Problem 1 – Bunker Buster

Achieving peace through superior firepower! That's the motto of your company. Its main business – selling bombs to anyone who can afford them.

In order to attract clients, your boss decided to make a demonstration, so he needs you to keep track of what's going on. He has selected a spot (**rectangular** in shape) to bombard and will drop several bombs on it. The target area is **separated into cells** and each of them holds a **non-negative integer number representing its strength**. Each time a bomb falls, it **reduces the strength of the cells in its vicinity**. After each bomb has dropped you have to do the math and **reduce the strength of the affected cells**. In the end you have to print out some statistics, like the **total number of cells destroyed** and **the overall destruction as a percentage of the total number of cells**.

On the first line you'll receive the **dimensions** of the field – number of **rows N and columns M**. On the next **N lines** you'll receive strings, each containing **M non-negative 32-bit integer numbers representing the strength of each cell on the specified row**. The cells' strengths will be separated from each other by a single space.

On the next lines, you'll receive the bombs in format **"[row] [column] [power]"**. The [row] and [column] are integers representing the impact coordinates of the bomb. **Power** will be an **ASCII symbol**; the destructive power of the bomb is the symbol's **position** in the ASCII table. **A bomb hits the impact cell will full force** (it reduces its strength with the strength of the bomb); all other **adjacent cells receive half the damage (rounded up)**. E.g. the bomb is "1 1 ="; the symbol is '=' (61), so the value of cell [1, 1] is reduced by 61. 61 / 2 = 30.5; **round that up** to 31 to get the damage inflicted on adjacent cells. So, the cells [0, 0], [0, 1], [0, 2], [1, 0], [1, 2], [2, 0], [2, 1], [2, 2] receive 31 damage each. Check out the example below to see the effect more clearly.

The bombardment ends with the command **"cease fire!"** After receiving it, print the following info on separate lines: 1) **"Destroyed bunkers: {0}"**, where {0} is the number of cells **with value 0 or less**; 2) **"Damage done: {0} %"**, where {0} is the **percentage of cells with value 0 or less** in the field, **rounded to one digit after the decimal separator (use the F1 flag for rounding the output percentage).**

Input

- The input data should be read from the console.
- On the first, you'll receive the line **dimensions** of the field in format: **"N M"**, where **N** is the number of **rows**, and **M** is the number of **columns**. They'll be separated by a single space.
- On the next **N lines** you'll receive **the strength of each cell** in the field, each line represents a row.
- On the next lines, until you receive the command **"cease fire!"** you'll receive the bombs in format **"[row] [column] [power]"**.
- The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

- The output should be printed on the console. It should consist of **2 lines**.
- On the first line, print the **total number of cells destroyed** in format **"Destroyed bunkers: {0}"**.
- On the second line, print the **total destruction (in percent)** in the following format: **"Damage done: {0} %"**.

Constraints

- The **dimensions** N and M of the matrix will be integers in the range [1 … 10].
- The **strength** of each cell will be a non-negative integer number in the range [0 … 2 000 000 000].
- The **[row] and [col]** coordinates of each bomb will be **valid coordinates** inside the field.
- The bomb's **[power]** will be represented by an ASCII symbol.
- The number of shots taken will be in the range [0 … 1000].
- Allowed working time for your program: 0.1 seconds. Allowed memory: 16 MB.

Examples

<table>
<tr><th>Input</th><th>Output</th><th>Comments</th></tr>
<tr>
<td>4 4
100 100 20 100
30 50 100 100
100 50 100 100
100 100 100 100
1 1 =
cease fire!</td>
<td>Destroyed bunkers: 3
Damage done: 18.8 %</td>
<td>The field has 4 rows and 4 columns. The initial strengths are:
<table>
<tr><td>100</td><td>100</td><td>20</td><td>100</td></tr>
<tr><td>30</td><td>50</td><td>100</td><td>100</td></tr>
<tr><td>100</td><td>50</td><td>100</td><td>100</td></tr>
<tr><td>100</td><td>100</td><td>100</td><td>100</td></tr>
</table>
The bomb lands on cell (1,1) and has a power of 61. The cell’s value (50) is reduced by 61 and becomes -11. All adjacent cells receive 31 damage (61 / 2 = 30.5 -> 31 rounded).
<table>
<tr><td>100 - 31</td><td>100 - 31</td><td>20 - 31</td><td>100</td></tr>
<tr><td>30 - 31</td><td>50 - 61</td><td>100 - 31</td><td>100</td></tr>
<tr><td>100 - 31</td><td>50 - 31</td><td>100 - 31</td><td>100</td></tr>
<tr><td>100</td><td>100</td><td>100</td><td>100</td></tr>
</table>
The end result is:
<table>
<tr><td>69</td><td>69</td><td>-11</td><td>100</td></tr>
<tr><td>-1</td><td>-11</td><td>69</td><td>100</td></tr>
<tr><td>69</td><td>19</td><td>69</td><td>100</td></tr>
<tr><td>100</td><td>100</td><td>100</td><td>100</td></tr>
</table>
There are 3 cells destroyed. 3 / 16 = 18.75% rounded to 18.8%.</td>
</tr>
</table>