

Contest Duration: 2025-11-08(Sat) 23:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251108T2100&p1=248>) - 2025-11-09(Sun) 00:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251108T2240&p1=248>) (local time) (100 minutes)

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G - One Time Swap 2

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 575 points

Problem Statement

You are given an integer sequence $A = (A_1, A_2, \dots, A_N)$ of length N .

For a pair of integers (l, r) ($1 \leq l < r \leq N$), let $f(l, r)$ be the integer sequence obtained by swapping the l -th element and the r -th element of A .

Generate a sequence of integer sequences $B = (B_1, B_2, \dots, B_{\frac{N(N-1)}{2}})$ of length $\frac{N(N-1)}{2}$ by the following procedure:

- Prepare an empty sequence $B = ()$.
- For each pair of integers (l, r) ($1 \leq l < r \leq N$), add $f(l, r)$ to B .
- Sort B in lexicographical order of sequences.

You are given Q queries; process them in order. The i -th query is as follows:

- Given an integer k , find one pair of integers (l, r) ($1 \leq l < r \leq N$) such that $B_k = f(l, r)$ and output it.

► What is lexicographical order of sequences?

Constraints

- $2 \leq N \leq 2 \times 10^5$
- $1 \leq Q \leq 2 \times 10^5$

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- $1 \leq A_i \leq N$
- $1 \leq k \leq \frac{N(N-1)}{2}$
- All input values are integers.

Input

The input is given from Standard Input in the following format:

```
N Q
A1 A2 ... AN
query1
query2
⋮
queryQ
```

Each query is given in the following format:

```
k
```

Output

Output Q lines. The i -th line should contain the answer to the i -th query in the following format:

```
l r
```

If there are multiple solutions, any of them will be considered correct.

Sample Input 1

Copy

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

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Sample Output 1

Copy

```
2 3
2 4
1 2
```

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$f(1, 2) = (2, 1, 1, 2), f(1, 3) = (1, 2, 1, 2), f(1, 4) = (2, 2, 1, 1), f(2, 3) = (1, 1, 2, 2), f(2, 4) = (1, 2, 1, 2), f(3, 4) = (1, 2, 2, 1).$

The sequence B obtained by sorting these six sequences in lexicographical order is $B = ((1, 1, 2, 2), (1, 2, 1, 2), (1, 2, 1, 2), (1, 2, 2, 1), (2, 1, 1, 2), (2, 2, 1, 1)).$

- For the 1-st query, the only (l, r) such that $B_1 = (1, 1, 2, 2) = f(l, r)$ is $(l, r) = (2, 3).$
- For the 2-nd query, (l, r) such that $B_3 = (1, 2, 1, 2) = f(l, r)$ are $(l, r) = (1, 3), (2, 4).$ In this case, either one will be considered correct.
- For the 3-rd query, the only (l, r) such that $B_5 = (2, 1, 1, 2) = f(l, r)$ is $(l, r) = (1, 2).$

Sample Input 2

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```
10 10
1 1 2 7 6 3 5 7 3 3
21
36
9
17
13
24
7
45
33
1
```

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Sample Output 2

[Copy](#)

```
6 8
2 4
5 7
9 10
8 9
3 9
5 9
1 8
2 10
4 10
```

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