

CSES Problem Set

Range Queries and Copies

TASK | SUBMIT | RESULTS | STATISTICS | HACKING

Time limit: 1.00 s **Memory limit:** 512 MB

Your task is to maintain a list of arrays which initially has a single array. You have to process the following types of queries:

1. Set the value a in array k to x .
2. Calculate the sum of values in range $[a, b]$ in array k .
3. Create a copy of array k and add it to the end of the list.

Input

The first input line has two integers n and q : the array size and the number of queries.

The next line has n integers t_1, t_2, \dots, t_n : the initial contents of the array.

Finally, there are q lines describing the queries. The format of each line is one of the following: "1 k a x ", "2 k a b " or "3 k ".

Output

Print the answer to each sum query.

Constraints

- $1 \leq n, q \leq 2 \cdot 10^5$
- $1 \leq t_i, x \leq 10^9$
- $1 \leq a \leq b \leq n$

Example

Input:

```
5 6
2 3 1 2 5
3 1
2 1 1 5
2 2 1 5
1 2 2 5
2 1 1 5
2 2 1 5
```

Output:

```
13
13
13
15
```

Range Queries

...	
Pizzeria Queries	✓
Subarray Sum Queries	✓
Distinct Values Queries	✓
Increasing Array Queries	–
Forest Queries II	–
Range Updates and Sums	✓
Polynomial Queries	✓
Range Queries and Copies	✓

Your submissions

2023-11-05 17:36:53	✓
2023-11-05 17:36:28	!
2023-11-05 17:36:09	×