Problem 1.
There is a company named James Peterson & Co. The company has 'n' employees. The employees have skills, which is denoted with help of an integer. The manager of James Peterson & Co. wants to sort the employees on the basis of their skills in ascending order. He is only allowed to swap two employees which are adjacent to each other. He is given the skills of employees in an array of size 'n'. He can swap the skills as long as the absolute difference between their skills is 1. You need to help the manager out and tell whether it is possible to sort the skills of employees or not.

Input Format:
First Line will have an integer 't' denoting the no. of test cases.
First line of each test case contains an integer 'n' denoting the no. of employees in the company.
Second line of each test case contains 'n' integers.

Output Format:
For each test case, print "Yes" if it is possible to sort the skills otherwise "No".
Constraints:

1 <= t <= 10^4
1 <= n <= 10^5
Sum of n over all test cases doesn't exceed 10^6

Sample Input:
2
4
1 0 3 2
3
2 1 0

Sample Output:
Yes
No

Explanation:
In first T.C., [1, 0, 3, 2] -> [0, 1, 3, 2] -> [0, 1, 2, 3]

In second T.C., [2, 1, 0] -> [1, 2, 0] OR [2, 1, 0] -> [2, 0, 1] So, it is impossible to sort.

Question no 2.

Ninja is planning to organize an exhibition in which '2N' peoples are coming. The hall's capacity in which the exhibition is going to take place is only 'N'. So, ninja thinks of organizing two exhibitions in 2 different cities, 'CITY_A' and 'CITY_B', each of capacity 'N'. All '2N' people will come to the exhibition but in the group of 'N' in two different cities. Ninja wants your help in organizing this event.

You are given an array 'COST' where "COST[i] = [COST_TO_Ai, COST_TO_Bi]", in which 'COST_TO_Ai' is the cost of the ith person to fly to the city A, and 'COST_TO_Bi' is the cost of the ith person to fly to the city B. Your task is to find the minimum cost of organizing the exhibition in which every person flies to a city such that exactly 'N' people arrive in each city.

Note:

The intersection of the set of the persons who go to 'CITY_A' to those going to 'CITY_B' is to be disjoint set, whereas the union must be the '2N'.

Input Format:
The first line contains an integer 'T', which denotes the number of test cases to be run. Then, the 'T' test cases follow.

The first line of each test case contains a positive integer, 'N', such that '2N' is the number of people coming to the exhibition.

The next '2N' lines of each test case contain two integers, 'COST_TO_Ai', and 'COST_TO_Bi', as described in the problem statement.

Output Format:
For each test case, return the minimum cost of organizing the exhibition, as described in the problem statement.

Constraints:
1 <= T <= 10
1 <= N <= 50
COST.length == 2*N
1 <= CostToAi, CostToBi <= 10^4

Sample Input 1:
1
2
5 100
50 10
10 200
100 20

Sample Output 1:
45

Explanation for sample input 1:

The first person will go to City 'A' at the cost of 5.

The second person will go to City 'B' at the cost of 10.

The third person will go to City 'A' at the cost of 10.
The last person will go to City 'B' at the cost of 20.
So, the total minimum cost will be = 5 + 10 + 10 + 20 = 45. There is no other way to get the cost less than 45.

Sample Input 2:
1
1
200 200
100 200

Sample Output 2:
300

Explanation for sample input 2:

The first person will go to City 'B' at the cost of 200.

The second person will go to City 'A' at the cost of 100.

So, the total minimum cost will be = 200 + 100 = 300. There is no other way to get the cost less than 300.

Question no 3.
You are given string S of length N, and an integer K. Your task is to find the length of the longest substring that contains at most K distinct characters.

Input Format:
The first line contains an Integer 'T' which denotes the number of test cases/queries to be run. Then the test cases follow.

The first line of input for each test case/query contains an integer K.

The second line of input for each test case/query contains a string S.

Output Format:
For each test case, print the length of the longest substring that contains at most K distinct characters.

Constraints:

1 <= T <= 10
1 <= K <= 26
1 <= N <= 10^4

Sample Input 1:

2
2
abcba
1
abccc

Sample Output 1:

3
3

Explanation of the Sample Input1:

Test Case 1:
K = 2 in the first test case so we can choose substring 'bcb' having 2 distinct characters which are less than equal to K=2.
We cannot get any other substring of length 4 or greater having distinct characters less than equal to 2.
Test Case 2:
K = 1 in the second test case so we can choose substring 'ccc' having only 1 distinct character which is less than equal to K=1.

We cannot get any other substring of length 4 or greater having distinct characters less than equal to 1.