# Assignment

1. Catelyn has three sticks of lengths a, b, and c, and wants to determine whether she can use them to form a non-degenerate triangle. For example, the stick lengths a = 3, b = 4, and c = 5 form a valid triangle, but the stick lengths a = 1, b = 2, and c = 6 do not.

   Inputs to your program:
   a) An array arra of n integers where each index i describes the length of side a for the triangle t.
   b) An array arrb of n integers where each index i describes the length of side b for the triangle t.
   c) An array arrc of n integers where each index i describes the length of side c for the triangle t.

   We must print an array of n strings where the value at each index i is 'Yes' if arra[i], arrb[i], and arrc[i] can form a non-degenerate triangle; otherwise the value becomes 'No'.

   Input Format
   The first line contains an integer, n, denoting the number of elements in a, b and c.
   Each line i of the n subsequent lines (where 0 <= i < n) contains an integer for arra[i].
   Each line i of the n subsequent lines (where 0 <= i < n) contains an integer for arrb[i].
   Each line i of the n subsequent lines (where 0 <= i < n) contains an integer for arrc[i].

   Constraints
   1 <= n <= 105
   1 <= arra[i], arrb[i], arrc[i] <= 103 , where 0 <= i < n

   Output Format
   Print an array of n strings where the value at each index i is Yes if the values in arrays arra, arrb, arrc at position i can form a non-degenerate triangle; otherwise, the value is a No.

   Sample Input
   3
   7
   10
   7
   2
   3
   4
   2
   7
   4

   Sample Output
   No
   No
   Yes

2. Consider an array of n integers. We define an integer to be non-unique if it appears at least twice in the array. For example, for the array [1, 1, 2, 2, 2, 3, 4, 3, 9], there are a total of 3 non-unique values in the array (i.e., 1, 2, and 3).

Input Format
The first line contains an integer, n, denoting the size of the numbers array.
The next n subsequent lines contain an integer each.

Constraints
1 <= n <= 1000
1 <= array[i] <= 1000

Output Format
Print an integer denoting the number of non-unique values T.

Sample Input
8
1
3
1
4
5
6
3
2

Sample Output
2

Explanation
n = 8 and numbers = [1, 3, 1, 4, 5, 6, 3, 2].
The integers 1 and 3 both occur more than once, so we print 2 as our answer.


3. Given an array of n elements, print the pair of numbers (in increasing order) that have the closest difference between them.

Input:
First line contains n, the number of elements,
The second line contains n integers, the contents of the array

Output:
Pair of numbers with closest distance in increasing order

Constraints:
2 <= n <= 1000
1 <= a[i] <= 10^5

Sample Input
45 67 32 89 20

Sample Output
20 32

4. Given a string containing just braces '(' and ')'. Please check if the string has correct order of parenthesis.

   Input :
   First line will contain an integer T - number of test cases.
   T lines will be followed, each containing a string of '('s and ')'s.

   Output:
   Print T lines, each having "YES" if the parenthesis are correct or "NO" otherwise. (Don't print quotes.)

   Constraints :
   $1 <= T <= 10^5$
   $1 <= |s| <= 10^5$
   where |s| is the length of each string.

   It is guaranteed that the sum of the lengths of all string won't exceed $10^6$. (To ensure linear order algorithm)

   Sample Input :
   4
   ()()
   ((()())()(()))
   (()))(()
   (((

   Sample Output :
   YES
   YES
   NO
   NO


5. You are given some pokemons. Each pokemon has some amount of powers. You want to buy some pokemons. Now you came to know that after you buy some pokemons, all other pokemons which were not bought by you, will become enemies of your pokemons. There will be a fight between your pokemons and enemy pokemons. The ones who have maximum total power will win the fight. You want to buy minimum number of pokemons such that your pokemons win the fight. Find how many pokemons you will buy.

Input :
T - number of test cases
For each case,
N - number of pokemons
a1 a2 a3 … aN - power of each pokemon

Output :
For each case, output the minimum number of pokemons you  will buy.

Constraints :
1 <= T <= 10
1 <= N <= 1000 (for n*n sort)
1 <= N <= 100000 (for nlogn sort)
1 <= ai <= 10^9

Sample Input :
2
6
2 3 6 2 1 4
1
6

Sample Output:
2
1