

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')
```

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Correct answer

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

sqlzoo select in select 1



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 > (select gdp/population from world where name = 'united kingdom');
```

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Correct answer

| name |
|---------|
| Andorra |
| Austria |
| Belgium |
| Denmark |
| Finland |
| France |
| Germany |
| ... |

sqlzoo select in select 2



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 in ('argentina' ,  
'australia')) order by name;
```

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Correct answer

| name | continent |
|-----------|---------------|
| Argentina | South America |
| Australia | 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')
```

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Correct answer

| name | population |
|-------------------------------|------------|
| Congo, Democratic Republic of | 69360000 |
| France | 65906000 |
| Iran | 77552000 |
| Thailand | 64456700 |
| Turkey | 76667864 |

Percentages of Germany

5.

Germany (population roughly 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(100*population/(SELECT population FROM world WHERE name = 'Germany')),  
'%')  
  
from world where continent = 'europe'
```

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Correct answer

| name | CONCAT(ROUND(100*population/(SELECT population FROM world WHERE name = 'Germany')), '%') |
|---------------------------|---|
| Albania | 3% |
| Andorra | 0% |
| Austria | 11% |
| Belarus | 12% |
| Belgium | 14% |
| Bosnia and Herzegovina | 5% |

sqlzoo select in select 5



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.

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 max(gdp) from world where continent = 'europe');
```

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Correct answer

| 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

```
select continent ,name,area from world where area in (  
select max(area) from world group by continent)
```

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Correct answer

| continent | name | area |
|---------------|------------|----------|
| Africa | Algeria | 2381741 |
| Oceania | Australia | 7692024 |
| South America | Brazil | 8515767 |
| North America | Canada | 9984670 |
| Asia | China | 9596961 |
| Caribbean | Cuba | 109884 |
| Europe | Kazakhstan | 2724900 |
| Europe | Russia | 17125312 |

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
WHERE name IN (
    SELECT MIN(name)
    FROM world
    GROUP BY continent
);
```

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Correct answer

| continent | name |
|---------------|---------------------|
| Africa | Algeria |
| Asia | Afghanistan |
| Caribbean | Antigua and Barbuda |
| Eurasia | Armenia |
| Europe | Albania |
| North America | Belize |
| Oceania | Australia |
| South America | Argentina |

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 in (select continent from world GROUP
BY continent
HAVING MAX(population) <= 25000000)
```

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Correct answer

| name | continent | population |
|---------------------|-----------------|------------|
| Antigua and Barbuda | Caribbean | 86295 |
| Australia | Oceania | 23545500 |
| Bahamas | Caribbean | 351461 |
| Barbados | Caribbean | 285000 |
| Cuba | Caribbean | 11167325 |
| Dominica | Caribbean | 71293 |
| Dominican Republic | Caribbean | 9445281 |
| El Salvador | Central America | 6500000 |

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 y.name <> x.name
);
```

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Correct answer

| name | continent |
|-----------|---------------|
| Australia | Oceania |
| Brazil | South America |
| Russia | Eurasia |

Nested SELECT Quiz

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