New Year's '16 P7 - Old Christmas Lights

Time limit: 1.0s **Memory limit:** 256M

After several holiday seasons, **cheesecake**'s old Christmas lights aren't looking too good. Some of the bulbs still glow normally, but others are almost completely out. **cheesecake** wants to reuse them again next year, but doesn't want his decorations to look too shabby either.

cheesecake's string of Christmas lights consists of N individual bulbs. The i^{th} bulb has a brightness of A_i. **cheesecake** defines the *variance* of a contiguous string of bulbs to be the difference in brightness between the brightest and the dimmest bulb in that string. **cheesecake** considers a string of bulbs to be *consistent* if its variance is no greater than K.

cheesecake wants to keep a *consistent* string of lights for next year, but he also wants the lights to be pretty. As both a poor judge of aesthetics and an indecisive person, he cannot choose the prettiest segment of lights. As such, he has Q queries, each of the following form:

> If **cheesecake** considers the string of lights from l to r $(1 \leq l \leq r \leq N)$ to be pretty, which contiguous segment of lights should he keep from $[l : r]$ such that the segment is *consistent* and has the maximum length possible?

Help **cheesecake** keep his decorations beautiful for another year!

Constraints

Subtask 1 [20%]

$1 \leq N \leq 1000$

$0 \leq K, A_i \leq 10^5$

$1 \leq Q \leq 1000$

Subtask 2 [80%]

$1 \leq N \leq 10^5$

$0 \leq K, A_i \leq 10^9$

$1 \leq Q \leq 10^5$

Input Specification

The first line of input will contain N and K.

The second line will contain N space-separated integers, $A_1, A_2, \ldots, A_N$, the brightness of the bulbs.

The third line will contain Q.

The next Q lines will each contain a query in the form `l r`.

Output Specification

Output the answer to each query on a separate line. Each answer should be of the form `a b` $(l \leq a \leq b \leq r)$, where $[a : b]$ is the maximum length consistent subarray of $[l : r]$. If there are multiple answers of the same length, output the one with the smallest values of a and b.

Sample Input

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

Sample Output

```
2 4
4 6
1 2
```

Explanation for Sample Output

Note that in the first query, both `2 4` and `4 6` have the same length, but we output the smallest possible answers. Similarly, in the third query, `2 3` is the same length but not outputted.