Erdos Papers

Submit solution

All submissions
Best submissions

Points: 100 (partial)
Time limit: 1.0s
Memory limit: 256M

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Problem type

Allowed languages
C, C++

Erdos Number Tracker

Hungarian mathematician **Paul Erdős** was one of the most prolific collaborators in mathematical history. An **Erdős number** is defined as:

- Erdős himself has an Erdős number of **0**.
- Anyone who has co-authored a paper with Erdős has an Erdős number of **1**.
- Anyone who has written a paper with someone with Erdős number 1 (but not with Erdős himself) has an Erdős number of **2**, and so on.
- If a person has no connection to Erdős via co-authorships, their Erdős number is **infinity**.

In this problem, you'll calculate Erdős numbers based on author IDs and papers. A paper is represented as a list of IDs (authors), and connections are made if two authors appear on the same paper.

Input

Each test case contains:

- One line with two integers `P` and `N` – the number of papers and number of queries.
- Then `P` lines follow, each line contains the space-separated IDs of authors on a paper. The first digit of each line contains the number of authors in that paper.
- Then `N` lines follow, each containing a single integer ID – the author whose Erdős number is to be computed.

ID `0` is reserved for **Erdős**

- If the author is unreachable from Erdős, print `infinity`.
- If the author is Erdős himself (ID 0), print `infinity`.

Constraints

- `1 ≤ P ≤ 10^3`
- `1 ≤ N ≤ 10^3`
- Author IDs are integers: `0 ≤ ID ≤ 1000`
- Each paper has at least 1 author.
- Authors are only connected if they appear on the **same paper**.
- Last Batch (worth 30 points) is a tree with p+1 nodes , and each p lines in the input is of the form
- 2 x y (denoting edge between x and y)

Example

Input

Copy

```
2 3
2 3 2
6 5 2 1 4 0 3
4
5
0
```

Output

Copy

```
1
1
infinity
```

Input

Copy

```
2 1
2 2 5
6 4 3 2 5 1 0
2
```

Hello, **2024101067**.

1

Copy

Clarifications

Report an issue

No clarifications have been made at this time.