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A. Segment Tree for the Sum

time limit per test: 1 second memory limit per test: 1024 megabytes input: standard input output: standard output

In this task, you need to write a regular segment tree for the sum.

Input

The first line contains two integers n and m ($1 \le n, m \le 100000$), the size of the array and the number of operations. The next line contains n numbers a_i , the initial state of the array ($0 \le a_i \le 10^9$). The following lines contain the description of the operations. The description of each operation is as follows:

- 1 i v: set the element with index i to v ($0 \le i < n$, $0 \le v \le 10^9$).
- 2 l r: calculate the sum of elements with indices from l to r-1 ($0 \le l < r \le n$).

Output

For each operation of the second type print the corresponding sum.

Example

input	Сору
5 5 5 4 2 3 5	
2 0 3	
1 1 1 2 0 3	
1 3 1 2 0 5	
output	Сору
11	
8 14	

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