Problem C

Boxes

(Time Limit: 2 seconds)

You have *n* boxes in a line on the table numbered 1…*n* from left to right. Your task is to simulate 4 kinds of commands:

(i) 1 *X Y*: move box *X* to the left to *Y* (ignore this if *X* is already the left of *Y*)
(ii) 2 X Y: move box *X* to the right to *Y* (ignore this if *X* is already the right of *Y*)
(iii) 3 *X Y*: swap box *X* and *Y*
(iv) 4: reverse the whole line.

Commands are guaranteed to be valid, i.e. *X* will be not equal to *Y*.

For example, if *n* = 6, after executing 1 1 4, the line becomes 2 3 1 4 5 6. Then after executing 2 3 5, the line becomes 2 1 4 5 3 6. Then after executing 3 1 6, the line becomes 2 6 4 5 3 1. Then after executing 4, then line becomes 1 3 5 4 6 2.

Input Format

The input contains several test cases and is terminated by End-Of-File (EOF). Each test case begins with a line containing 2 integers *n*, *m*. Each of the following *m* lines contain a command.

Output Format

For each test case, print the sum of numbers at odd-indexed positions. Positions are numbered 1 to *n* from left to right.

Technical Specification

- For each test case, you may assume that $n, m \leq 100000$.
- The sum of *n*'s and *m*'s over all test cases is at most 524288.

Example

Sample Input:	Sample Output:
6 4 1 1 4 2 3 5 3 1 6 4 6 3 1 1 4 2 3 5 3 1 6 100000 1 4	12 9 2500050000