595. Big Countries

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There is a table `World`

```
+-----------------+------------+------------+--------------+------------+
| name            | continent  | area       | population   | gdp        |
+-----------------+------------+------------+--------------+------------+
| Afghanistan     | Asia       | 652230     | 25500100     | 20343000   |
| Albania         | Europe     | 28748      | 2831741      | 12960000   |
| Algeria         | Africa     | 2381741    | 37100000     | 188681000  |
| Andorra         | Europe     | 468        | 78115        | 3712000    |
| Angola          | Africa     | 1246700    | 20609294     | 100990000  |
+-----------------+------------+------------+--------------+------------+
```

A country is big if it has an area of bigger than 3 million square km or a population of more than 25 million.

Write a SQL solution to output big countries' name, population and area.

For example, according to the above table, we should output:

```
+-----------------+------------------+------------+
| name            | population       | area       |
+-----------------+------------------+------------+
| Afghanistan     | 25500100         | 652230     |
| Algeria         | 37100000         | 2381741    |
+-----------------+------------------+------------+
```

Solution

Approach I: Using `WHERE` clause and `OR` [Accepted]

Intuition

Use `WHERE` clause in SQL to filter these records and get the target countries.

Algorithm

According to the definition, a big country meets at least one of the following two conditions: 1. It has an area of bigger than 3 million square km. 2. It has a population of more than 25 million.

So for the first condition, we can use the following code to get the big countries of this type.

```
SELECT name, population, area FROM world WHERE area > 3000000
```

In addition, we can use below code to get big countries of more than 25 million people.

```
SELECT name, population, area FROM world WHERE population > 25000000
```

As most people may already come into mind, we can use `OR` to combine these two solutions for the two sub-problems together.

MySQL

```
SELECT
    name, population, area
FROM
    world
WHERE
    area > 3000000 OR population > 25000000
;
```

Approach II: Using `WHERE` clause and `UNION` [Accepted]

Algorithm

The idea of this approach is the same as the first one. However, we use `UNION` instead of `OR`.

MySQL

```
SELECT
    name, population, area
FROM
    world
WHERE
    area > 3000000

UNION

SELECT
    name, population, area
FROM
    world
WHERE
    population > 25000000
;
```
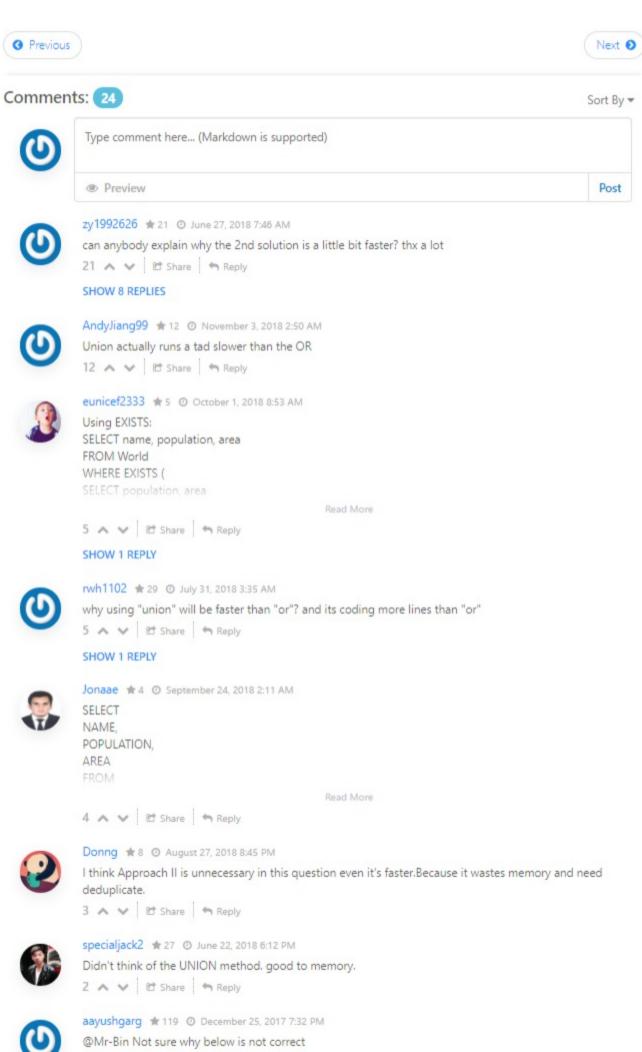
> Note: This solution runs a little bit faster than the first one. However, they do not have big difference.

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zy1992626 ★ 21 ⊙ June 27, 2018 7:46 AM
can anybody explain why the 2nd solution is a little bit faster? thx a lot
21 ∧ ∨ | ⌂ Share | ↩ Reply

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Andyliang99 ★ 12 ⊙ November 3, 2018 2:50 AM
Union actually runs a tad slower than the OR
12 ∧ ∨ | ⌂ Share | ↩ Reply

eunicef2333 ★ 5 ⊙ October 1, 2018 6:53 AM
Using EXISTS:
SELECT name, population, area
FROM World
WHERE EXISTS (
SELECT population, area
                                    Read More
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rwh1102 ★ 28 ⊙ July 31, 2018 3:35 AM
why using "union" will be faster than "or"? and its coding more lines than "or"
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Jonaae ★ 4 ⊙ September 24, 2018 2:11 AM
SELECT
NAME,
POPULATION,
AREA
FROM
                                    Read More
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Donng ★ 8 ⊙ August 27, 2018 8:45 PM
I think Approach II is unnecessary in this question even it's faster.Because it wastes memory and need deduplicate.
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specialjack2 ★ 27 ⊙ June 22, 2018 8:32 PM
Didn't think of the UNION method. good to memory.
2 ∧ ∨ | ⌂ Share | ↩ Reply

aayushgarg ★ 119 ⊙ December 25, 2017 7:32 PM
@Mr-Bin Not sure why below is not correct

```
SELECT name, population, area
FROM World
WHERE area > 3000000 and area='X'
```
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jorgesmu ★ 2 ⊙ June 18, 2019 11:31 PM
Why the second one will be faster?

It really depends on the size of the table, indexes on the fields and DB engine implementation.
A priori, making two raw queries and merging them on a huge dataset doesn't have any advantage over making one complex query.
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rogercodes1 ★ 7 ⊙ March 4, 2019 11:29 AM
SELECT name, population, area
FROM world
WHERE area > 3000000
OR population > 25000000;
0 ∧ ∨ | ⌂ Share | ↩ Reply

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