

Dr. Nizar's Prime Sum



Dr. Nizar is the faculty of Computer Science department and teaches Data Structures and Algorithms for semester 3 students.

Chandran, his student never listens to his lectures. Nizar, on seeing Chandran's competitive programming skills, tricks him with a question so that Chandran would develop interest in listening to his class.

He gives Chandran an array of numbers and asks him to perform few operations.

He gives an inputs of the forms

1 A B X - Change the values in [A,B] to X

2 A B - Print the count of prime numbers in the range [A,B]

Input Format

First line contains T, The number of test cases

Second line contains N ,Q the number of elements in the Array and the number of queries.

Next Line Contains N space separated Integers denoting the elements in the array Arr[i]

Following Q lines contains the queries described in any of the 2 formats above.

Constraints

- $1 \leq T \leq 10$
- $1 \leq N \leq 10000$
- $1 \leq Q \leq 20000$
- $1 \leq A, B \leq N$
- $2 \leq \text{Arr}[i] \leq 1000000$
- $2 \leq X \leq 1000000$

Output Format

For each query of type 1, print the count of prime numbers the range [A,B].

Sample Input 0

```
1
5 3
78 2 13 12 3
1 1 2
0 4 4 5
1 1 5
```

Sample Output 0

```
Case 1:
1
4
```