

Functions or Not?



Objective

In this problem, we touch upon a basic concept that is fundamental to Functional Programming: identifying a relation which represents a valid function.

Task

You are given a set of unique (x, y) ordered pairs constituting a relation. The x -values form the domain, and the y -values form the range to which they map. For each of these relations, identify whether they may possibly represent a valid *function* or not.

Note: You do not have to find the *actual* function, you just need to determine that the relation may be representative of some valid function.

Input Format

The first line contains an integer, T , denoting the number of test cases. The subsequent lines describe T test cases, and the input for each test case is as follows:

1. The first line contains an integer, N , the number of (x, y) pairs in the test case.
2. The N subsequent lines each contain two space-separated integers describing the respective x and y values for each ordered pair.

Constraints

- $1 \leq T \leq 5$
- $2 \leq N \leq 100$
- $0 \leq x, y \leq 500$
- x and y are both integers.

Output Format

On a new line for each test case, print **YES** if the set of ordered pairs represent a valid function, or **NO** if they do not.

Sample Input

```
2
3
1 1
2 2
3 3
4
1 2
2 4
3 6
4 8
```

Sample Output

```
YES
YES
```

Explanation

Test Case 0:

$N = 3$, Ordered Pairs: $(1, 1), (2, 2), (3, 3)$ The set of ordered pairs represents a relation, which could represent a function such as $f : N \rightarrow N, f(x) = x$. Thus, we print **YES** on a new line.

Test Case 1:

$N = 4$, Ordered Pairs: $(1, 2), (2, 4), (3, 6), (4, 8)$

The set of ordered pairs represents a relation, which could represent a function such as $f : N \rightarrow N, f(x) = 2x$. Thus, we print **YES** on a new line.