Problem : Longest Ski subsequence

Given a sequence a1, a2, ... an, of positive integers, a subsequence b1, b2, ...bm of it is said to be a ski sequence if there is a number k<m so that b1 < b2 ...< bk, bk>bk+1...bm. Thus, bk is the maximum number, and must not be in either end (there must an increasing part up to k and a decreasing part after k). For example, in the sequence 1, 2, 10, 3, 7 , 4, two ski sequences are 1,10,3 and 1,2,7,4. The longest ski subsequence is 1,2,10,7,4

The Input consists of N sets of two positive integers each. From these sets, a derived sequence is formed using the following rule

Rule for forming derived sequence

If both the integers given are odd, the maximum of this is taken in the derived sequence. If one of them is odd and one of them is even, the even number is taken in the derived sequence. If both are even, the minimum of the two numbers will be taken in to the derived sequence.

The objective is to find the length of the longest Ski subsequence of the derived sequence.

Input

The first line of the input has a positive integer N which is the number of sets of integers in the input. Each of the next N lines consists of two (not necessarily distinct) comma separated positive integers.

Output

The output is the length of the longest Ski subsequence of the derived sequence. If no ski subsequence exists, the output should be the word Impossible.

Constraints

N<=50
Integers in sets<=10000

Example 1

Input:
5
1089,3234
6740,2803
9243,2638

4865,4355
5993,8946

Output:
3

Explanation:
The derived sequence is 3324, 6740, 2638, 4865, 8946. The longest ski subsequence is 3324, 6740, 2638, which has 3 elements. Hence the output is 3

Example 2

Input:
5
5333,4267
4813,443
1113,518
429,437
119,136

Output:
Impossible

Explanation:
The derived sequence is 5333, 4813, 518, 437, 136. As this is a purely descending sequence, we cannot have a ski sequence (as there is no increasing subsequence that is part of it.