

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

D. The Grim Treaper

time limit per test: 15 seconds
memory limit per test: 1024 megabytes

Happy Halloween! Farmer John is rather weary: he has lots of harvesting still unfinished, and his Deere sweet tractor just broke down, so he must finish the harvesting with nothing more than his scythe. He is rather depressed knowing the total amount of harvesting he has left. To make things even worse, Bessie and friends don't know how to use a toilet, so they keep leaving... fertilizer... all over the grass, causing the wheat to grow even more! So much reaping of wheat needs to be done! How grim!



Initially, FJ has n blades of grass numbered $1..n$ in a row. Initially blade i has height a_i . q times, one of the following will happen:

1. FJ will slice his scythe from l to r at height h , cutting all blades from l to r that are strictly longer than height h to height h .
2. FJ will transplant range $l..r$ of his field to the end of the field. He will move all grass blades forwards so, in total, positions $1..n$ are still occupied after this operation.
3. Bessie and friends will take a dump on blades of grass from l to r . Each of them will grow by x units where x is the stinkiness of the... fertilizer.

After each operation, Farmer John needs to know how much work he has left to do. In particular, he would like to know the sum of heights of all blades of grass.

Input

The first line will contain two integers n and q : the number of blades of grass, and the number of events. ($1 \leq n, q \leq 3 * 10^5$)

The second line will contain n integers: the initial heights of grass blades. ($1 \leq a_i \leq 10^6$).

The following q lines will describe each query, and be of one of the following forms:

- 1 l r h . In this case $1 \leq l \leq r \leq n$ and $1 \leq h \leq 10^9$.
- 2 l r . In this case $1 \leq l \leq r \leq n$.
- 3 l r x . In this case $1 \leq l \leq r \leq n$ and $1 \leq x \leq 10^5$.

Note that grass may grow to more than $2 * 10^9$ units.

Output

After each query, print a single line describing the total height of all blades of grass after that query.

Examples

input	Copy
3 3 125987 264237 288891 3 2 3 30851 2 2 3 3 1 2 88689	
output	Copy
740817 740817 918195	

input	Copy
5 5 3 3 1 8 7 1 4 5 9 2 1 3 3 1 2 4 2 2 5 3 3 3 5	
output	Copy
22 22 30 30 35	

Algorithms Thread Treaps Contest

Finished

Practice



→ About Contest



Algorithms Thread Treap Contest, written by SecondThread.

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win)

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
304485518	Feb/05/2025 04:42	Accepted
304479867	Feb/05/2025 03:03	Accepted
304479447	Feb/05/2025 02:54	Wrong answer on test 11
304469847	Feb/05/2025 00:15	Wrong answer on test 9
304468601	Feb/04/2025 23:59	Wrong answer on test 3
304468184	Feb/04/2025 23:55	Wrong answer on test 3
304467580	Feb/04/2025 23:48	Wrong answer on test 3
304467107	Feb/04/2025 23:43	Wrong answer on test 3
304462732	Feb/04/2025 22:58	Accepted
304462658	Feb/04/2025 22:57	Wrong answer on test 3

→ Contest materials

- Announcement (en)