Rebuild the Table

In economics, statistics and elsewhere there are often used tables of numbers (denote them as *sk*) where rows and columns are summed up. The last (rightmost) column contains the sums of the numbers in the row, and the last (lowest) line contains the sums of the numbers in the corresponding columns.

For example:

25	413	62	500
7	2912	4	2923
32	3325	66	3423

If we erased some numbers, then in some cases we could rebuilt the erased numbers using the remaining numbers and the initial table.

Task.

1. Present the given table; denote the missing numbers by dashes.
2. Determine if it is possible to rebuilt the missing numbers unambiguously; if not then output a message explaining why rebuilding is not possible; possible reasons for that: incorrect initial table or too many numbers are missing;

   If it is possible to rebuilt the table, output the reconstructed table and denote with asterisk each reconstructed number as it is shown in the example below.

Input. The first line of the input contains the number of rows m and columns n of the table as well as the number of known numbers from the table.

In each of the consecutive lines there are written data about one known number of the table: its row, column and the number itself.

Examples.

Input	Output
3 4 6 1 1 2 2 1 3 2 2 4 3 2 6 1 3 3 3 3 7	2 - 3 - 3 4 - - - 6 7 - 2 2* 3 7* 3 4 4* 11* 5* 6 7 18*

Input	Output
3 4 3 1 1 2 2 2 4 1 3 3	2 - 3 - - 4 - - - - - - ATSTATYTI NEGALIMA PER DAUG PRARASTA

Input	Output
3 4 7 1 1 2 2 1 3 2 2 4 3 2 6 1 3 3 3 3 7 2 4 12	2 - 3 - 3 4 - 12 - 6 7 - ATSTATYTI NEGALIMA NETEISINGI DUOMENYS

Constraints. $2 \leq n, m \leq 10$, $-5\ 000 \leq sk \leq 5\ 000$.