610. Triangle Judgement ⧉

June 22, 2017 | 15.8K views

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A pupil Tim gets homework to identify whether three line segments could possibly form a triangle.

However, this assignment is very heavy because there are hundreds of records to calculate.

Could you help Tim by writing a query to judge whether these three sides can form a triangle, assuming table `triangle` holds the length of the three sides x, y and z.

```
| x  | y  | z  |
|----|----|----|
| 13 | 15 | 30 |
| 10 | 20 | 15 |
```

For the sample data above, your query should return the follow result:

```
| x  | y  | z  | triangle |
|----|----|----|----------|
| 13 | 15 | 30 | No       |
| 10 | 20 | 15 | Yes      |
```

Solution

Approach: Using `case...when...` [Accepted]

Algorithm

In Math, three segments can form a triangle only if the sum of any of the two segments is larger than the third one. (In other words, the subtraction of any of the two segments are smaller than the third one.)

So, we can use this knowledge to judge with the help of the MySQL control statements `case...when...`.

MySQL

```sql
SELECT
    x,
    y,
    z,
    CASE
        WHEN x + y > z AND x + z > y AND y + z > x THEN 'Yes'
        ELSE 'No'
    END AS 'triangle'
FROM
    triangle
;
```

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gdianov ★ 78 ⏱ November 13, 2018 6:46 PM

```
select *,
    IF(x + y > z AND x + z > y AND y + z > x, 'Yes', 'No') as triangle
    from triangle;
```

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jasonshieh ★ 282 ⏱ December 5, 2018 8:34 AM

SELECT x, y, z, if(x > 0 and y > 0 and z > 0 and x + y > z and x + z > y and z + y > x, "Yes", "No") as triangle from triangle

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ming54 ★ 7 ⏱ October 30, 2017 3:22 AM

SELECT*,
if(x+y>z and x+z>y and y+z>x, "Yes","No") as triangle
FROM triangle;

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vasanthtillu91 ★ 5 ⏱ May 28, 2018 12:14 PM

Create table If Not Exists triangle (x int, y int, z int);

insert into triangle (x,y,z) values (13,15,30);
insert into triangle (x,y,z) values (10,20,15);

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dan_joanna ★ 5 ⏱ April 11, 2019 11:03 AM

Why is there no need to consider the difference between any two line segments should be great than the third one?

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ztj ★ 15 ⏱ August 2, 2018 2:59 AM

SELECT *,
(case when x+y>z and abs(x-y)<z
then 'yes'
else 'no'
end) as triangle

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adityajhanwar ★ 45 ⏱ May 11, 2019 11:52 AM

```
### CASE FUNCTION ###
select *, (case
        when x + y > z and
            x + z > y and
```

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kevinjia1984 ★ 0 ⏱ March 15, 2020 2:46 PM

SELECT t.*,
CASE
WHEN x+y > z and x+z > y and y+z>x THEN 'Yes'
ELSE 'No'
END as triangle

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tg-hh ★ 1 ⏱ January 11, 2020 9:36 PM

faster than 93%

select x,y,z,
case
when x>=y and x>=z then if(x<y+z,'Yes','No')

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maximusdac ★ 6 ⏱ October 19, 2019 4:40 AM

More succinct one line of SQL
select a.*, if((x+y>z) * (x+z>y) * (y+z>x), 'Yes', 'No') as triangle from triangle a;

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