Jumps in pairs   S97190_en

Given an undirected graph and two vertices s and t, compute the minimum number of jumps needed to go from s to t. Here, we say that a jump between two vertices x and z is possible if there is a vertex y adjacent to both x and z.

Input

Input consists of several graphs. Every case begins with n, m, s and t, followed by m pairs $x\ y$, with $x \neq y$, indicating an edge between x and y. Suppose $2 \leq n \leq 10^5$, $0 \leq m \leq 5n$, $s \neq t$, that the vertices are numbered between 0 and $n - 1$, and that there are no repeated edges.

Output

For each graph, print the minimum number of jumps to go from s to t. If it is impossible, print "NO".

Observation

Even if a green light is obtained, only $\Theta(n + m)$ solutions will receive the maximum score.

Sample input 1

```
3 2 1 2
1 0   2 1

4 4 3 2
0 1   1 2   2 0   3 0

2 1 0 1
0 1

5 6 0 1
0 1   1 2   1 3   1 4   2 4   3 4
```

Sample output 1

```
NO
1
NO
2
```

Problem information

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Generation: 2026-01-25T12:49:43.345Z