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 $A_1, A_2, \ldots, A_N$ 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

Open File Custom Input Run Submit

Custom Input

prepare yourself for the multiple **programming challenges** that take place through-out the month on CodeChef.

Compete - Monthly Programming Contests, Cook-off and Lunchtime

Here is where you can show off your **computer programming skills**. Take part in our 10 days long monthly coding contest and the shorter format Cook-off and Lunchtime **coding contests**. Put yourself up for recognition and win great prizes. Our **programming contests** have prizes worth up to INR 20,000 (for Indian Community), $700 (for Global Community) and lots more CodeChef goodies up for grabs.

Programming Tools
Online IDE
Upcoming Coding Contests
Contest Hosting
Problem Setting
CodeChef Tutorials
CodeChef Wiki

Practice Problems
Easy
Medium
Hard
Challenge
Peer
School
FAQ's

Initiatives
Go for Gold
CodeChef for Schools
College Chapters
CodeChef for Business

Policy
Terms of Service
Privacy Policy
Refund Policy
Code of Conduct
Bug Bounty Program