

Part B

Challenging question for your own interest. You do not need to submit your answers for this part.

Task D [0%]

You cannot escape in time and is trapped at sector s of the spacecraft. All the spacecraft sectors and corridors are being locked down. You tried to hack into *Mother* again to unlock the corridors. However, the security level is too high. You can only regain access into a subset of sectors and corridors. The sectors are connected one by one and forms a sequence.

Take the sequence $[2, 4, 5, 6, 8]$ as an example. The sectors are connected in the way $2 \leftrightarrow 4 \leftrightarrow 5 \leftrightarrow 6 \leftrightarrow 8$. One can travel from sector 2 to sector 8 by travelling through sectors 4, 5, 6 and 8 in order, vice versa.

In total, there are p kinds of sequences available. You may assume that each sequence is acyclic and unique. You can conduct security hacks at any sectors of the spaceship. However, at each hacking you can only make one sequence of sectors become accessible.

Suppose the spacecraft exit is located at sector d . To escape from the spacecraft in time, you wish to calculate the minimum number of hacks needed such that you can travel from the current sector (i.e. sector s) to sector d .

Complete the file **UniversityNumber-D.cpp** to calculate the answer.

Input Format:

- The first line has two integers n and p . n represents the number of spacecraft sectors, and p represents the number of sequences available.
- For every two lines in the next $2p$ lines:
 - The first line contains an integer, which represents the number of sectors in the current sequence.
 - The second line contains 1 to n integers, which represents the connection order of the sectors in the current sequence.
- The last line contains two integers s and d . s denotes the sector that the characters are now at, and d denotes the destination sector.

For all the input data, $1 \leq n, p \leq 100$.

You can also assume that the sector ids must start from 0 to $n - 1$.

Output Format:

Output a single integer h , the minimum number of hacks needed for the characters to travel from sector s to sector d . If the task is infeasible, output -1 as the answer.

Sample Test Cases:

Sample Input	Sample Output	Explanation
8 4 3 1 2 3 3 2 3 6 3 3 4 7 2 3 5 2 7	2	<p>You are at sector 2 and wish to travel to sector 7. To achieve the minimum number of hacks, choose the [2,3,6] sequence to go to sector 3. Then, choose the [3,4,7] sequence to go to sector 7.</p> <p>The total number of hacks needed is 2.</p>
19 5 2 6 11 3 3 4 14 1 5 2 14 18 3 8 11 12 14 11	-1	<p>You are at sector 14 and wish to travel to sector 11. However, it is an impossible task.</p> <p>Therefore, the program should output -1.</p>