D. Inaccurate Subsequence Search

time limit per test: 2 seconds
memory limit per test: 256 megabytes

Maxim has an array a of n integers and an array b of m integers ($m \le n$).

Maxim considers an array c of length m to be good if the elements of array c can be rearranged in such a way that at least k of them match the elements of array b.

For example, if $b = [1, 2, 3, 4]$ and $k = 3$, then the arrays $[4, 1, 2, 3]$ and $[2, 3, 4, 5]$ are good (they can be reordered as follows: $[1, 2, 3, 4]$ and $[5, 2, 3, 4]$), while the arrays $[3, 4, 5, 6]$ and $[3, 4, 3, 4]$ are not good.

Maxim wants to choose every subsegment of array a of length m as the elements of array c. Help Maxim count how many selected arrays will be good.

In other words, find the number of positions $1 \le l \le n - m + 1$ such that the elements $a_l, a_{l+1}, \ldots, a_{l+m-1}$ form a good array.

Input

The first line contains an integer t ($1 \le t \le 10^4$) — the number of test cases.

The first line of each test case contains three integers n, m, and k ($1 \le k \le m \le n \le 2 \cdot 10^5$) — the number of elements in arrays a and b, the required number of matching elements.

The second line of each test case contains n integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 10^6$) — the elements of array a. Elements of the array a are not necessarily unique.

The third line of each test case contains m integers $b_1, b_2, \ldots, b_m$ ($1 \le b_i \le 10^6$) — the elements of array b. Elements of the array b are not necessarily unique.

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$. Similarly, it is guaranteed that the sum of m over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, output the number of good subsegments of array a on a separate line.

Example

input Copy

```
5
7 4 2
4 1 2 3 4 5 6
1 2 3 4
7 4 3
4 1 2 3 4 5 6
1 2 3 4
7 4 4
4 1 2 3 4 5 6
1 2 3 4
11 5 3
9 9 2 2 10 9 7 6 3 6 3
6 9 7 8 10
4 1 1
4 1 5 6
6
```

output Copy

```
4
3
2
4
1
```

Note

In the first example, all subsegments are good.

In the second example, good subsegments start at positions 1, 2, and 3.

In the third example, good subsegments start at positions 1 and 2.

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Clone Contest

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Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ **Last submissions**

Submission	Time	Verdict
281911417	Sep/19/2024 22:50	Accepted
281909693	Sep/19/2024 22:27	Time limit exceeded on test 2

→ **Problem tags**

data structures | two pointers | *1400

No tag edit access

→ **Contest materials**

- Announcement
- Tutorial (en)