

## B. Unconventional Pairs

time limit per test: 2 seconds

memory limit per test: 256 megabytes

A popular reality show *Unconventional Pairs* has been launched in the city. According to the rules of the show, participants are paired in an unusual way: with an even number of people, all participants must be in pairs.

Petya has an array of  $n$  integers  $a_1, a_2, \dots, a_n$ . It is known that  $n$  is even. Petya must divide the participants (numbers) into exactly  $\frac{n}{2}$  pairs  $(a_{p_1}, a_{q_1}), (a_{p_2}, a_{q_2}), \dots, (a_{p_{\frac{n}{2}}}, a_{q_{\frac{n}{2}}})$ . Each index can be included in no more than one pair.

For a pair  $(x, y)$ , its *difference* is defined as  $|x - y|$ . Petya wants to form *unconventional pairs* such that the **maximum** difference among all pairs is minimized.

Determine the minimum possible value of this maximum difference.

### Input

Each test consists of several test cases.

The first line contains a single integer  $t$  ( $1 \leq t \leq 10^4$ ) — the number of test cases. The description of the test cases follows.

The first line of each test case contains one even number  $n$  ( $2 \leq n \leq 2 \cdot 10^5$ ) — the length of the array  $a$ .

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $-10^9 \leq a_i \leq 10^9$ ) — the elements of the array  $a$ .

It is guaranteed that the sum of the values of  $n$  across all test cases does not exceed  $2 \cdot 10^5$ .

### Output

For each test case, output a single number — the minimum possible maximum difference between the elements in pairs.

### Example

<b>input</b>	<input type="button" value="Copy"/>
5	
2	
1 2	
4	
10 1 2 9	
6	
3 8 9 3 3 2	
8	
5 5 5 5 5 5 5	
4	
-5 -1 2 6	
<b>output</b>	<input type="button" value="Copy"/>
1	
1	
1	
0	
4	

### Note

In the first test case, the array is: [1, 2]. The only possible (and therefore optimal) pair is (1, 2), its difference is  $|1 - 2| = 1$ , the answer is 1.

In the second test case, the array is: [10, 1, 2, 9]. We can choose pairs — (1, 2) and (9, 10): both differences are equal to 1, therefore, the maximum difference is 1.

In the third test case, the array is: [3, 8, 9, 3, 3, 2]. We can choose pairs: (2, 3), (3, 3), (8, 9). The differences are: 1, 0, 1 — the largest is 1.

### Codeforces Round 1054 (Div. 3)

Finished

Practice



### → Virtual participation

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[Start virtual contest](#)

### → Clone Contest to Mashup

You can clone this contest to a mashup.

[Clone Contest](#)

### → Submit?

Language:

Choose file:  Nenh...colhido

### → Last submissions

Submission	Time	Verdict
<a href="#">340506350</a>	Sep/25/2025 19:49	Accepted
<a href="#">340505501</a>	Sep/25/2025 19:48	Wrong answer on test 2
<a href="#">340502768</a>	Sep/25/2025 19:43	Wrong answer on test 2

### → Problem tags

[greedy](#) [sortings](#) \*800

No tag edit access

### → Contest materials

- Announcement

- Tutorial (en)

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