1093 – Ghajini

Amir is having a short term memory problem. He can't remember anything for more than **d** milliseconds.

Amir is playing a game named 'Find Max Difference'. The game is actually designed for children. There is a screen which shows an integer for 1 millisecond. In the very next millisecond the screen shows another integer. The target of the game is to find the maximum difference of any two numbers shown in the screen.

But soon Amir found that the game is more difficult for him, because his short term memory problem. So, he uses a paper to write the maximum difference he has found so far. So, Amir wants your help. You have to write a program to help Amir.

Input

Input starts with an integer **T (≤ 5)**, denoting the number of test cases.

Each case starts with two integers **n (2 ≤ n ≤ 10^5)**, **d (1 ≤ d ≤ n)**, **n** means the total number of integers the screen will show. The next line contains **n** space separated integers in range **[0, 10^8]**.

Output

For each case, print the case number and the maximum difference found by Amir.

Sample Input	Output for Sample Input
3 6 2 6 0 8 8 8 4 8 3 19 8 4 13 12 1 0 13 2 2 1 1	Case 1: 8 Case 2: 15 Case 3: 0

Notes

Dataset is huge, use faster I/O methods.