Minimum Sum

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

As you know Mina has many friends, he came up with an interesting game to play with them. His n friends will sit in a row numbered $1, 2, ...n$ from left to right. Mina is standing in front of them blindfolded and will ask them q questions. Each question, he will ask "Which person has the minimum number of coins from the people numbered from l to r". Then, this person will reply "I won't tell you who I am, but I have more than c coins in my pocket".

While Mina is asking his questions, his friends will interrupt him and ask "What is the minimum total number of coins could the people from l to r have based on what you know so far?". Mina knows all the answers to the questions of his friends, but he pretends that he doesn't know. Can you tell him these answers?

Input

The first line contains three integers n, q, r $(1 \leq n, q, r \leq 10^5)$ — the numbers of Mina's friends, his questions and his friends' questions, respectively.

Then $q + r$ lines follow, each describing a question. The ith line will have one of the following formats:

- $1\ l_i\ r_i\ c_i$: which describes a question asked by Mina and the reply he got.

- $2\ l_i\ r_i$: which describes a question asked by Mina's friends.

where $1 \leq l_i \leq r_i \leq n; 0 < c_i \leq 10^9; c_i \geq c_j$ for $i > j$. There will be exactly q lines of the first format.

Output

For each of question of the second format, print a single line with the answer to that question.

Example

standard input	standard output
5 2 2	9
1 2 4 2	36
2 1 5	
1 1 3 10	
2 1 5	