

1100 – Again Array Queries

Given an array with n integers, and you are given two indices i and j ($i \neq j$) 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 ($2 \leq n \leq 10^5$) and q ($1 \leq q \leq 10000$). 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 ($0 \leq i < j < n$).

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.