I: Divination

Time limit: 1 second



In Yinxu, the archaeological site of the late capital of the Shang Dynasty, there are N divination papers written in oracle bone script, numbered $1, 2, ..., N$. Some papers may cite other papers, but no paper can cite itself. Additionally, there are no circular citations, meaning it's not possible to see the following situation: A_1 cites A_2, A_2 cites A_3, ..., A_{K-1} cites A_K, A_K cites A_1 (where $2 \leqslant K \leqslant N$).

As per myth, a complete set of divination papers can predict the wars and peace of the next century, and it should have a complete citation chain, i.e., A_1 cites A_2, A_2 cites A_3, ..., A_{N-1} cites A_N, without any papers missing. Please determine whether these N divination papers constitute a complete set.

Input

The first line contains an integer N, represents the number of papers. Then N lines follow, the i^{th} of them represents the citations of the i^{th} paper: the first integer c_i represents the number of its citations, followed by c_i integers $p_{i,1}, p_{i,2}, ..., p_{i,c_i}$ that represent the papers that it cites.

Output

A single integer, 1 if they constitute a complete set of divination papers, or 0 otherwise.

Limits

- $2 \leqslant N \leqslant 100\,000$;
- $0 \leqslant c_i \leqslant N - 1$ for all $i \leqslant N$;
- $0 \leqslant c_1 + c_2 + ... + c_N \leqslant 500\,000$;
- $1 \leqslant p_{i,j} \leqslant N$ for all $i \leqslant N$ and $j \leqslant c_i$.
- $p_{i,j} \neq i$ for all $i \leqslant N$ and $j \leqslant c_i$.

Sample Input 1

```
4
0
2 1 4
2 2 4
1 1
```

Sample Output 1

```
1
```

Sample Explanation 1

In this sample, paper 3 cites paper 2, paper 2 cites paper 4, paper 4 cites paper 1. Thus, we find a complete citation chain, which makes them a complete set of divination papers.

Sample Input 2

```
4
0
1 1
2 2 4
1 1
```

Sample Output 2

```
0
```

Image credits: Oracle bone recording divinations by BabelStone, CC BY-SA 3.0, via Wikimedia Commons