Path Finder

Write a program to check if a given path is existing in a graph.

Input

- You will receive an integer – **n** – number of nodes in a graph.
  - The graph nodes are numbered from 0 to **n** - 1.
- On the next **n** lines, you will receive a list of children for the nodes 0 … **n** - 1 (separated by a space).
- On the next line you will receive an integer – **p** – number of paths to check.
- On the next **p** lines, you will receive a path of nodes (separated by a space).

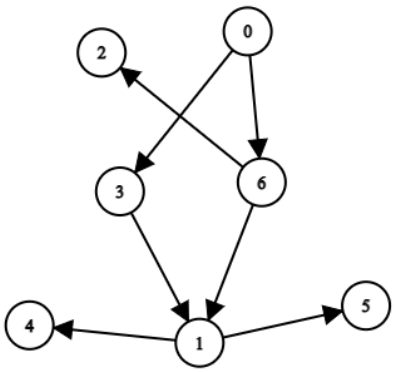
Output

- For each path print either **"yes"** – if the path exists, or **"no"** if the path does not exist.

Constraints

- Path will always contain at least 2 nodes.
- Nodes in the path will always be in the range [0… n – 1].

Examples

Input	Output	Comments
7 3 6 4 5 1 1 2 3 0 3 1 5 0 3 1 5 6 0 6 2	yes no yes	
5 3 4 2 1 1 3 0 3 2 1 0 4 1 2 0 4 1 3	no yes no