A Simple Game

Time limit: 1.0s
Java 8: 1.6s
PyPy 2: 1.6s
PyPy 3: 1.6s
V8 JavaScript: 1.6s

Memory limit: 256M

James and Edward are playing a game! They lay out N cards in a straight line, and choose a **breaking** point. James chooses a card on the left side of the breaking point, and Edward chooses a card on the right side of the breaking point. Then they compare their card values to see whose card value is greater.

However, since Edward is just too good due to his massive brain, James has decided that Jessica will choose the **breaking** point, and they will see who is faster at choosing the maximum element on their respective side. Also, just for insurance, he has asked you to make a program that will tell him which card he and Edward will choose, help James!

Note: Both Edward and James may not choose the **breaking** point as their chosen card. In addition, if there are ties, break them by choosing the card with index that is the f-most side, where f is equal to **left** for James and **right** for Edward.

Input Specification

First line, two integers N and Q, denoting the number of cards and the number of times Jessica chooses a **breaking** point respectively.

Second line, N space separated integers a_i, denoting the value of each card.

Next Q lines, one integer x, specifying the index of the **breaking** point.

Output Specification

For each query, output 2 space separated integers, the index of the card that James and Edward will choose respectively, given that they both will try their best to win.

Constraints

For all subtasks:

$5 \leq N \leq 10^6$

$1 \leq Q \leq 10^6$

$2 \leq x \leq N-1$

$-10^9 \leq a_i \leq 10^9$

Subtask 1 [30%]

$5 \leq N \leq 10^3$

$1 \leq Q \leq 10^3$

Subtask 2 [70%]

No additional constraints.

Sample Input 1

```
5 2
1 2 3 4 -5
3
4
```

Sample Output 1

```
2 4
3 5
```

Sample Explanation 1

For the first query, Jessica chooses index 3 as the breaking point, meaning the maximum element on the left side of the breaking point is 2 with index 2, and the right side is 4 with index 4.

For the second query, Jessica chooses index 4 as the breaking point, meaning the maximum element on the left side of the breaking point is 3 with index 3, and the right side is -5 with index 5.

Sample Input 2

```
5 2
2 2 2 6 6
3
4
```

Sample Output 2

```
1 5
1 5
```

Sample Explanation 2

For the first query, a_1 and a_2 both have the maximum value, however, for James, a_1 is closer to the **left** side of the array. Similarly, a_4 and a_5 both have the maximum value, but for Edward, a_5 is closer to the **right** side of the array.

The second query is a similar case.