# Spicy Restaurant

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|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 1 second |
| Memory limit: | 256 megabytes |

There are $n$ hotpot restaurants numbered from 1 to $n$ in Chengdu and the $i$-th restaurant serves hotpots of a certain spicy value $w_i$. A higher spicy value indicates a hotter taste, while a lower spicy value is more gentle (still need to be very careful, though).

We can consider these $n$ restaurants as nodes on an undirected graph with $m$ edges. Now we have $q$ tourists who want to give the hotpots a try. Given the current positions of the tourists and the maximum spicy value they can bear, your task is to calculate the shortest distance between a tourist and the closest restaurant he can accept.

In this problem we define the distance of a path as the number of edges in the path.

## Input

There is only one test case in each test file.

The first line contains three integers $n$, $m$ and $q$ ($1 \leq n, m \leq 10^5, 1 \leq q \leq 5 \times 10^5$) indicating the number of restaurants, the number of edges and the number of tourists.

The second line contains $n$ integers $w_1, w_2, \cdots, w_n$ ($1 \leq w_i \leq 100$) where $w_i$ indicates the spicy value of the $i$-th restaurant.

For the following $m$ lines, the $i$-th line contains two integers $u_i$ and $v_i$ ($1 \leq u_i, v_i \leq n$, $u_i \neq v_i$) indicating an edge connecting restaurant $u_i$ and $v_i$.

For the following $q$ lines, the $i$-th line contains two integers $p_i$ and $a_i$ ($1 \leq p_i \leq n$, $1 \leq a_i \leq 100$) indicating that the $i$-th tourist is currently at restaurant $p_i$ and that the maximum spicy value he can accept is $a_i$.

## Output

Output $q$ lines where the $i$-th line contains one integer indicating the shortest distance between the $i$-th tourist and the closest restaurant he can accept. If there is no such restaurant, output '-1' instead.

## Example

| standard input | standard output |
|---|---|
| 4 4 5<br>5 4 2 3<br>1 2<br>2 3<br>3 4<br>4 1<br>1 1<br>1 2<br>1 3<br>1 4<br>1 5 | -1<br>2<br>1<br>1<br>0 |