dehli
Georgios Samaras
Dimitris Salpingidis
Mario Balotelli

9. 

Show teamname and the total number of goals scored.

COUNT and GROUP BY

```
SELECT eteam.teamname,
    COUNT(*) AS total_goals
FROM goal JOIN eteam
ON goal.teamid = eteam.id
GROUP BY eteam.teamname;
```

Submit SQL restore default

Correct answer

teamname	total_goals
Croatia	4
Czech Republic	4
Denmark	4
England	5
France	3
Germany	10
Greece	5

10. 

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

```
SELECT game.stadium,
    COUNT(*) AS total_goals
FROM game JOIN goal
ON game.id = goal.matchid
GROUP BY game.stadium;
```

Submit SQL restore default

Correct answer

stadium	total_goals
Arena Lviv	9
Donbass Arena	7
Metalist Stadium	7
National Stadium, Warsaw	9
Olimpiyskiy National Sports Complex	14
PGE Arena Gdansk	13
Stadion Miejski (Poznan)	8

11. 

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

```
SELECT  g.id AS matchid,  g.mdate,
    COUNT(go.matchid) AS goals_scored
FROM game as g JOIN goal as go
    ON g.id = go.matchid
WHERE g.team1 = 'POL'
   OR g.team2 = 'POL'
GROUP BY g.id, g.mdate;
```

Submit SQL restore default

Correct answer

matchid	mdate	goals_scored
1001	8 June 2012	2
1004	12 June 2012	2
1005	16 June 2012	1

12. 

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

```
SELECT g.id AS matchid, g.mdate,
    COUNT(go.matchid) AS goals_scored
FROM game as g JOIN goal as go
    ON g.id = go.matchid
WHERE go.teamid = 'GER'
GROUP BY g.id, g.mdate;
```

Submit SQL restore default

Correct answer

matchid	mdate	goals_scored
1008	9 June 2012	1
1010	13 June 2012	2
1012	17 June 2012	2
1026	22 June 2012	4
1030	28 June 2012	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 g.mdate, g.team1,
    SUM(CASE WHEN go.teamid = g.team1 THEN 1 ELSE 0 END) AS score1,
    g.team2,
    SUM(CASE WHEN go.teamid = g.team2 THEN 1 ELSE 0 END) AS score2
FROM game as g  LEFT JOIN goal as go
    ON g.id = go.matchid
GROUP BY g.id, g.mdate, g.team1, g.team2
ORDER BY g.mdate, g.id, g.team1, g.team2;
```

Submit SQL restore default

Correct answer

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
11 June 2012	FRA	1	ENG	1

11 June 2012	UKR	2	SWE	1
12 June 2012	GRE	1	CZE	2
12 June 2012	POL	1	RUS	1

What next?

JOIN Quiz

Old JOIN Tutorial

More JOIN operations: The next tutorial about the Movie database involves some slightly more complicated joins from the movie database.