DMOPC '18 Contest 2 P3 - Thanksgiving Feast

Mimi is attending a Thanksgiving feast! She lives in a town with N buildings numbered from 1 to N and M unweighted bidirectional roads connecting them. The i^{th} road connects buildings a_i and b_i. Mimi is a good guest, so she wants to bring a gift for the host. However, Mimi is also a procrastinator! The Thanksgiving feast is soon and she hasn't bought a gift yet. There are K buildings $s_1, s_2, ..., s_K$ which sell gifts. Mimi is currently at building A and the feast is at building B. She needs to visit at least one of the K buildings and go to the feast. Help her find the length of the shortest way to do so!

It is guaranteed that there exists a way. **Mimi is allowed to pass through B before buying a gift.**

Constraints

$1 \leq A, B, a_i, b_i, s_j \leq N$
$1 \leq K \leq N$
$1 \leq M \leq \binom{N}{2}$

Subtask 1 [30%]

$1 \leq K \leq 1\ 000$
$1 \leq N \leq 1\ 000$
$1 \leq M \leq 2\ 000$

Subtask 2 [30%]

$1 \leq K \leq 10$
$1 \leq N \leq 100\ 000$
$1 \leq M \leq 200\ 000$

Subtask 3 [40%]

$1 \leq K \leq 100\ 000$
$1 \leq N \leq 100\ 000$
$1 \leq M \leq 200\ 000$

Input Specification

The first line of input will contain a five space-separated integers N, M, K, A, B.
The next line will contain K space-separated integers $s_1, s_2, ..., s_K$ representing the buildings which sell gifts.
The next M lines each contain two space-separated integers, a_i and b_i.

Output Specification

Output a single integer, the shortest distance.

Sample Input 1

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

Sample Output 1

```
3
```

Explanation for Sample 1

Mimi starts at building 1. She passes by $B = 2$, to head to 3. She then returns to 2, giving a total length of 3.

Sample Input 2

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

Sample Output 2

```
4
```