4 Parentheses Puzzle

4.1 Problem

On his last birthday Bob got a puzzle as a present. But it was not a normal puzzle, it was a parentheses puzzle. In such a puzzle every piece is a part of a bracket sequence and to complete the puzzle you need to create a valid bracket sequence of all parts.

The following rules (completely) define whether a sequence is a valid:

1. The empty string is valid.
2. If A is valid, then `(`A`)` is also valid.
3. If the strings A and B are valid, then AB is valid.

But Bob is not sure if he still has all parts of his puzzle. Can you help Bob and check if it is possible to solve the puzzle?

4.2 Input

The first line fo the input contains a single integer n ($1 \leq 10^5$) the number of pieces. The next n lines each describe a single piece with a string consisting of `(` and `)`. It is guaranteed that the resulting sequence is no longer than 10^5.

4.3 Output

Print `YES` if there is a solution or `NO` if not.

4.4 Sample Data

Input	Output
1 ()(())	YES
2 ()) ((	NO
6)))(((((((() (((())))) ())))	YES