

Problem 2118: Build the Equation

Problem Information

Difficulty: Hard

Acceptance Rate: 56.53%

Paid Only: Yes

Tags: Database

Problem Description

Table: `Terms`

+-----+-----+ | Column Name | Type | +-----+-----+ | power | int | | factor | int |
+-----+-----+ power is the column with unique values for this table. Each row of this table
contains information about one term of the equation. power is an integer in the range [0, 100].
factor is an integer in the range [-100, 100] and cannot be zero.

You have a very powerful program that can solve any equation of one variable in the world.
The equation passed to the program must be formatted as follows:

* The left-hand side (LHS) should contain all the terms. * The right-hand side (RHS) should be zero. * Each term of the LHS should follow the format `"<fact>X^<pow>"` where:
`<sign>` is either `"+` or `"-`. * `<fact>` is the **absolute value** of the `factor`. * `<pow>` is the value of the `power`. * If the power is `1`, do not add `"^<pow>"`. * For example, if `power = 1` and `factor = 3`, the term will be `"+3X"`. * If the power is `0`, add neither `"X"` nor `"^<pow>"`. * For example, if `power = 0` and `factor = -3`, the term will be `"-3"`. * The powers in the LHS should be sorted in **descending order**.

Write a solution to build the equation.

The result format is in the following example.

Example 1:

Input: Terms table: +-----+-----+ | power | factor | +-----+-----+ | 2 | 1 || 1 | -4 || 0 | 2 |
+-----+-----+ **Output:** +-----+-----+ | equation | +-----+ | +1X^2-4X+2=0 |

```
+-----+
```

****Example 2:****

****Input:**** Terms table: +-----+-----+ | power | factor | +-----+-----+ | 4 | -4 | | 2 | 1 | | 1 | -1
| +-----+-----+ ****Output:**** +-----+-----+ | equation | +-----+-----+ | -4X^4+1X^2-1X=0 |
+-----+

****Follow up:**** What will be changed in your solution if the power is not a primary key but each power should be unique in the answer?

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
```