



Hello, 2024101067.

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Problem Statement

You are given a collection of n distinct numbers.

You are given an array consisting of n distinct numbers. Further you are given q queries of the format :-

1. "1 value" - insert on
2. "2 value" - deletion
3. "3 value1 value2" - report number of values which lie between value1 and value2 (both numbers inclusive)

Input Format

- The first line contains 2 space separated integers n and q , the length of the initial array and the number of queries.
- The second line contains n space separated integers- the elements of the array.
- The next q lines would be of the format "1 value" or "2 value" or "3 value1 value2".
- Before performing query type 1, the new element doesn't already exist in the array.
- Before performing query type 2, the element to be deleted is guaranteed to be a part of the array.
- Before performing query type 3, the 2 elements given value1 and value2 are guaranteed to be a part of the array and $\text{value1} \neq \text{value2}$.
- Its guaranteed that BST creation wouldnt reach N^2 complexity

Output Format

- For every query type 3, print the number of numbers lying in between value1 and value2 (inclusive of both limits) on a new line.



Hello, **2024101067**.

- $1 \leq \text{element_value} \leq 10^9$

Example

Input

```
5 6
1 3 5 7 10
3 1 7
2 10
2 3
3 1 7
1 6
3 1 7
```

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Output

```
4
3
4
```

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? Clarifications

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No clarifications have been made at this time.