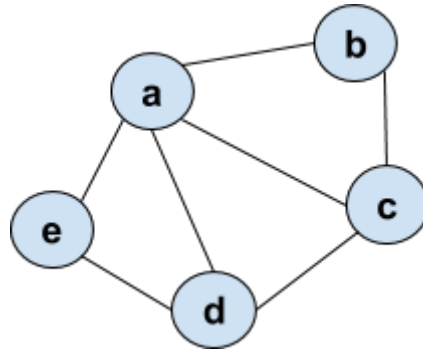


Practical Exam Warm-Up

Q1) - In your preferred programming language write a program to find all cycles in an undirected graph of length 3 (the cycle consists of at least three unique edges or more). Note that you are working with an undirected graph where an edge $(v, u) = (u, v)$. The input to your program is a 2-dimensional square matrix stored in a file that represents the undirected graph.

Example, the following graph contains the following cycles.



{ (a, b), (b, c), (c, a) }
{ (a, d), (d, e), (e, a) }
{ (a, c), (c, d), (d, a) }
{ (a, b), (b, c), (c, d), (d, a) }
{ (a, c), (c, d), (d, e), (e, a) }
{ (a, c), (c, d), (d, e), (e, a) }
{ (a, b), (b, c), (c, d), (d, e), (e, a) }

Input:

0,	1,	1,	1,	1
1,	0,	1,	0,	0
1,	1,	0,	1,	0
1,	0,	1,	0,	1
1,	0,	0,	1,	1

Output:

7 cycles

Q2) - Alex is a great fan of television. He wrote down all the TV programs he is interested in for today. His list contains n shows, i -th of them starts at moment li and ends at moment ri .

Alex owns two TVs. He can watch two different shows simultaneously with two TVs but he can only watch one show at any given moment on a single TV. If one show ends at the same moment some other show starts then you can't watch them on a single TV.

Alex wants to check out all n shows. Are two TVs enough to do so? Write a program to help Alex figure out the answer.

Input

The first line contains one integer *which indicate the* number of shows.

Each of the next n lines contains two integers starting and ending time of i -th show.

Output

If Alex is able to check out all the shows using only two TVs then print "YES" (without quotes). Otherwise, print "NO" (without quotes).

Examples

input

3

1, 2

2, 3

4, 5

output

YES

input

4

1, 2

2, 3

2, 3

1, 2

output

NO