Problem 2080: Range Frequency Queries

Problem Information

Difficulty: Medium
Acceptance Rate: 40.90%
Paid Only: No
Tags: Array, Hash Table, Binary Search, Design, Segment Tree

Problem Description

Design a data structure to find the **frequency** of a given value in a given subarray.

The **frequency** of a value in a subarray is the number of occurrences of that value in the subarray.

Implement the `RangeFreqQuery` class:

* `RangeFreqQuery(int[] arr)` Constructs an instance of the class with the given **0-indexed** integer array `arr`. * `int query(int left, int right, int value)` Returns the **frequency** of `value` in the subarray `arr[left...right]`.

A **subarray** is a contiguous sequence of elements within an array. `arr[left...right]` denotes the subarray that contains the elements of `nums` between indices `left` and `right` (**inclusive**).

Example 1:

Input ["RangeFreqQuery", "query", "query"] [[[12, 33, 4, 56, 22, 2, 34, 33, 22, 12, 34, 56]], [1, 2, 4], [0, 11, 33]] **Output** [null, 1, 2] **Explanation** RangeFreqQuery rangeFreqQuery = new RangeFreqQuery([12, 33, 4, 56, 22, 2, 34, 33, 22, 12, 34, 56]); rangeFreqQuery.query(1, 2, 4); // return 1. The value 4 occurs 1 time in the subarray [33, 4] rangeFreqQuery.query(0, 11, 33); // return 2. The value 33 occurs 2 times in the whole array.

Constraints:

* `1 <= arr.length <= 105` * `1 <= arr[i], value <= 104` * `0 <= left <= right < arr.length` * At most `105` calls will be made to `query`

Code Snippets

C++:

```cpp
class RangeFreqQuery {
public:
    RangeFreqQuery(vector<int>& arr) {

    }

    int query(int left, int right, int value) {

    }
};

/**
 * Your RangeFreqQuery object will be instantiated and called as such:
 * RangeFreqQuery* obj = new RangeFreqQuery(arr);
 * int param_1 = obj->query(left,right,value);
 */
```

Java:

```java
class RangeFreqQuery {

    public RangeFreqQuery(int[] arr) {

    }

    public int query(int left, int right, int value) {

    }
}

/**
 * Your RangeFreqQuery object will be instantiated and called as such:
 * RangeFreqQuery obj = new RangeFreqQuery(arr);
 * int param_1 = obj.query(left,right,value);
```

```
    */
```

Python3:

```python
class RangeFreqQuery:

    def __init__(self, arr: List[int]):



    def query(self, left: int, right: int, value: int) -> int:




# Your RangeFreqQuery object will be instantiated and called as such:
# obj = RangeFreqQuery(arr)
# param_1 = obj.query(left,right,value)
```