WOSS Dual Olympiad 2023 Team Round P3: Choosing Edges

Time limit: 2.0s **Memory limit:** 1G

You have an unweighted directed graph with N nodes and M edges. The ith edge goes from node u_i to v_i. You also have K other directed edges which are not currently in the graph. The ith edge in this set has a color c_i and goes from node u_i to v_i. You may add either 1 or 2 edges from this set onto the graph. If you add 2 edges, they must have **different colors**. Determine the minimum distance from node 1 to node N after adding the optimal edges, or output `-1` if node N is still unreachable.

Constraints

$1 \leq N, M \leq 5 \times 10^3$

$1 \leq K \leq 10^6$

$1 \leq u_i, v_i \leq N$

$1 \leq c_i \leq 10^9$

Input Specification

The first line of input contains 3 space-separated integers N, M, and K.

The next M lines each contain 2 space-separated integers, u_i and v_i.

The next K lines each contain 3 space-separated integers, u_i, v_i, and c_i.

Output Specification

Output a single integer, the minimum distance from node 1 to node N after adding the optimal 2 edges.

If it is impossible to reach node N from node 1, output `-1`.

Sample Input

```
7 7 5
1 2
2 3
1 4
4 5
3 5
6 5
7 6
1 5 1
3 7 3
3 4 3
1 3 2
5 7 1
```

Sample Output

```
2
```

Sample Input 2

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

Sample Output 2

```
4
```

Sample Input 3

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

Sample Output 3

```
3
```