

ACS - A concrete simulation

Source : <http://www.spoj.com/problems/ACS/>

You are given a matrix M of type 1234x5678. It is initially filled with integers 1...1234x5678 in row major order. Your task is to process a list of commands manipulating M. There are 4 types of commands:

"R x y" swap the x-th and y-th row of M ;

"C x y" swap the x-th and y-th column of M ;

"Q x y" write out M(x,y) ;

"W z" write out x and y where $z=M(x,y)$.

Input

The first line contains only one number – the number of test cases. Then the test cases are given. For each test case, the first line gives the number of input commands. Then follows a list of valid command, one per line.

Output

For each "Q x y" write out one line with the current value of M(x,y), for each "W z" write out one line with the value of x and y (interpreted as above) separated by a space. There should be no empty line separating the outputs of consecutive test cases.

Input :

```
2
10
R 1 2
Q 1 1
Q 2 1
W 1
W 5679
C 1 2
Q 1 1
Q 2 1
W 1
W 5679
1
Q 2 1
```

Output :

```
5679
1
2 1
1 1
5680
2
2 2
1 2
5679
```