Problem I
Starting a Scenic Railroad Service
Time Limit: 2 seconds

Jim, working for a railroad company, is responsible for planning a new tourist train service. He is sure that the train route along a scenic valley will arise a big boom, but not quite sure how big the boom will be.

A market survey was ordered and Jim has just received an estimated list of passengers' travel sections. Based on the list, he'd like to estimate the minimum number of train seats that meets the demand.

Providing as many seats as all of the passengers may cost unreasonably high. Assigning the same seat to more than one passenger without overlapping travel sections may lead to a great cost cutback.

Two different policies are considered on seat assignments. As the views from the train windows depend on the seat positions, it would be better if passengers can choose a seat. One possible policy (named 'policy-1') is to allow the passengers to choose an arbitrary seat among all the remaining seats when they make their reservations. As the order of reservations is unknown, all the possible orders must be considered on counting the required number of seats.

The other policy (named 'policy-2') does not allow the passengers to choose their seats; the seat assignments are decided by the railroad operator, not by the passengers, after all the reservations are completed. This policy may reduce the number of the required seats considerably.

Your task is to let Jim know how different these two policies are by providing him a program that computes the numbers of seats required under the two seat reservation policies.

Let us consider a case where there are four stations, S1, S2, S3, and S4, and four expected passengers p_1, p_2, p_3, and p_4 with the travel list below.

passenger	from	to
p_1	S1	S2
p_2	S2	S3
p_3	S1	S3
p_4	S3	S4

The travel sections of p_1 and p_2 do not overlap, that of p_3 overlaps those of p_1 and p_2, and that of p_4 does not overlap those of any others.

Let's check if two seats would suffice under the policy-1. If p_1 books a seat first, either of the two seats can be chosen. If p_2 books second, as the travel section does not overlap that of p_1, the same seat can be booked, but the other seat may look more attractive to p_2. If p_2 reserves a seat different from that of p_1, there will remain no available seats for p_3 between S1 and S3 (Figure I.1).

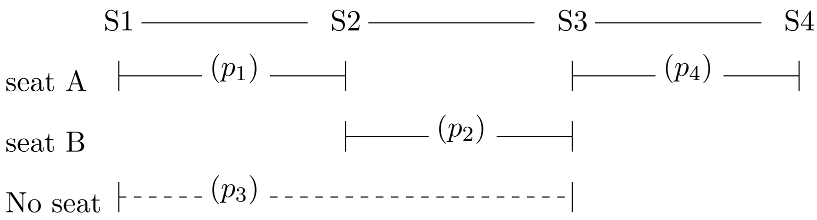

Figure I.1. With two seats

With three seats, p_3 can find a seat with any seat reservation combinations by p_1 and p_2. p_4 can also book a seat for there are no other passengers between S3 and S4 (Figure I.2).

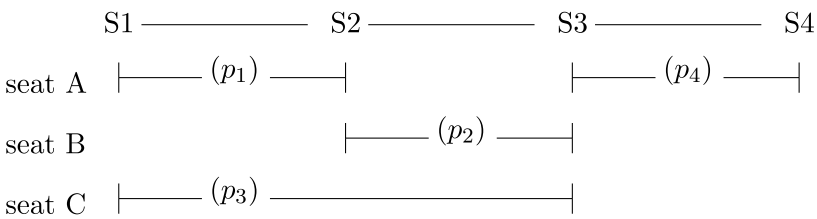

Figure I.2. With three seats

For this travel list, only three seats suffice considering all the possible reservation orders and seat preferences under the policy-1.

On the other hand, deciding the seat assignments after all the reservations are completed enables a tight assignment with only two seats under the policy-2 (Figure I.3).

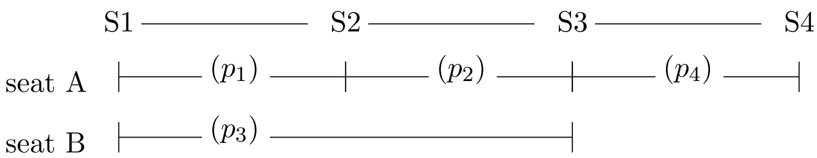

Figure I.3. Tight assignment to two seats

Input

The input consists of a single test case of the following format.

$$
\begin{array}{l}
n \\
a_1 \ b_1 \\
\vdots \\
a_n \ b_n
\end{array}
$$

Here, the first line has an integer n, the number of the passengers in the estimated list of passengers' travel sections ($1 \leq n \leq 200\,000$). The stations are numbered starting from 1 in their order along the route. Each of the following n lines describes the travel for each passenger by two integers, the boarding and the alighting station numbers, a_i and b_i, respectively ($1 \leq a_i < b_i \leq 100\,000$). Note that more than one passenger in the list may have the same boarding and alighting stations.

Output

Two integers s_1 and s_2 should be output in a line in this order, separated by a space. s_1 and s_2 are the numbers of seats required under the policy-1 and -2, respectively.

Sample Input 1	**Sample Output 1**
4 1 3 1 3 3 6 3 6	2 2

Sample Input 2	**Sample Output 2**
4 1 2 2 3 1 3 3 4	3 2

Sample Input 3	**Sample Output 3**
10 84 302 275 327 364 538 26 364 29 386 545 955 715 965 404 415 903 942 150 402	6 5