1100 – Again Array Queries

Given an array with **n** integers, and you are given two indices **i** and **j (i ≠ j)** in the array. You have to find two integers in the range whose difference is minimum. You have to print this value. The array is indexed from **0** to **n-1**.

Input

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

Each case contains two integers **n (2 ≤ n ≤ 10^5)** and **q (1 ≤ q ≤ 10000)**. The next line contains **n** space separated integers which form the array. These integers range in **[1, 1000]**.

Each of the next **q** lines contains two integers **i** and **j (0 ≤ i < j < n)**.

Output

For each test case, print the case number in a line. Then for each query, print the desired result.

Sample Input	Output for Sample Input
2 5 3 10 2 3 12 7 0 2 0 4 2 4 2 1 1 2 0 1	Case 1: 1 1 4 Case 2: 1

Notes

Dataset is huge, use faster I/O methods.