HackerRank

The Keepers Permutations

Long ago, a mysterious mathematician left behind a sealed chest guarded by an enchanted array. This array, A, contains N compartments, all starting with a value of 0. To protect the chest, the mathematician used a hidden key: a permutation P of the numbers 1 through N.

Your task is to master the array's behavior through a sequence of Q commands. Only by interpreting these commands correctly will you uncover the true sums hidden within.

The Four Incantations

The commands come in four types, each with its own effect:

- Incantation 0: 0 1 r c Whisper power c into every compartment from A[l] to A[r].
- Incantation 1: 1 1 r c For each index i from l to r, channel power c into the compartment A[P[i]], where the permutation decides the target.
- Incantation 2: 2 1 r Reveal the combined strength of A[l] + A[l+1] + · · · + A[r].
- Incantation 3: 3 1 r Reveal the combined strength of A[P[l]] +
 A[P[l+1]] + · · · + A[P[r]].

Input Format

- The first line of the scroll contains two integers: N and Q (1 \leq N, Q \leq 105).
- The second line holds the N numbers of the secret permutation P, a reordering of 1, 2, . . . , N.
- Each of the next Q lines contains one incantation, as described above.

Constraints

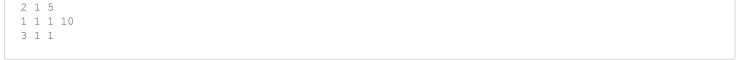
- $1 \le N, Q \le 105$
- P is always a valid permutation of 1 through N
- $1 \le l \le r \le N$
- $-109 \le c \le 109$

Output Format

For every query (Type 2 or Type 3), inscribe the revealed sum on its own line

Sample Input 0

```
5 8
2 4 1 5 3
0 1 3 5
2 1 5
1 2 4 3
3 2 4
0 2 2 -2
```



Sample Output 0

