D. Jeff and Removing Periods

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Cosider a sequence, consisting of n integers: $a_1, a_2, ..., a_n$. Jeff can perform the following operation on sequence a:

- take three integers v, t, k $(1 \le v, t \le n; 0 \le k; v + tk \le n)$, such that $a_v = a_{v+t}, a_{v+t} = a_{v+2t}, ..., a_{v+t(k-1)} = a_{v+tk}$;
- remove elements $a_v, a_{v+t}, ..., a_{v+t \cdot k}$ from the sequence a, the remaining elements should be reindexed $a_1, a_2, ..., a_{n-k-1}$.
- permute in some order the remaining elements of sequence a.

A beauty of a sequence a is the minimum number of operations that is needed to delete all elements from sequence a.

Jeff's written down a sequence of m integers $b_1, b_2, ..., b_m$. Now he wants to ask q questions. Each question can be described with two integers l_i, r_i. The answer to the question is the beauty of sequence $b_{l_i}, b_{l_i+1}, ..., b_{r_i}$. You are given the sequence b and all questions. Help Jeff, answer all his questions.

Input

The first line contains integer m $(1 \le m \le 10^5)$. The next line contains m integers $b_1, b_2, ..., b_m$ $(1 \le b_i \le 10^5)$.

The third line contains integer q $(1 \le q \le 10^5)$ — the number of questions. The next q lines contain pairs of integers, i-th of them contains a pair of integers l_i, r_i $(1 \le l_i \le r_i \le m)$ — the description of i-th question.

Output

In q lines print the answers to Jeff's queries. Print the answers according to the order of questions in input.

Examples

input

```
5
2 2 1 1 2
5
1 5
1 1
2 2
1 3
2 3
```

output

```
2
1
1
2
2
```

input

```
10
2 1 3 3 3 3 1 3 1 1
10
4 8
2 10
1 10
4 4
1 3
2 4
6 7
```

```
1 9
2 5
1 1
```

output

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