**Uncle Grandpa and the magical board**

Uncle Grandpa is playing chess on lichess.org, and out of the last 20 matches, he lost 21 matches and won -1 matches. Well, you can see how good he is at chess. That’s why he now our Grandpa is experimenting with heaps on the chess board.

Our Grandpa has a square board of size . The rows and columns are numbered from 1 to . Initially, each cell contains an integer. It’s guaranteed that no two cells contain the same integer. He is going to process queries of the following types:

* : Let that location of the cell containing the largest value among all cells on row to be . Print the value of cell then delete that number.
* : Let that location of the cell containing the largest value among all cells on column to be . Print the value of cell then delete that number.

Please help our Grandpaaaaaaa!

## Input

The first line contains a single integer – the size of the board

The next lines, the of those will contain integers – the board’s row

The next line will contain a single integer – the number of queries

The next lines, each line will contain one query of the above 2 types. In all query,

## Output

For each query, print on a new line the answer to the corresponding query. If the corresponding row/column is empty, print instead.

## Examples

|  |  |
| --- | --- |
| Input (board1.in) | Output (board1.out) |
| 3  3 1 5  2 8 6  7 9 4  4  R 1  C 3  C 2  R 3 | 5  6  9  7 |

## Explanation:

We have the state of the board after each query as follows:

Before any queries:

|  |  |  |
| --- | --- | --- |
| 3 | 1 | 5 |
| 2 | 8 | 6 |
| 7 | 9 | 4 |

After the 1st query print and delete it

|  |  |  |
| --- | --- | --- |
| 3 | 1 |  |
| 2 | 8 | 6 |
| 7 | 9 | 4 |

After the 2nd query print and delete it

|  |  |  |
| --- | --- | --- |
| 3 | 1 |  |
| 2 | 8 |  |
| 7 | 9 | 4 |

After the 3rd query print and delete it

|  |  |  |
| --- | --- | --- |
| 3 | 1 |  |
| 2 | 8 |  |
| 7 |  | 4 |

After the 4th query print and delete it

|  |  |  |
| --- | --- | --- |
| 3 | 1 |  |
| 2 | 8 |  |
|  |  | 4 |

## Note:

1. A skeleton file has been given to help you. You should not create a new file or rename the file provided. You should develop your program using this skeleton file.
2. You are free to define your own helper methods and classes (or remove existing ones) if it is suitable but you must put all the new classes, if any, in the same skeleton file provided

## Skeleton File

You can find the skeleton file Board.java in the lab package.