Stable market

Problem Code: **SMARKET**

All submissions for this problem are available.

All Submissions

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Read problems statements in Mandarin Chinese, Russian and Vietnamese as well.

Sometimes, the stability of a stock market is at least as important as rapid price changes.

Let a **stable block** be a maximal consecutive block of days with same stock prices.

Moreover, let a **stable block of order K** be a stable block of length **at least K**.

For example, if stock prices for 7 consecutive days are: 20, 10, 10, 7, 7, 7, 10, then there are 4 stable blocks there: [20], [10, 10], [7, 7, 7] and [10]. Moreover, there are:

- 0 stable blocks of order 4 or higher
- 1 stable block of order 3: [7, 7, 7]
- 2 stable block of order 2: [10, 10], [7, 7, 7]
- 4 stable block of order 1: [20], [10, 10], [7, 7, 7] and [10]

Given historical prices of a stock across **N** days, the goal is to answer **Q** customers' questions.

The **i**-th question contains three integers L_i, R_i and K_i. It asks for the number of stable blocks of order K_i, if only the stock prices of the days in the range L_i, R_i are considered.

Input

- In the first line there is a single integer **T**, denoting the number of test cases to handle. After that the description of **T** test cases follow.
- The first line of each test case contains two space-separated integers **N** and **Q**, denoting respectively, the number of days for which the stock prices are given, and the number of questions to answer.
- The second line contains **N** space-separated integers $A_1, A_2, ..., A_N$, where A_i denotes the price of the stock on the **i**-th day.
- **Q** lines follow. In the **i**-th of them there are three space-separated integers L_i, R_i and K_i denoting the i-th query.

Output

For each query in each test case, output the number of stable blocks in the test case, one per line.

Constraints

- $1 \le \mathbf{T} \le 5$
- $1 \le \mathbf{N, Q} \le 10^5$
- $1 \le \mathbf{A_i} \le 10^6$
- $1 \le \mathbf{L_i} \le \mathbf{R_i} \le \mathbf{N}$
- $1 \le \mathbf{K_i} \le \mathbf{R_i - L_i + 1}$

Subtasks

Subtask #1: (10 points)

- $1 \le \mathbf{N, Q} \le 3000$

Subtask #2: (90 points)

- original constraints

Example

Input:

```
2
8 5
20 10 10 10 7 7 7 10
2 6 2
3 6 2
3 6 3
3 8 3
3 8 1
3 2
27 27 27
1 3 1
2 2 1
```

Output:

```
2
2
0
1
3
1
1
```

Explanation

There are two test cases to handle

Test case #1:

There are **8** days for which prices are given and **5** queries to handle.

The first query asks for the number of stable blocks of order **2** in range **[2, 6]**, which corresponds to prices **10 10 10 7 7**. The answer is **2** because there are two such blocks: **10 10 10** and **7 7**.

The second query asks for the number of stable blocks of order **2** in range **[3, 6]**, which corresponds to prices **10 10 7 7**. The answer is **2** because there are two such blocks: **10**

10 and **7 7**.

The third query asks for the number of stable blocks of order **3** in range **[3, 6]**, which corresponds to prices **10 10 7 7**. The answer is **0** because there is no stable block of order **3** there (maximum order of a stable block is **2**).

The fourth query asks for the number of stable blocks of order **3** in range **[3, 8]**, which corresponds to prices **10 10 7 7 7 10**. The answer is **1** because the only stable block of order **3** here is **7 7 7**.

The fifth query asks for the number of stable blocks of order **1** in range **[3, 8]**, which corresponds to prices **10 10 7 7 7 10**. The answer is **3** because there are **3** stable blocks of order **1** there: **10 10**, **7 7 7** and **10**.

Test case #2:

There are **3** days for which prices are given and **2** queries to handle.

The first query asks for the number of stable blocks of order **1** in range **[1, 3]**, which corresponds to prices **27 27 27**. The answer is **1** because the only such block there is **27 27 27**.

The second query asks for the number of stable blocks of order **1** in range **[2, 2]**, which corresponds to a single price **27**. The answer is **1** because the only such block there is **27**.

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Editorial:	https://discuss.codechef.com/problems/SMARKET
Tags:	april17, medium, pkacprzak, segment-tree
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Time Limit:	2 secs
Source Limit:	50000 Bytes
Languages:	C, CPP14, JAVA, PYTH, PYTH 3.5, PYPY, CS2, PAS fpc, PAS gpc, RUBY, PHP, GO, NODEJS, HASK, SCALA, D, PERL, FORT, WSPC, ADA, CAML, ICK, BF, ASM, CLPS, PRLG, ICON, SCM qobi, PIKE, ST, NICE, LUA, BASH, NEM, LISP sbcl, LISP clisp, SCM guile, JS, ERL, TCL, PERL6, TEXT, SCM chicken, CLOJ, FS

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