Problem K. Group Guests

Input file:	`standard input`
Output file:	`standard output`
Time limit:	4 seconds
Memory limit:	1024 megabytes

There are n guests at a party. Each of the n guests has 2 different hobbies. No two guests have the same set of hobbies. The party host would like to divide the guests into groups of size 2 or 3 so that every two guests in a group have a hobby in common. That is, each group belongs to one of the following cases:

- Type A: a group of two guests who have one hobby in common;
- Type B: a group of three guests, all of whom have a hobby in common;
- Type C: a group of three guests, all pairs of whom have a hobby in common, excluding the case of type B.

The party host would like to reduce the number α of guests who are not assigned to any group to the minimum possible. If multiple solutions have the minimum α, we need to find a solution that minimizes the number β of type-B groups used in the solution while retaining α minimized. Write a program to determine the two numbers.

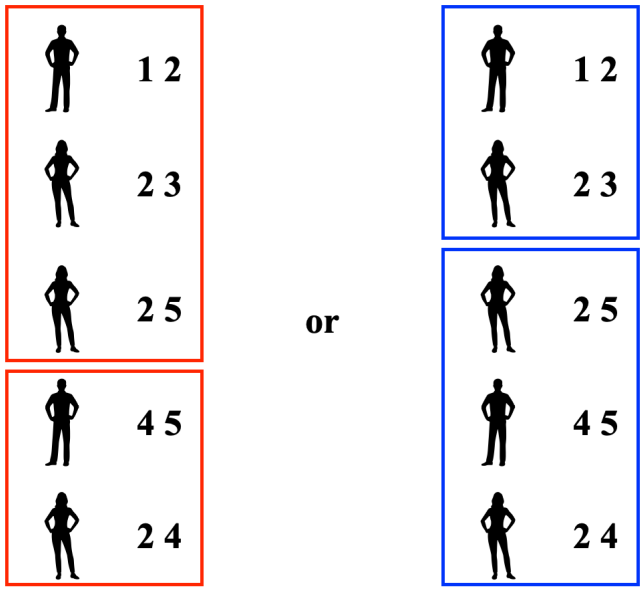


Figure 15: The above gives two different solutions to the third testcase. The solution on the right does not use any type-B group, so it is better than the one on the left.

Input

Each test case consists of $n+1$ lines. Two integers n and h are given in the first line. Then n lines follow. The $(i+1)$-th line consists of two integers x and y with $1 \le x, y \le h$, indicating that the i-th guest has hobbies x and y.

Constraints

- $2 \le n \le 10^6$.
- $3 \le h \le 2n$.

Output

Find a best solution, and output the number α of the unassigned guests and the number β of the used type-B groups in the solution. Note that our goal is to minimize α and then to minimize β while retaining α minimum possible.

Examples

standard input	standard output
2 4 1 2 3 4	2 0
2 3 1 2 3 1	0 0
5 5 1 2 2 3 2 4 5 2 5 4	0 0