SELECT within SELECT Tutorial

Language: English · 日本語 · 中文

This tutorial looks at how we can use SELECT statements within SELECT statements to perform more complex queries.

name	continent	area	population	gdp
Afghanistan	Asia	652230	25500100	20343000000
Albania	Europe	28748	2831741	12960000000
Algeria	Africa	2381741	37100000	188681000000
Andorra	Europe	468	78115	3712000000
Angola	Africa	1246700	20609294	100990000000
...				

Using nested SELECT

Summary

Bigger than Russia

1. 🙄

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

```
world(name, continent, area, population, gdp)
```

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

Submit SQL   restore default

Correct answer

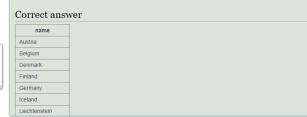| name |
|------|
| Bangladesh |
| Brazil |
| China |
| India |
| Indonesia |
| Nigeria |
| Pakistan |

Richer than UK

2. 🙄

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

Per Capita GDP

```
select name from world where continent='Europe' and gdp/population > 47129.8338
```

Submit SQL   restore default

Correct answer

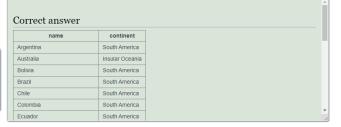| name |
|------|
| Austria |
| Belgium |
| Denmark |
| Finland |
| Germany |
| Iceland |
| Liechtenstein |

Neighbours of Argentina and Australia

3. 😜

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
```

Submit SQL   restore default

Correct answer

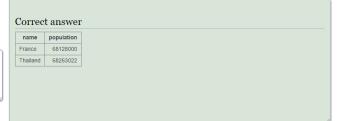| name	continent
Argentina	South America
Australia	Insular Oceania
Bolivia	South America
Brazil	South America
Chile	South America
Colombia	South America
Ecuador	South America

Between Canada and Poland

4. 😜

Which country has a population that is more than United Kingdom but less than Germany? Show the name and the population.

```
select name, population from world where population > (select population from world where name='United
Kingdom') and population < (select population from world where name='Germany')
```

Submit SQL   restore default

Correct answer

name	population
France	68128000
Thailand	68263022

Percentages of Germany

5. 😜

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:

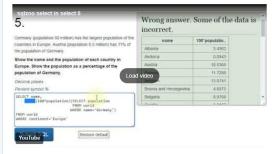| name	percentage
Albania	3%
Andorra	0%
Austria	11%
...	...

Decimal places

Percent symbol %

```
select name, CONCAT(ROUND((population/(select population from world where name='Germany'))*100,0), '%')
from world where continent='Europe'
```

Submit SQL   restore default

Correct answer

name	CONCAT(ROUND(..
Albania	3%
Andorra	0%
Austria	11%
Belarus	11%
Belgium	14%
Bosnia and Herzegovina	4%
Bulgaria	8%

sqlzoo select in select 5

5.

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.

Decimal places

Percent symbol %

```
SELECT name,
       (100*population/(SELECT population
                        FROM world
                        WHERE name='Germany')
FROM world
WHERE continent='Europe'
```

YouTube   Restore default

Load video

Wrong answer. Some of the data is incorrect.

name	100*populatio..
Albania	3.4962
Andorra	0.0943
Austria	10.5368
	11.7280
	13.8741
Bosnia and Herzegovina	4.6975
Bulgaria	8.9768

To get a well rounded view of the important features of SQL you should move on to the next tutorial concerning aggregates.

To gain an absurdly detailed view of one insignificant feature of the language, read on.

We can use the word `ALL` to allow >= or > or < or <=to act over a list. For example, you can find the largest country in the world, by population with this query:

```
SELECT name
  FROM world
 WHERE population >= ALL(SELECT population
                          FROM world
                         WHERE population>0)
```

You need the condition **population>0** in the sub-query as some countries have **null** for population.

Bigger than every country in Europe

6. 😜

Correct answer

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> (select max(gdp) from world where continent='Europe')
```

Submit SQL   restore default

name
China
Japan
United States

We can refer to values in the outer SELECT within the inner SELECT. We can name the tables so that we can tell the difference between the inner and outer versions.

Largest in each continent

7.

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

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*".

```
select b.continent, a.name, b.max_area from world a, (select max(area) as max_area, continent from world
group by continent) b where a.area=b.max_area and a.continent=b.continent
```

Submit SQL   restore default

Correct answer

continent	name	max_area
Africa	Algeria	2381741
Insular Oceania	Australia	7633565
South America	Brazil	8460415
Asia	China	9326410
Europe	Russia	16378410
North America	United States	9147593

First country of each continent (alphabetically)

8.

List each continent and the name of the country that comes first alphabetically.

```
select continent, name from world group by continent order by name asc
```

Submit SQL   restore default

Correct answer

continent	name
Asia	Afghanistan
Europe	Albania
Africa	Algeria
North America	Antigua and Barbuda
South America	Argentina
Insular Oceania	Australia

Difficult Questions That Utilize Techniques Not Covered In Prior Sections

9.

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 not in (select distinct continent from
world where population > 25000000)
```

Submit SQL   restore default

Correct answer

name	continent	population

Three time bigger

10.

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

```
SELECT name, continent FROM world x
  WHERE population >= ALL
    (SELECT 3*population FROM world y
        WHERE y.continent=x.continent
          AND x.name<>y.name)
```

Submit SQL   restore default

Correct answer

name	continent
Brazil	South America

Nested SELECT Quiz