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 $a_1, a_2, \ldots, a_n$. It is known that n is even. Petya must divide the participants (numbers) into exactly $\frac{n}{2}$ pairs $(a_{p_1}, a_{q_1}), (a_{p_2}, a_{q_2}), \ldots (a_{p_{\frac{n}{2}}}, a_{q_{\frac{n}{2}}})$. 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 $(1 \le t \le 10^4)$ — the number of test cases. The description of the test cases follows.

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

The second line contains n integers $a_1, a_2, \ldots, a_n$ $(-10^9 \le a_i \le 10^9)$ — 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

input 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 5
4
-5 -1 2 6
```

output 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.