Prime Query

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	256 megabytes

While Mtaylor was learning how to check prime numbers , he got an idea of a problem to check prime numbers in a given array , so he asked you to help him .

You are given an array a of n integers a_i ($1 \leq a_i \leq 100000$), and q queries of 2 types :

Type 1: you are given two integers l and r ($l \leq r$) and you need to print the number of prime numbers in the range $[l, r]$ of the array .

Type 2: you are given two integers p and x and you should add x to the element of the array in position p.

Input

The first line contains 2 integers n and q ($1 \leq n$,$q \leq 100000$) .

The second line contains n integers a_i ($1 \leq a_i \leq 100000$) the elements of the array .

The next q lines contains the query inputs , the ith of them contains 3 integers t_i x_i,y_i ($1 \leq t_i \leq 2$).

If $t_i = 1$ then ($1 \leq x_i \leq y_i \leq n$)

If $t_i = 2$ then ($1 \leq x_i \leq n$, $1 \leq y_i \leq 10$).

It's guranteed that the first type of query exists at least one time .

Output

Output the answers to the first type of queries in seperate lines .

Example

standard input	standard output
5 5 1 2 3 4 5 1 1 5 2 1 1 1 1 5 2 5 1 1 1 5	3 4 3