Matrix

Language: Default

Time Limit: 3000MS   **Memory Limit:** 65536K

Total Submissions: 11705   **Accepted:** 4413

Description

Given an N*N matrix A, whose elements are either 0 or 1. A[i, j] means the number in the i-th row and j-th column. Initially we have A[i, j] = 0 (1 <= i, j <= N).

We can change the matrix in the following way. Given a rectangle whose upper-left corner is (x1, y1) and lower-right corner is (x2, y2), we change all the elements in the rectangle by using "not" operation (if it is a '0' then change it into '1' otherwise change it into '0'). To maintain the information of the matrix, you are asked to write a program to receive and execute two kinds of instructions.

1. C x1 y1 x2 y2 (1 <= x1 <= x2 <= n, 1 <= y1 <= y2 <= n) changes the matrix by using the rectangle whose upper-left corner is (x1, y1) and lower-right corner is (x2, y2).
2. Q x y (1 <= x, y <= n) querys A[x, y].

Input

The first line of the input is an integer X (X <= 10) representing the number of test cases. The following X blocks each represents a test case.

The first line of each block contains two numbers N and T (2 <= N <= 1000, 1 <= T <= 50000) representing the size of the matrix and the number of the instructions. The following T lines each represents an instruction having the format "Q x y" or "C x1 y1 x2 y2", which has been described above.

Output

For each querying output one line, which has an integer representing A[x, y].

There is a blank line between every two continuous test cases.

Sample Input

```
1
2 10
C 2 1 2 2
Q 2 2
C 2 1 2 1
Q 1 1
C 1 1 2 1
C 1 2 1 2
C 1 1 2 2
Q 1 1
C 1 1 2 1
Q 2 1
```

Sample Output

```
1
0
0
1
```

Source

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