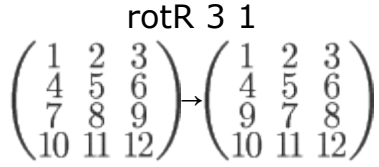
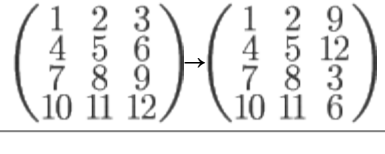
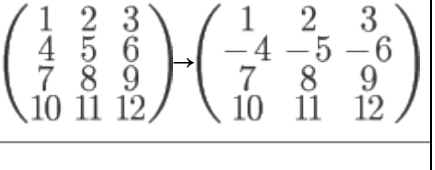
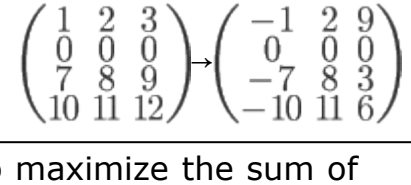
COCI 2009/2010 **Task CHUCK**

5th round, 6. March 2010. 1 second / 32 MB / 130 points

You are given an matrix of **R** rows and **C** columns. All elements of the matrix are by their absolute value smaller than or equal to 10^4.
You may perform the following operations:

Operation	Notation	Example
Rotate ***i***-th row of the matrix ***k*** elements right	rotR i k	rotR 3 1 
Rotate ***j***-th column of the matrix ***k*** elements down	rotS j k	rotS 3 2 
Multiply all elements in the ***i***-th row by -1, **if and only if none of them were multiplied before.**	negR i	negR 2 
Multiply all elements in ***j***-th column by -1, **if and only if none of them were multiplied before.**	negS j	negS 1 

Using limited number of these operations, you need to maximize the sum of all the elements of the matrix.

INPUT

The first line of input contains two integers **R** and **C** ($1 \leq$ **R**, **C** ≤ 100), number of rows and columns.
The next **R** lines contain **C** integers each. All integers are by their absolute value smaller than 10^4.

OUTPUT

The first line of output should contain two integers, the maximal sum obtainable and the number of operations used. We shall call this number **T**. The next **T** lines should contain any sequence of operations leading to the sum. Each operation should follow the notation defined in the table below. For details look at sample test cases.

SCORING

- If the obtained sum is not maximal, one of the elements was multiplied more than once or the sequence of operations printed does not lead to the sum, 0 points are awarded.
- Otherwise, the number of points depends on the number of operations used
    - For **T** $\leq 5 \cdot R \cdot C$, you are awarded 100% of points allocated to that test case
    - For $5 \cdot R \cdot C$ < **T** $\leq$ 100 000, you are awarded 50% of points allocated to that test case
    - For **T** > 100 000, you are awarded 0 points for that test case

SAMPLE TEST CASES

Input:	**Input:**
3 4 1 -2 5 200 -8 0 -4 -10 11 4 0 100	3 3 8 -2 7 1 0 -3 -4 -8 3
Output:	**Output:**

345 2 rotS 2 1 negR 2	34 4 rotR 1 1 rotS 3 1 negR 2 negR 3