Problem G

Permutation CFG

Time Limit: 4 second(s)

Memory Limit: 2G

Consider a permutation of the integers 1 to n. Now, consider each number 1 through n to be a non-terminal in a *Context-Free Grammar* (CFG). Each number k expands a list of the integers from 1 to k in the order of the permutation. For example, if n=4 and the permutation is 1 4 3 2:

- $\begin{array}{ccc}
 1 & \Longrightarrow & 1 \\
 2 & \Longrightarrow & 1 & 2 \\
 3 & \Longrightarrow & 1 & 3 & 2
 \end{array}$
- $4 \implies 1432$

1 / 1102

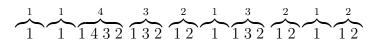
Now, consider a process of starting with n, and at each step, applying these rules to create a new list of integers. In the above example, at the first step:

$$\overbrace{1432}^4$$

At the second step:

$$\frac{1}{1}$$
 $\frac{4}{1432}$ $\frac{3}{132}$ $\frac{2}{12}$

At the third step:



Given a permutation, a number of steps, and a list of queries asking for the number of occurrences of a particular integer in a prefix of the list created by the process, answer all of the queries.

Input

The first line of input contains three integers, n ($2 \le n \le 10^5$), s ($1 \le s \le 5$) and q ($1 \le q \le 2 \cdot 10^5$), where n is the size of the permutation, s is the number of steps to apply the process, and q is the number of queries.

Each of the next n lines contains a single integer p ($1 \le p \le n$). This is the permutation, in order. All of the values of p will be distinct.

Each of the next q lines contains two integers k ($1 \le k \le n$) and a ($1 \le a \le 10^9$, a will not exceed the length of the final list). This is a query for the number of occurrences of the integer k in the first a elements of the list created by the process.

Output

Output q lines, each with a single integer, which are the answers to the queries in the order that they appear in the input.

Sample Input 1

Sample Output 1

4 3 6	3
1	6
4	0
3	1
2	2
1 6	8
2 20	
4 1	
3 5	
2 9	
1 16	