## **SELECT within SELECT**

1. Bigger than Russia

List each country name where the population is larger than that of 'Russia'.

|  |
| --- |
| SELECT name  FROM world  WHERE population >  (SELECT population FROM world  WHERE name='Russia') |

1. Richer than UK

Show the countries in Europe with a per capita GDP greater than 'United Kingdom'.

|  |
| --- |
| SELECT name FROM world  WHERE gdp/population >  (SELECT gdp/population FROM world  WHERE name='United Kingdom')  AND continent = 'Europe' |

1. Neighbors of Argentina and Australia

List the name and continent of countries in the continents containing either Argentina or Australia. Order by name of the country.

|  |
| --- |
| SELECT name, continent  FROM world  WHERE continent IN (SELECT continent FROM world  WHERE name = 'Argentina' OR name = 'Australia')  ORDER BY name |

1. Between Canada and Poland

Which country has a population that is more than Canada but less than Poland? Show the name and the population.

|  |
| --- |
| SELECT name, population  FROM world  WHERE population > (SELECT population FROM world  WHERE name = 'Canada') AND  population < (SELECT population FROM world  WHERE name = 'Poland') |

1. Percentages of Germany

Germany (population 80 million) has the largest population of the countries in Europe. Austria (population 8.5 million) has 11% of the population of Germany.

Show the name and the population of each country in Europe. Show the population as a percentage of the population of Germany.

The format should be Name, Percentage for example:

|  |  |
| --- | --- |
| name | percentage |
| Albania | 3% |
| Andorra | 0% |
| Austria | 11% |
| ... | ... |

|  |
| --- |
| SELECT name,  CONCAT(ROUND(100\*population/(SELECT population  FROM world  WHERE name = 'Germany')), '%')  FROM world  WHERE continent = 'Europe' |

1. Bigger than every country in Europe

Which countries have a GDP greater than every country in Europe? [Give the name only.] (Some countries may have NULL gdp values)

|  |
| --- |
| SELECT name  FROM world  WHERE gdp > ALL(SELECT gdp  FROM world  WHERE continent = 'Europe' AND gdp > 0) |

1. Largest in the continent

Find the largest country (by area) in each continent, show the continent, the name and the area:

|  |
| --- |
| SELECT continent, name, area  FROM world x  WHERE area >= ALL  (SELECT area  FROM world y  WHERE y.continent = x.continent  AND area>0) |

The above example is known as a correlated or synchronized sub-query.

**Using correlated subqueries**

A correlated subquery works like a nested loop: the subquery only has access to rows related to a single record at a time in the outer query. The technique relies on table aliases to identify two different uses of the same table, one in the outer query and the other in the subquery.

One way to interpret the line in the WHERE clause that references the two table is “… where the correlated values are the same”.

In the example provided, you would say “select the country details from world where the population is greater than or equal to the population of all countries where the continent is the same”.

1. First Country of each continent (Alphabetically)

List each continent and the name of the country that come first alphabetically

|  |
| --- |
| SELECT continent, name  FROM world x  WHERE name = (SELECT TOP 1 name  FROM world y  WHERE x.continent = y.continent) |

1. Difficult Questions That Utilize Techniques Not Covered In Prior Sections

Find the continents where **all countries have a population <= 25000000**. Then find the names of the countries associated with these continents. Show name, continent and population.

|  |
| --- |
| SELECT name, continent, population  FROM world  WHERE continent IN (SELECT continent  FROM world  GROUP BY continent  HAVING MAX(population) <= 25000000) |

1. No title

Some countries have populations more than three times that of any of their neighbours (in the same continent). Give the countries and continents.

|  |
| --- |
| SELECT name, continent  FROM world x  WHERE population/3 > ALL(SELECT population  FROM world y  WHERE x.continent = y.continent  AND x.name <> y.name) |

## **SUM and COUNT**

1. [Total world population](https://sqlzoo.net/wiki/SUM_and_COUNT#Total_world_population)

Show the total population of the world.

1. [List of continents](https://sqlzoo.net/wiki/SUM_and_COUNT#List_of_continents)
2. [GDP of Africa](https://sqlzoo.net/wiki/SUM_and_COUNT#GDP_of_Africa)
3. [Count the big countries](https://sqlzoo.net/wiki/SUM_and_COUNT#Count_the_big_countries)
4. [Baltic states population](https://sqlzoo.net/wiki/SUM_and_COUNT#Baltic_states_population)

[Using GROUP BY and HAVING](https://sqlzoo.net/wiki/SUM_and_COUNT#Using_GROUP_BY_and_HAVING)

1. [Counting the countries of each continent](https://sqlzoo.net/wiki/SUM_and_COUNT#Counting_the_countries_of_each_continent)

For each continent show the continent and number of countries.

|  |
| --- |
| SELECT continent, COUNT(name)  FROM world  GROUP BY continent |

1. Top of Form
2. [Counting big countries in each continent](https://sqlzoo.net/wiki/SUM_and_COUNT#Counting_big_countries_in_each_continent)

For each continent show the continent and number of countries with populations of at least 10 million.

|  |
| --- |
| SELECT continent, COUNT(name)  FROM world  WHERE population >= 10000000  GROUP BY continent |

1. [Counting big continents](https://sqlzoo.net/wiki/SUM_and_COUNT#Counting_big_continents)

List the continents that have a total population of at least 100 million.

|  |
| --- |
| SELECT continent  FROM world  GROUP BY continent  HAVING SUM(population) >= 100000000 |

## **The JOIN operation**

[FootballERD.png](https://sqlzoo.net/wiki/File:FootballERD.png)

**JOIN and UEFA EURO 2012**

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'**

|  |
| --- |
|  |

1. ..
2. ..
3. ..
4. ..
5. ..
6. ..

**More difficult questions**

1. …

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') |

1. …

Show teamname and the total number of goals scored.

COUNT and GROUP BY

You should COUNT(\*) in the SELECT line and GROUP BY teamname

|  |
| --- |
| SELECT teamname, COUNT(matchid)  FROM eteam  JOIN goal  ON id = teamid  GROUP BY teamname |

1. …

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

|  |
| --- |
| SELECT stadium, COUNT(matchid)  FROM game  JOIN goal  ON id = matchid  GROUP BY stadium |

1. …

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

|  |
| --- |
| SELECT matchid, mdate, COUNT(matchid)  FROM (SELECT matchid, mdate, team1, team2, teamid  FROM game  JOIN goal  ON matchid = id  WHERE (team1 = 'POL' OR team2 = 'POL')) AS x  GROUP BY matchid, mdate |
| SELECT matchid, mdate, COUNT(matchid)  FROM game  JOIN goal  ON (matchid = id  AND (team1 = 'POL' OR team2 = 'POL'))  GROUP BY matchid, mdate |

1. …

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

|  |
| --- |
| SELECT matchid, mdate, COUNT(matchid)  FROM (SELECT matchid, mdate, team1, team2, teamid  FROM game  JOIN goal  ON matchid = id  WHERE (team1 = 'GER' OR team2 = 'GER') AND teamid = 'GER') AS x  GROUP BY matchid, mdate |
| SELECT id, mdate, COUNT(player)  FROM game  JOIN goal  ON (id = matchid  AND (team1 = 'GER' OR team2 = 'GER')  AND teamid='GER')  GROUP BY id, mdate |

1. …

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

## More JOIN

1. …
2. …
3. …
4. …
5. …
6. Cast list for ‘Casablanca’

Obtain the cast list for 'Casablanca'.

what is a cast list?

The cast list is the names of the actors who were in the movie.

Use movieid=11768, (or whatever value you got from the previous question)

|  |
| --- |
| SELECT name  FROM actor  JOIN casting  ON (id = actorid AND movieid = (SELECT id FROM movie WHERE title = 'Casablanca')) |

1. Alien Cast list

Obtain the cast list for the film 'Alien'

|  |
| --- |
| SELECT name  FROM actor  JOIN casting  ON (id = actorid AND movieid = (SELECT id FROM movie WHERE title = 'Alien')) |

1. Harrison Ford movie

List the films in which 'Harrison Ford' has appeared

|  |
| --- |
| SELECT title  FROM movie  JOIN casting  ON (id = movieid AND actorid = (SELECT id FROM actor WHERE name = 'Harrison Ford')) |

1. Harrison Ford as Supporting Actor

List the films where 'Harrison Ford' has appeared - but not in the starring role. [Note: the **ord** field of casting gives the position of the actor. If ord=1 then this actor is in the starring role]

|  |
| --- |
| SELECT title  FROM movie  JOIN casting  ON (id = movieid  AND actorid = (SELECT id FROM actor  WHERE name = 'Harrison Ford')  AND ord <> 1) |

1. Lead actor in 1962 movies

List the films together with the leading star for all 1962 films.

|  |
| --- |
| SELECT title, name  FROM movie  JOIN casting  ON (movie.id = casting.movieid AND ord = 1 AND yr = 1962)  JOIN actor  ON (casting.actorid = actor.id) |

1. Busy year for Rock Hudson

Which were the busiest years for 'Rock Hudson', show the year and the number of movies he made each year for any year in which he made more than 2 movies.

|  |
| --- |
| SELECT yr,COUNT(title)  FROM movie  JOIN casting ON movie.id =movieid  JOIN actor ON actorid=actor.id  WHERE name='Doris Day'  GROUP BY yr  HAVING COUNT(title) > 1 |

1. Lead Actor in Julie Andrew Movies

List the film title and the leading actor for all of the films 'Julie Andrews' played in.

Did you get "Little Miss Marker twice"?

Julie Andrews starred in the 1980 remake of Little Miss Marker and not the original(1934).

Title is not a unique field, create a table of IDs in your subquery

|  |
| --- |
| SELECT title, name  FROM movie  JOIN casting  ON (movie.id = movieid AND ord = 1)  JOIN actor  ON (actor.id = actorid)  WHERE movie.id IN (SELECT movieid FROM casting  WHERE actorid IN (SELECT id FROM actor  WHERE name='Julie Andrews')) |

1. Actors with 15 Leading Role

Obtain a list, in alphabetical order, of actors who've had at least 15 starring roles.

|  |
| --- |
| SELECT name  FROM actor  WHERE id IN (SELECT actorid  FROM casting  WHERE ord = 1  GROUP BY actorid  HAVING COUNT(ord) >= 15)  ORDER BY name |
| SELECT name  FROM actor  JOIN casting  ON (actor.id = actorid AND ord = 1)  GROUP BY name  HAVING COUNT(ord) >= 15  ORDER BY name |

1. …

List the films released in the year 1978 ordered by the number of actors in the cast, then by title.

|  |
| --- |
| SELECT title, COUNT(ord)  FROM movie  JOIN casting  ON (movie.id = casting.movieid  AND yr = 1978)  GROUP BY title  ORDER BY COUNT(ord) DESC, title |

1. …

List all the people who have worked with 'Art Garfunkel'.

|  |
| --- |
| SELECT name  FROM actor  JOIN casting  ON (actor.id = actorid  AND movieid IN (SELECT movieid  FROM casting  WHERE actorid IN (SELECT id  FROM actor  WHERE name = 'Art Garfunkel'))  AND name <> 'Art Garfunkel')  ORDER BY name |