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## Chef and Problems

Problem code: QCHEF

ALL SUBMISSIONS

MY SUBMISSIONS

SUBMIT



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Chef was invited to the party of  $N$  people numbered from  $1$  to  $N$ . Chef knows the growth of all the people, i.e. he knows the growth of the  $i^{\text{th}}$  person is denoted by an integer  $A_i$  not exceeding  $M$ .

Chef decided to have some fun. At first, he forms  $K$  groups of people. The  $i^{\text{th}}$  group consists of all the people numbered from  $L_i$  to  $R_i$ . Groups may overlap too.

For each group, Chef wants to know the following information: the maximum difference between the numberings of two people having same growth. Formally, Chef wants to know the following:

$$\max\{|x - y| : L_i \leq x, y \leq R_i \text{ and } A_x = A_y\}$$

Please help Chef to have fun.

### Input

There is only one test case in one test file.

The first line of input contains three space-separated integers  $N$ ,  $M$  and  $K$ , denoting the number of people, the maximum growth and number of groups respectively. The second line contains  $N$  space-separated integers  $A_1, A_2, \dots, A_N$  denoting the growth of people. Then the  $i^{\text{th}}$  line of the next  $K$  lines contains two space-separated integers  $L_i, R_i$ , denoting the  $i^{\text{th}}$  group.

### Output

For each group, output the integer denoting the maximum difference between numbering of two people having same growth in a single line.

### Constraints and Subtasks

- $1 \leq A_i \leq M$
- $1 \leq L_i \leq R_i \leq N$

#### Subtask 1: 20 points

- $1 \leq N, M, K \leq 1000 = 10^3$

#### Subtask 2: 80 points

- $1 \leq N, M, K \leq 100000 = 10^5$

### Example

Input:

```
7 7 5
4 5 6 6 5 7 4
6 6
5 6
3 5
3 7
1 7
```

Output:

```
0
0
1
1
6
```

### Explanation

**Group 1.** There is only one person in the group. Thus the maximum difference of numbers should be 0.

**Group 2.** There are two persons in the group. Their growth are  $A_5 = 5$  and  $A_6 = 7$ . Thus there is no pair of persons who have the same growth. Thus the answer for this group will also be 0.

**Group 3.** There are three persons in the group. Their growth are  $A_3 = 6$ ,  $A_4 = 6$  and  $A_5 = 5$ . Here person 3 and person 4 has the same growth. Thus the answer is  $|4 - 3| = 1$ .

**Group 4.** There are more persons than the group 3. But they has different growth, other than person 3 and person 4. Thus the answer is also  $|4 - 3| = 1$ .

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**Group 5.** This group contains all the people, and person 1 and person 7 has the same growth  $A_1 = A_7 =$

**4.** So the answer is  $|7 - 1| = 6$ .

Author: gomelfk

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Time Limit: 1 sec

Source Limit: 50000 Bytes

Languages: ADA, ASM, BASH, BF, C, C99 strict, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 4.9.2, CPP14, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAVA, JS, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYTH, PYTH 3.1.2, RUBY, SCALA, SCM guile, SCM qobi, ST, TCL, TEXT, WSPC

**SUBMIT**

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