You will be given n integers $< A_1 A_2 A_3 \ldots A_n >$. Find a permutation of these n integers so that summation of the absolute differences between adjacent elements is maximized.

Suppose $n = 4$ and the given integers are <4 2 1 5>. The permutation <2 5 1 4> yields the maximum summation.

For this permutation $sum = \text{abs}(2-5) + \text{abs}(5-1) + \text{abs}(1-4) = 3 + 4 + 3 = 10$.

Of all the 24 permutations, you wont get any summation whose value exceeds 10. We will call this value, 10, the *elegant permuted sum.*

Input

The first line of input is an integer T ($T < 100$) that represents the number of test cases. Each case consists of a line that starts with n ($1 < n < 51$) followed by n non-negative integers separated by a single space. None of the elements of the given permutation will exceed 1000.

Output

For each case, output the case number followed by the *elegant permuted summation.*

Sample Input

```
3
4 4 2 1 5
4 1 1 1 1
2 10 1
```

Sample Output

```
Case 1: 10
Case 2: 0
Case 3: 9
```