Problem 1459: Rectangles Area

Problem Information

Difficulty: Medium
Acceptance Rate: 68.63%
Paid Only: Yes
Tags: Database

Problem Description

Table: `Points`

+---------------+---------+ | Column Name | Type | +---------------+---------+ | id | int | | x_value | int | | y_value | int | +---------------+---------+ id is the column with unique values for this table. Each point is represented as a 2D coordinate (x_value, y_value).

Write a solution to report all possible **axis-aligned** rectangles with a **non-zero area** that can be formed by any two points from the `Points` table.

Each row in the result should contain three columns `(p1, p2, area)` where:

* `p1` and `p2` are the `id`'s of the two points that determine the opposite corners of a rectangle. * `area` is the area of the rectangle and must be **non-zero**.

Return the result table **ordered** by `area` **in descending order**. If there is a tie, order them by `p1` **in ascending order**. If there is still a tie, order them by `p2` **in ascending order**.

The result format is in the following table.

Example 1:

Input: Points table: +----------+-------------+-------------+ | id | x_value | y_value | +----------+-------------+-------------+ | 1 | 2 | 7 | | 2 | 4 | 8 | | 3 | 2 | 10 |

+----------+-------------+-------------+ **Output:** +----------+-------------+-------------+ | p1 | p2 | area | +----------+-------------+-------------+ | 2 | 3 | 4 | | 1 | 2 | 2 | +----------+-------------+-------------+ **Explanation:** The rectangle formed by p1 = 2 and p2 = 3 has an area equal to |4-2| * |8-10| = 4. The rectangle formed by p1 = 1 and p2 = 2 has an area equal to |2-4| * |7-8| = 2. Note that the rectangle formed by p1 = 1 and p2 = 3 is invalid because the area is 0.

Code Snippets

MySQL:

```
# Write your MySQL query statement below
```

MS SQL Server:

```
/* Write your T-SQL query statement below */
```

PostgreSQL:

```
-- Write your PostgreSQL query statement below
```