Question 21 Max. Marks 100.00

Absolute removal

You are given an array A of size N. Lets define an operation "**absolute removal**" on the array.

- In this operation, we are allowed to remove **exactly one** element from the array.
- You can perform this operation at most once.
- Your task is to **minimize** the sum of absolute difference of the consecutive elements by performing **at most** one such operation.

In the output, you need to print the minimum sum possible.

If the array formed after removal of an element is $B_1, B_2, \ldots B_{N-1}$, then the required sum is given by $sum = |B_1 - B_2| + |B_2 - B_3| + \ldots |B_{N-2} - B_{N-1}|$.

Input

The first line of input contains T, the number of test cases.
The first line of each next case comprises of a number N, the size of the array.
The next line contains N space separated integers corresponding to array elements A_i.

Output

For each test case, output a single integer corresponding to the minimum sum of absolute difference of consecutive elements.

Constraints

$1 \leq T \leq 100$
$1 \leq N \leq 10^5$
$0 \leq A_i \leq 10^9$

Sample Input

```
2
5
1 5 3 2 10
6
6 12 7 8 10 15
```

Sample Output

```
7
9
```

Explanation

Test Case #1: On removing 10, we get B={1,5,3,2}. |1-5| + |5-3| + |3-2| = 4+2+1 = 7. This is the minimum sum possible.

Test Case #2: On removing 12, we get B={6,7,8,10,15}. |6-7| + |7-8| + |8-10| + |10-15| = 1+1+2+5 = 9. This is the minimum sum possible.

Note: Your code should be able to convert the sample input into the sample output. However, this is not enough to pass the challenge, because the code will be run on multiple test cases. Therefore, your code must solve this problem statement.

Time Limit: 3.0 sec(s) for each input file
Memory Limit: 256 MB
Source Limit: 1024 KB
Marking Scheme: Marks are awarded if any testcase passes
Allowed Languages: Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Python, Python 3, Ruby

New Submission | All Submissions

Java (openjdk 1.7.0_95) Save

```java
import java.io.*;
import java.util.*;


public class TestClass {
    public static void main(String[] args) throws IOException {
        BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
        PrintWriter wr = new PrintWriter(System.out);
        int T = Integer.parseInt(br.readLine().trim());
        for(int t_i=0; t_i<T; t_i++)
        {
            int N = Integer.parseInt(br.readLine().trim());
            String[] arr_A = br.readLine().split(" ");
            long[] A = new long[N];
            for(int i_A=0; i_A<arr_A.length; i_A++)
            {
                A[i_A] = Long.parseLong(arr_A[i_A]);
            }

            long out_ = solve(A,N);
            System.out.println(out_);
            System.out.println("");
         }

         wr.close();
         br.close();
    }
    static long solve(long[] A,int N){
        // Write your code here

    }
}
```

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Press Ctrl/Command+Spacebar for autocomplete suggestions (accuracy dependent on connection stability).

Provide custom input

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