

Selection

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

In the OI country far far away, there is something called provincial selection.

A total of n people will take part in the provincial selection to fight for qualification for the provincial team. The provincial team is consist of m people.

The i -th person has a gender of either 0(boy) or 1(girl) and will get a score of a_i in the selection. It is guranteed that no two people have the same score.

When determining the provincial team list, first the girl with the highest score will be chosen in. If there is no girl, ignore this. Then sort all the remaining people in the order of their score from the highest to the lowest. Choose from high to low until the number of chosen people reaches m .

You need to process q queries, each query is one of the following two types:

- 1 $a(1 \leq a \leq n)$ $b(b \in \{0, 1\})$ Changing the a -th person's gender to b .
- 2 $a(1 \leq a \leq n)$ Asking if the a -th person is in the provincial team. Print 1 if he/she is in, 0 if not.

Answer each query of type two.

Input

The first line contains three integers $n, m, q(1 \leq m \leq n \leq 10^3, 1 \leq q \leq 10^3)$.

Each of the following n lines contains two integers a_i, b_i .

Each of the following q lines contains either two or three integers depending on the query type.

$1 \leq a_i \leq 10^9, b_i \in \{0, 1\}$

Output

Each line contains an integer for a query of type two.

Example

standard input	standard output
3 2 3	1
3 0	0
1 1	
2 0	
2 2	
1 2 0	
2 2	