

Permutation

You will be given a permutation of first N natural numbers. Then you will be asked to print the smallest index of the array which contains the number between a given range (inclusive). Refer Input-Output for more details.

Input

First line contains two integers N and Q separated by a space.

Second line contains N integers separated by a space. (From 1 to N in any order)

Now Q lines follow: Each line contains two integers A and B separated by space.

Output

You must output exactly Q lines each containing the answer.

Constraint:

$N \leq 100000, Q \leq 100000, A \leq B \leq 100000$.

Example

Input:

```
2 2
2 1
1 2
1 1
```

Output:

```
1
2
```

[Click here to see my set of problems at Spoj.](#)