

Problem B

Promenade Dance

Time limit: 2 seconds

The NCPC organizing committee holds a promenade dance party for all contestants. Each contestant invites his/her own dance partner. When entering the Ballroom, each contestant picks up a roll of colored ribbon. The contestants then lined up in one single row in order of their contest ID, which are numbered from 1 to n .

The invited dance partners arrive in no particular order. Each person enters the Ballroom and picks up one end of the color ribbon from their invitee and stretch the ribbon as they lined up in a parallel row of dancing partners. When everyone has arrived, there is one row of n contestants and another row of n invited dance partners, with n crisscrossed ribbons that connect contestants and their dance partners. Figure 1(a) shows an example of the initial dance lineup with six contestants and six invited dance partners. In this figure, the invited dance partner of Contestant 1 arrives first, followed by invited dance partner of contestant 6, followed by invited partner of contestant 2, 3, 5 and 4, respectively.

The party host wants to select some pairs for the first dance. The host wants to cut-off the least number of ribbons, so that the remaining pairs with ribbons not crisscrossed are selected for the first dance. In the above example, 4 pairs are selected for the first dance by way of cutting off 2 ribbons (Fig. 1(b)). Note that four pairs is also the maximum that can be achieved in the above example. Given different arrival configurations, determine how many pairs are selected for the first dance.

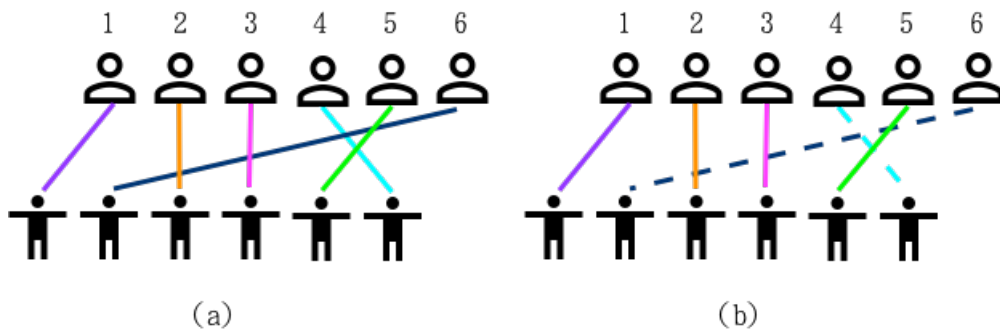


Figure 1: (a) Six contestants with dance partners. (b) Four pairs selected for the first dance.

Input File Format

The first line of input is an integer indicating the number of test cases to follow, which is at most 10. For each test case, the first line contains one integer, n , where $n \leq 20,000$, indicating the number of contestants. The second line contains n distinct integers in the range of 1 to n . The i th number is the Contest ID of the contestant that invited that i th person to the dance.

Output Format

For each test case print out the number of pairs that are selected for the first dance.

Sample Input

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2
6
1 6 2 3 5 4
5
1 2 3 4 5
```

Output for the Sample Input

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4
5
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