Problem 3061: Calculate Trapping Rain Water

Problem Information

Difficulty: Hard
Acceptance Rate: 0.00%
Paid Only: No

Problem Description

Table:

Heights

+-------------+------+ | Column Name | Type | +-------------+------+ | id | int | | height | int | +-------------+------+ id is the primary key (column with unique values) for this table, and it is guaranteed to be in sequential order. Each row of this table contains an id and height.

Write a solution to calculate the amount of rainwater can be

trapped between the bars

in the landscape, considering that each bar has a

width

of

1

unit.

Return

the result table in

any

order.

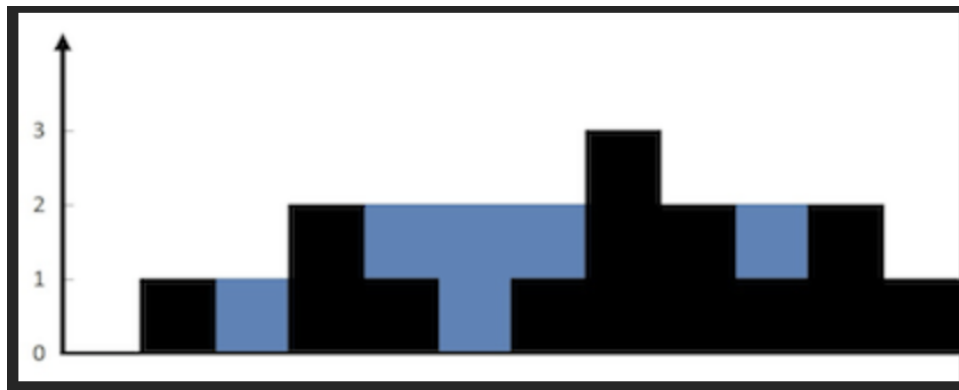The result format is in the following example.

Example 1:

Input:

Heights table: +-----+--------+ | id | height | +-----+--------+ | 1 | 0 | | 2 | 1 | | 3 | 0 | | 4 | 2 | | 5 | 1 | | 6 | 0 | | 7 | 1 | | 8 | 3 | | 9 | 2 | | 10 | 1 | | 11 | 2 | | 12 | 1 | +-----+--------+

Output:

+---------------------+ | total_trapped_water | +---------------------+ | 6 | +---------------------+

Explanation:

The elevation map depicted above (in the black section) is graphically represented with the x-axis denoting the id and the y-axis representing the heights [0,1,0,2,1,0,1,3,2,1,2,1]. In this scenario, 6 units of rainwater are trapped within the blue section.

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
```

Oracle:

```
/* Write your PL/SQL query statement below */
```

Pandas:

```
import pandas as pd


def calculate_trapped_rain_water(heights: pd.DataFrame) -> pd.DataFrame:
```

Solutions

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