Problem D. Simple game

Input file:	Standard input (not file I/O)
Output file:	Standard output (not file I/O)
Time limit:	1 second
Memory limit:	256 megabytes

NurlashKO was well behaved during last year, for this Ded Moroz gifted him for New Year polygonal chain line with N vertices. i-th vertex of this chain located at the point with coordinates (i, y_i).
Very soon a new game with this geometric figure was invented: the following operations are executed M times:

- Change y coordinate for one of the chain vertexes.
- Draw a horizontal line at the height H and count its intersections with the chain. Note, that all points of horizontal line have y coordinate equal to H.

NurlashKO likes this game and he asks your help to write a program for this game.

Input

First line of input contains two positive integers $N, M (1 \le N, M \le 100\,000)$ — the numbers of vertices and operations in the game, respectively.
Next line contains N positive integers separated by a single space $h_i (1 \le h_i \le 1\,000\,000)$ — h_i is the original height of the i-th vertex.
Then in M lines follows descriptions of the game operations in the following format:

- 1 *pos val* $(1 \le pos \le N, 1 \le val \le 1\,000\,000)$ — vertex number and its new new height, respectively.
- 2 H $(1 \le H \le 1\,000\,000)$ — height of the horizontal line. It is guaranteed that this line will never intersects with the chain at the vertices.

Output

For each query of the second type on a separate line output the number of intersections of horizontal line with the chain. Output answers to queries in the same order as they appear in the input file.

Scoring

This problem consists of 3 subtasks:

1. $1 \le N, M \le 1\,000$. Score 22 points.
2. $1 \le N, M \le 100\,000$. Only query (second type) operations are allowed. Score 27 points.
3. $1 \le N, M \le 100\,000$. Score 51 points.

Each subtask will be scored only if the solution successfully passes all of the previous subtasks.

Example

game.in	game.out
3 3	2
1 5 1	1
2 3	
1 1 5	
2 3	