



ICPC International Collegiate Programming Contest
**The 2025 ICPC North America
Championship**



22-27 May 2025

ICPC NAC 2025

Orlando, Florida

Problem F

Mob Grinder

Time Limit: 5 Seconds, Memory Limit: 2G

In a certain popular sandbox video game, one can build a structure called a *mob grinder*. A mob grinder consists of an $N \times M$ rectangular grid of tiles. Monsters, also known as “mobs,” appear continuously at random places on the grid. The goal of a mob grinder is to move all of the monsters to the top-right tile in the grid, no matter where they originally appear. To accomplish this goal, each tile (except for the top-right tile) has a conveyor belt on it with a specified direction (up, right, down, or left). A monster on a conveyor belt gets moved to the orthogonally adjacent tile in the direction specified by the conveyor belt orientation.

Your job is to place a conveyor belt on each tile (other than the top-right corner) so that no matter where a monster appears on the grid, it will get moved to the top-right corner after a finite amount of time, without ever leaving the bounds of the grid. However, there is a limit on how many conveyor belts you can use of each orientation: your final design must have exactly U conveyor belts going up, R going right, D going down, and L going left.

You are asked to design multiple mob grinders, each with a specification of how many conveyor belts of each type you are allowed to use. Design a valid mob grinder that meets each specification, if possible.

Input

The first line of input contains an integer T ($1 \leq T \leq 10^5$): the number of mob grinders you need to design.

Each of the next T lines of input contains six space-separated integers that describe one mob grinder specification. The first two integers, N and M , ($1 \leq N, M$ and $N \cdot M \leq 10^5$) are the number of rows and columns in the grid, respectively. The last four, U, R, D, L ($0 \leq U, R, D, L$ and $U + R + D + L = (N \cdot M) - 1$), are the number of times you must use each conveyor belt orientation in your design.

It is guaranteed that the sum of $N \cdot M$ over all T mob grinders does not exceed 10^5 .



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Output

Print T mob grinder designs, one for each specification. Separate consecutive designs with a single empty line.

If it is impossible to construct a valid mob grinder respecting the given constraints for the given specification, print `impossible`. Otherwise, print an $N \times M$ grid of ASCII characters. The top-right tile must be a `*`. Every other character in the grid must be either `U`, `R`, `D`, or `L`, representing the orientation of the conveyor belt on that grid tile.

This problem is whitespace-sensitive. You *must* separate each mob grinder design with exactly one empty line (containing just a newline character). You *must not* print an empty line, or any other extraneous output, after the last mob grinder design (though the last line of output must be terminated with a newline). Please see the Sample Output for examples of how to correctly format your mob grinder designs.

Sample Input 1

2
4 3 5 3 1 2
1 2 0 1 0 0

Sample Output 1

RR*
URU
UDU
ULL
R*

Sample Input 2

3
3 3 0 0 0 8
2 2 0 2 0 1
1 1 0 0 0 0

Sample Output 2

impossible
impossible
*