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Contest Code: [SNCK1A21](#) Problem Code: [EQBEAUTY](#)



Read problem statements in [Mandarin Chinese](#), [Russian](#), and [Vietnamese](#) as well.

The **beauty** of an (non-empty) array of integers is defined as the difference between its largest and smallest element.

For example, the **beauty** of the array $[2, 3, 4, 4, 6]$ is $6 - 2 = 4$.

An array A is said to be **good** if it is possible to partition the elements of A into two non-empty arrays B_1 and B_2 such that

- B_1 and B_2 have the same beauty.
- Each element of array A should be in exactly one array: either in B_1 or in B_2 .

For example, the array $[6, 2, 4, 4, 4]$ is good because its elements can be partitioned into two arrays $B_1 = [6, 4, 4]$ and $B_2 = [2, 4]$, where both B_1 and B_2 have the same beauty ($6 - 4 = 4 - 2 = 2$).

You are given an array A of length N . In one move you can:

- Select an index i ($1 \leq i \leq N$) and either increase A_i by 1 or decrease A_i by 1.

Find the minimum number of moves required to make the array A good.

Input Format

- The first line of input contains a single integer T , denoting the number of test cases. The description of T test cases follow.
- Each testcase contains two lines.
- The first line contains N , the length of the array.
- The second line contains N space-separated integers A_1, A_2, \dots, A_N representing the initial array.

Output Format

For each testcase, output in a single line, the minimum number of moves required to make the given array good.

Constraints

- $1 \leq T \leq 10^5$
- $2 \leq N \leq 10^5$
- $-10^9 \leq A_i \leq 10^9$
- Sum of N does not exceeds $5 \cdot 10^5$ over all testcases

Sample Input 1

```
2
3
4 2 6
4
-2 4 -2 4
```

Sample Output 1

2

0

Explanation

Test Case 1: We can increase the first element(A_1) by 2 in two moves. Now, the array A becomes $[6, 2, 6]$, and is good, since it can be partitioned into two arrays, $([2], [6, 6])$, each with beauty 0.

Test Case 2: The given array $([-2, 4, -2, 4])$ is good since it can be partitioned into two arrays $([-2, -2], [4, 4])$, each with beauty 0. Alternatively, it is also possible to partition it into $([-2, 4], [-2, 4])$, each with beauty 6.

PYTH 3.6 (Python 3.6)



Code gets autosaved every second



```
1 # cook your dish here
2
```

0:0



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