

1319 - Monkey Tradition

In 'MonkeyLand', there is a traditional game called "Bamboo Climbing". The rules of the game are as follows:

- 1) There are N monkeys who play this game and there are N bamboos of equal heights. Let the height be L meters.
- 2) Each monkey stands in front of a bamboo and every monkey is assigned a different bamboo.
- 3) When the whistle is blown, the monkeys start climbing the bamboos and they are not allowed to jump to a different bamboo throughout the game.
- 4) Since they are monkeys, they usually climb by jumping. And in each jump, the i^{th} monkey can jump exactly p_i meters (p_i is a prime). After a while when a monkey finds that he cannot jump because one more jump may get him out of the bamboo, he reports the remaining length r_i that he is not able to cover.
- 5) And before the game, each monkey is assigned a distinct p_i .
- 6) The monkey, who has the lowest r_i , wins.

Now, the organizers have found all the information of the game last year, but unluckily they haven't found the height of the bamboo. To be more exact, they know N , all p_i and corresponding r_i , but not L . So, you came forward and found the task challenging and so, you want to find L , from the given information.

Input

Input starts with an integer T (≤ 10000), denoting the number of test cases.

Each case starts with a line containing an integer n ($1 \leq n \leq 12$). Each of the next n lines contains two integers p_i ($1 < p_i < 40$, p_i is a prime) and r_i ($0 < r_i < p_i$). All p_i will be distinct.

Output

For each case, print the case number and the minimum possible value of L that satisfies the above conditions. If there is no solution, print 'Impossible'.

Sample Input	Output for Sample Input
2 3 5 4 7 6 11 3 4 2 1 3 2 5 3 7 1	Case 1: 69 Case 2: 113