PRMQUER - Prime queries

#tree (/problems/tag/tree)

You are given a simple task.

Given a sequence A[i] with N numbers such that 1 <= i <= N. You have to perform Q operations on a given set of numbers.

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Operations:

1. `A V l` , Add the value V to element with index l.
2. `R a l r` , Replace all the elements of sequence with index i such that l <= i <= r with a.
3. `Q l r` , Print the number of elements with index i such that l <= i <= r and A[i] is prime number and A[i] <= 10^7.

No number in the sequence ever will exceed 10^9.

Constraints

- 1 <= N <= 10^5
- 1 <= Q <= 10^5
- V <= 10^3
- A[i] <= 10^8
- a <= 10^7, 1 <= l <= r <=N.

Input

First line contains N as number of sequence elements and Q as number of operations to be performed. Second line contains N initial elements of the sequence. After that each of the next Q lines contains one operation to be performed on the sequence.

Output

Print each value in newline as stated above.

Example

```
Input:
5 10
1 2 3 4 5
A 3 1
Q 1 3
R 5 2 4
A 1 1
Q 1 1
Q 1 2
Q 1 4
A 3 5
Q 5 5
Q 1 5

Output:
2
1
2
4
0
4
```

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Added by:	Rishav Goyal (/users/sherlock_holms)
Date:	2014-04-16
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easy normal hard extreme

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