Strict Evaluation

Time limit: 0.5s **Memory limit:** 256M

You have an array of N $(1 \leq N \leq 100\,000)$ elements, indexed from 1 to N. There are Q $(1 \leq Q \leq 100\,000)$ operations you need to perform on it.

Each operation is one of the following:

- `1 l r v` Increment each value in the range $[l, r]$ by v.
- `2 l r v` Make each value in the range $[l, r]$ equal to v (i.e. for each element a_i, such that $l \leq i \leq r$, set $a_i := v$).
- `3 l r` Output the minimum value in the range $[l, r]$.

In operations `1` and `2`, v is guaranteed to be an integer in the range $[1, 100\,000]$. Every value in the starting array is also guaranteed to be in this range.

Input Specification

The first line has N and Q.

The second line has N integers, the original array.

The next Q lines each contain an operation in the format described above.

Output Specification

For each operation of type `3`, output the answer on its own line.

Sample Input

```
5 3
1 2 3 4 5
3 2 4
2 2 4 10
3 2 5
```

Sample Output

```
2
5
```