Update Subarray Sums

time limit per test: 4 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

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Problem Statement

You are given an array a of n integers. You are also given q queries of the following forms:

- Type 1: $1\ i\ v$ - update the values of a_i to become v
- Type 2: $2\ l\ r$ - determine the sum of the range l to r, i.e. $a_l + a_{l+1} + ... + a_r$

Input Statement

Your first line will contain two space-separated integers n and q. Your next line will contain n space-separated integers representing a. Your next q lines will contain two space-separated integers each representing the queries described.

Output Statement

For each type 2 query you should output a new line containing the sum of the range described.

Constraints

- $1 \le n, q \le 10^4$
- $1 \le l \le r \le n$ queries are 1-indexed
- $-10^9 \le a_i \le 10^9$ (including after updates)

Sample Cases

Input 1

```
10 5
1 2 3 4 5 6 7 8 9 10
1 5 -10
2 1 10
1 1 1
2 1 10
2 5 6
```

Output 1

```
40
40
-4
```

Explanation 1

After updating a_5 to become `-10`, the array is `1 2 3 4 -10 6 7 8 9 10` The sum from `1` to `10` is `40`. Nothing happens when updating a_1 to `1`. The sum from `1` to `10` is still `40`. The sum from `5` to `6` is `-10 + 6 = -4`.