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Dividing Machine

 | Problem Code: **DIVMAC**

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Chef has created a *special dividing machine* that supports the below given operations on an array of positive integers.

There are two operations that Chef implemented on the machine.

Type 0 Operation

Update(L, R):

```
for i = L to R:  
    a[i] = a[i] / LeastPrimeDivisor(a[i])
```

Type 1 Operation

Get(L, R):

```
result = 1  
for i = L to R:  
    result = max(result, LeastPrimeDivisor(a[i]))  
return result;
```

The function **LeastPrimeDivisor(x)** finds the smallest prime divisor of a number. If the number does not have any prime divisors, then it returns 1.

Chef has provided you an array of size **N**, on which you have to apply **M** operations using the special machine. Each operation will be one of the above given two types. Your task is to implement the *special dividing machine* operations designed by Chef. Chef finds this task quite easy using his machine, do you too?

Input

The first line of the input contains an integer **T** denoting the number of test cases. The description of **T** test cases follows.

All Submissions

Successful Submissions



Each of following **M** lines contain three space-separated integers **type**, **L**, **R** - the type of operation (**0** - **Update** operation, **1** - **Get** operation), and the arguments of function, respectively

Output

For each test case, output answer of each query of type 1 (**Get** query) separated by space. Each test case from the same file should start from the new line.

Constraints

- $1 \leq T \leq 100$
 - $1 \leq A_i \leq 10^6$
 - $1 \leq L \leq R \leq N$
 - $0 \leq \text{type} \leq 1$
 - Sum of **M** over all test cases in a single test file does not exceed 10^6
-

Subtasks

Subtask #1: (10 points)

- $1 \leq N, M \leq 10^3$

Subtask #2: (25 points)

- $1 \leq N, M \leq 10^5$
- A_i is a prime number.

Subtask #3: (65 points)

- $1 \leq N, M \leq 10^5$
-

Example

Input :

```
2
6 7
2 5 8 10 3 44
1 2 6
0 2 3
1 2 6
0 4 6
1 1 6
0 1 6
1 4 6
2 2
1 3
0 2 2
1 1 2
```

Output :

```
5 3 5 11
1
```

Explanation


Example case 1. The states of array A after each **Update**-operation:

A: = [2 1 4 10 3 44]

A: = [2 1 4 5 1 22]

A: = [1 1 2 1 1 11]

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Editorial: <http://discuss.codechef.com/problems/DIVMAC>

Tags: [kaizer](#), [medium](#), [segment-tree](#), [sept16](#)

Date Added: 5-07-2015

Time Limit: 1 - 3 secs

Source Limit: 50000 Bytes

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