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Problem Submissions Leaderboard Editorial

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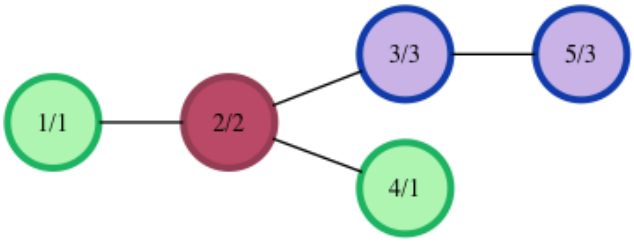
In this challenge, there is a connected undirected graph where each of the nodes is a color. Given a color, find the shortest path connecting any two nodes of that color. Each edge has a weight of 1. If there is not a pair or if the color is not found, print -1.

For example, given $graph\_nodes = 5$, and 4 edges $g\_from = [1, 2, 2, 3]$ and $g\_to = [2, 3, 4, 5]$ and colors for each node are $arr = [1, 2, 3, 1, 3]$ we can draw the following graph:



Each of the nodes is labeled [node]/[color] and is colored appropriately. If we want the shortest path between color 3, blue, we see there is a direct path between nodes 3 and 5. For green, color 1, we see the path length 2 from $1 \rightarrow 2 \rightarrow 4$. There is no pair for node 4 having color 2, red.

Function Description

Complete the findShortest function in the editor below. It should return an integer representing the length of the shortest path between two nodes of the same color, or -1 if it is not possible.

findShortest has the following parameter(s):

- g_nodes: an integer, the number of nodes
- g_from: an array of integers, the start nodes for each edge
- g_to: an array of integers, the end nodes for each edge
- ids: an array of integers, the color id per node
- val: an integer, the id of the color to match

Input Format

The first line contains two space-separated integers n and m, the number of nodes and edges in the graph.
Each of the next m lines contains two space-separated integers $g\_from[i]$ and $g\_to[i]$, the nodes connected by an edge.
The next line contains n space-seperated integers, $ids[i]$, representing the color id of each node from 1 to n.
The last line contains the id of the color to analyze.

Note: The nodes are indexed from 1 to n.

Constraints

$1 \leq n \leq 10^6$
$1 \leq m \leq 10^6$
$1 \leq ids[i] \leq 10^8$

Output Format

Print the single integer representing the smallest path length or -1.

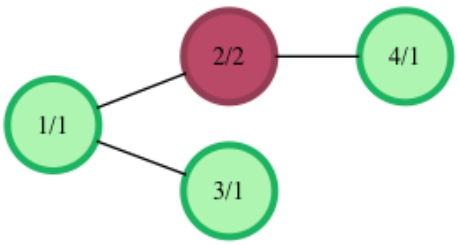
Sample Input 0

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

Sample Output 0

```
1
```

Explanation 0



In the above image the distance between the closest nodes having color label 1 is 1.

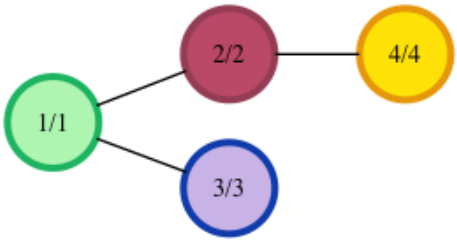
Sample Input 1

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

Sample Output 1

```
-1
```

Explanation 1



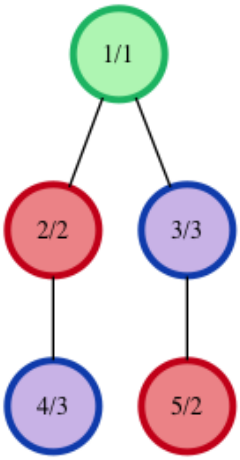
Sample Input 2

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

Sample Output 2

```
3
```

Explanation 2



Java 8

```
1  import java.io.BufferedReader;
2  import java.io.IOException;
3  import java.io.InputStreamReader;
4  import java.util.HashSet;
5  import java.util.LinkedList;
6  import java.util.List;
7  import java.util.Set;
8  import java.util.StringTokenizer;
9
10 public class Solution {
11
```