BOMB

There are 2*n* buildings in NUS, *n* buildings on one side of the road and *n* buildings on the other. X owns the buildings on one side of the road while Y owns the buildings on the other side of the road.

X labels his building from in non-decreasing order while Y labels his building randomly. However, if a label *k* has been used by X *m* times, the same label must also be used by Y *m* times. (due to the strict NUS policy)

X, being a math geek, dislikes Y's way of labeling his buildings and hence, seek out to bomb Y's buildings. He places n spies in each of his *n* buildings and gave each of them an infinite supply of gunpowder. He orders them to run to the building on the other side of the street which has the same label as the building the spy is placed in while leaking gunpowder along the way.

Since X wasted all of his money on gunpowder (except for a few cents). he wants to buy the minimum number of matches to ignite the trail of gunpowder to destroy Y's buildings. (Each match can only cause one spark) >:)

*Note that sparks following gunpowder trails which overlaps will spread to other trails as well. (Refer to sample input and output)

*Note that if 2 or more spies have the same labels, then they will go to buildings with the same labels such that the minimum number of sparks used is minimized. (Refer to sample input 4)

SUBTASKS

Subtask 1 (10 marks) :

All labels are distinct. Each label is guaranteed not to be more than 20. $0 \le n \le 1000$.

Subtask 2 (20 marks) :

All labels are distinct. Each label is guaranteed to be smaller than 2^{31}. $0 \le n \le 10000$.

Subtask 3 (30 marks) :

Each label is guaranteed to be smaller than 20. $0 \le n \le 10000$.

Subtask 4 (40 marks) :

Each label is guaranteed to be smaller than 2^{63}. $0 \le n \le 100000$.

INPUT

The first line of input contains an integer n, the number of buildings on a side of the street.

The second line contains n integers, k_i, where $0 < i < n$. Each k_i represent the label of the i^{th} building on Y's street. (or -1 if Y's buildings are already sorted)

OUTPUT

A single integer indicating the minimum number of matches X need.

SAMPLE INPUT 1:

5

1 2 3 4 5

SAMPLE OUTPUT 1:

5

SAMPLE 1 EXPLANATION:

Each spy leaves a separate trail from another. Hence, 5 sparks are required.

SAMPLE INPUT 2:

5

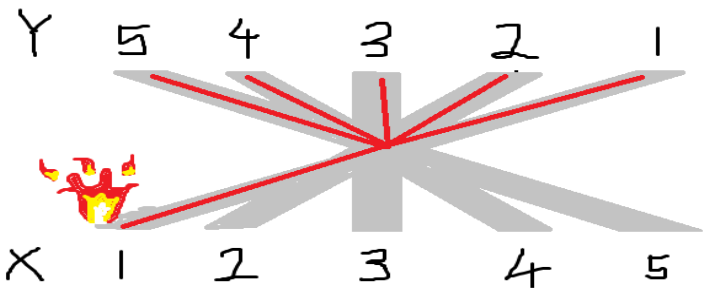
5 4 3 2 1

SAMPLE OUTPUT 2:

1

SAMPLE 2 EXPLANATION:

Using one spark is sufficient to destroy all of Y's building.



SAMPLE INPUT 3:

5

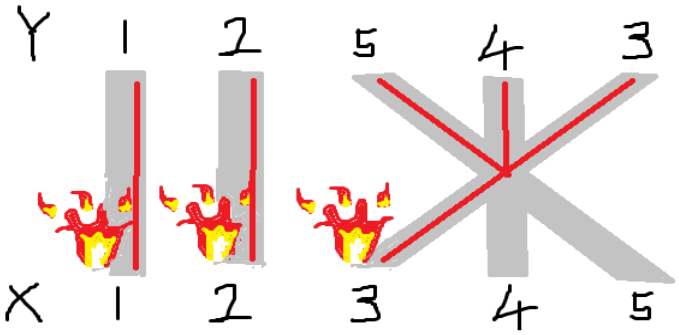
1 2 5 4 3

SAMPLE OUTPUT 3:

3

SAMPLE 3 EXPLANATION:

Using three sparks is sufficient to destroy all of Y's building.



SAMPLE INPUT 4:

5

1 3 2 3 4

SAMPLE OUTPUT 4:

3

SAMPLE 4 EXPLANATION:

The spies are labeled 1, 2, 3, 3, 4. The spy in the 4th building from the left can go to the 2nd building so X only need 3 sparks.