



Problem A Cluster Analysis

Cluster analysis, or also known as clustering, is a task to group a set of objects into one or more groups such that objects belong to a same group are more similar compared to object in other groups. In this problem, you are given a set of N positive integers and an integer K . Your task is to compute how many clusters are there in the given set where two integers belong to a same cluster if their difference is no larger than K .

For example, let there be a set of $N = 7$ positive integers: 2, 6, 1, 7, 3, 4, 9, and $K = 1$.

Based-on the cluster definition of K , we know that:

- 2 and 1 belong to a same cluster (the difference is no more than $K = 1$),
- 2 and 3 belong to a same cluster,
- 6 and 7 belong to a same cluster,
- 3 and 4 belong to a same cluster.

From these observations, we can conclude that there are 3 clusters in this example: {2, 1, 3, 4}, {6, 7}, and {9}.

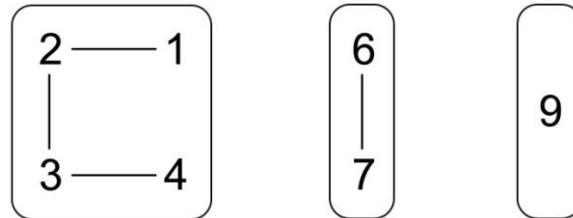


Figure 1.

Figure 1 illustrates the clustering result. A line connecting two numbers means that those two numbers should belong to a same cluster according to the definition.

Input

The first line of input contains an integer T ($T \leq 100$) denoting the number of cases. Each case begins with two integers in a line: N and K ($1 \leq N \leq 100$; $1 \leq K \leq 1,000,000$) denoting the set size and the clustering parameter respectively. The next line contains N integers A_i ($1 \leq A_i \leq 1,000,000$) representing the set of positive integers. You are guaranteed that all integers in the set are unique.

Output

For each case, output "Case #X: Y", where X is the case number starts from 1 and Y is the number of cluster for that particular case.



Sample Input	Output for Sample Input
4 7 1 2 6 1 7 3 4 9 7 2 2 6 1 7 3 4 9 5 5 15 1 20 4 17 8 10 100 200 300 400 500 600 700 800	Case #1: 3 Case #2: 1 Case #3: 2 Case #4: 8

Explanation for 2nd sample case

The given set is exactly the same as in 1st sample, however, now $K = 2$. With two additional observations (compared to 1st sample): 4 and 6 are in the same cluster, 7 and 9 are in the same cluster; all those integers will be in the same cluster.

Explanation for 3^d sample case

There are 2 clusters: {1, 4}, and {15, 20, 17}.

Explanation for 4th sample case

In this sample, all integers will be in their own cluster.