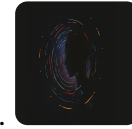


CS 3233

Competitive Programming

Contests



Benvenuto, T17_A0244126M.

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Problem B1

Recombination (Weaker)

Time limit: 3s

Memory limit: 512 MB

This task is now due. Steven will redact the problem statement after final assessment on 27 April 2023 to delay the AI awakening.

Okabe the mad scientist has recently found a bunch of ancient virus DNA.

Each DNA can be represented as a permutation. All viruses have the same permutation length.

A permutation of length N is an array consisting of N distinct integers from 1 to N in arbitrary order. For example:

- $[2, 3, 1, 5, 4]$ is a permutation of length $N = 5$,
- $[1, 2, 2]$ is not a permutation (2 appears twice in the array), and
- $[1, 3, 4]$ is also not a permutation ($N = 3$ but there is 4 in the array).

Among all the ancient viruses in Okabe's collection, there is one favorite and he wishes to use his DNA recombination oven to change all the other virus DNA to be exactly the same as his favorite one.

In 1 minute, the DNA recombination oven is able to do the following operation:

- Take a number x in the virus DNA, remove x , and finally, you can insert x back in any position.

As an example, $[1, 2, 3, 4]$ can be changed to $[4, 1, 2, 3]$ in 1 minute by using the tool to remove 4 and insert 4 back in the front.

Okabe has limited time and wishes to know the minimum number of minutes he needs to spend to change every virus into his favorite one. In Okabe's collection, there are $1 + M$ viruses. Each of them is a permutation of length N .

CS3230
PA3 (17-
31 Mar
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Contest
over!

Problems

A1 ✓

A2

B1 ✓

B2 ✓

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Can you help to compute the minimum number of minutes for Okabe?

Input format

The first line of input consists of TC , the number of test cases to solve.

For each test case, the first line consists of N, M , the length of each virus DNA and the number of viruses in Okabe's collection (except his favorite one).

The next line consists of N integers guaranteed to be a permutation of length N , denoting Okabe's favorite virus DNA.

The next M lines each consist of N integers guaranteed to be a permutation of length N , each line denoting a virus in Okabe's collection.

Output format

A single integer for each test case indicating the minimum number of minutes Okabe need to spend.

Constraints

- $1 \leq TC \leq 3$;
- $1 \leq N, M \leq 200$;
- C++, Java, and PyPy 3 can be used to solve this problem B1.

Sample Input

Copy Input

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

Sample Output

Copy Output

```
0
1
2
```

Notes

Audrey Felicio Anwar

CS3230 TA Sem 2 AY2022-23.

Last used: CS3230, 17-31 Mar 2023.