USA Computing Olympiad

OVERVIEW

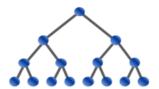
TRAINING

CONTESTS

HISTORY

STAFF

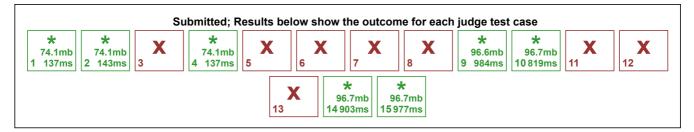
RESOURCES



USACO 2023 DECEMBER CONTEST, SILVER PROBLEM 2. CYCLE CORRESPONDENCE

Return to Problem List

Time Remaining: 3 hrs, 53 min, 20 sec



English (en)

Farmer John has N barns ($3 \le N \le 5 \cdot 10^5$), of which K ($3 \le K \le N$) distinct pairs of barns are connected.

First, Annabelle assigns each barn a distinct integer label in the range [1, N], and observes that the barns with labels a_1, \ldots, a_K are connected in a cycle, in that order. That is, barns a_i and a_{i+1} are connected for all $1 \le i < K$, and barns a_K and a_1 are also connected. All a_i are distinct.

Next, Bessie also assigns each barn a distinct integer label in the range [1, N] and observes that the barns with labels b_1, \ldots, b_K are connected in a cycle, in that order. All b_i are distinct.

Some (possibly none or all) barns are assigned the same label by Annabelle and Bessie. Compute the maximum possible number of barns that are assigned the same label by Annabelle and Bessie.

INPUT FORMAT (pipe stdin):

The first line contains N and K.

The next line contains a_1, \ldots, a_K .

The next line contains b_1, \ldots, b_K .

OUTPUT FORMAT (pipe stdout):

The maximum number of fixed points.

SAMPLE INPUT:

6 3

1 2 3

2 3 1

SAMPLE OUTPUT:

6

Annabelle and Bessie could have assigned the same label to every barn.

SAMPLE INPUT:

6 3

1 2 3

4 5 6

SAMPLE OUTPUT:

0

Annabelle and Bessie could not have assigned the same label to any barn.

SAMPLE INPUT:

6 4

1 2 3 4

4 3 2 5

SAMPLE OUTPUT:

Annabelle and Bessie could have assigned labels 2, 3, 4, 6 to the same barns.

SCORING:

- Inputs 4-5: $N \le 8$ Inputs 6-8: $N \le 5000$ Inputs 9-15: No additional constraints

Problem credits: Benjamin Qi

Language: С 选择文件 未选择任何文件 Source File: Submit Solution

Previous Submissions:

<u>Sat, Dec 16, 2023 05:36:32 EST (Java)</u> <u>Sat, Dec 16, 2023 05:37:09 EST (Java)</u>