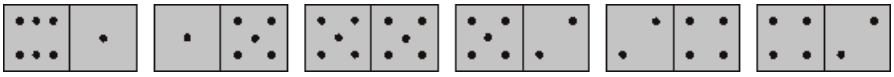
Problem E. Dominoes

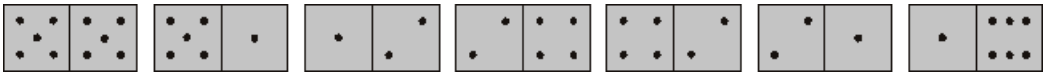
Mahdi is looking for a game to fill his free time with. After much effort, he could not invent a new game. So he decided to look at his old toy box. Fortunately, he finds a bag containing a set of domino pieces, each of which is marked with two digits from 1 to 6. So he decided to play with it. Mahdi knows he has to lay out dominoes in a row in this game.

Some sets can be completely laid out in a row matching one end of a piece to another that is identically numbered, while others cannot. For example, the set consisting of 5 pieces: $(1, 5), (1, 6), (5, 5)$ and $(2, 4)$ twice, cannot be laid out in a row. However, if we add $(2, 5)$ piece to the above set we could lay out the resulting set in the following row:



He needs to buy some extra dominoes to be able to put all his dominoes in a row. and he knows that the price of each domino is equal to the sum of two numbers on it. He will ask you to offer him pieces of dominoes to buy that he will pay the least.

In our example, instead of the piece $(2, 5)$ with a sum of 7, we could add two pieces $(1, 2)$ with a total sum of 6 to lay out the following row:



Your task is to write a program that for a given domino set will find the minimum amount of money that Mahdi has to pay, so he can put all the dominoes he has and bought in one row.

Input

The first line of the input file contains a single integer n representing the total number of pieces in the domino set. The following n lines describe pieces. Each piece is represented on a separate line in a form of two digits from 1 to 6 separated by a space. The digits of a piece can be written in any order.

$$2 \leq n \leq 100$$

Output

Print one integer - The minimum amount of money that Mahdi has to pay and 0 if he should not buy a domino.

Examples

test	answer
5 1 5 6 1 5 5 2 4 2 4	6