Largest Possible Interval (BONUS)

BONUS problem

Given a list of integers, print the largest absolute interval between any two inorder consecutive integers in the list.

You MUST use heap sort.

Input Format

The first line contains two integers N, the number of elements in the list.

Each of the next N lines contains an integer represents an element in the list.

Constraints

- 0 <= N <= 10^4
- -10^9 <= number <= 10^9

Output Format

Print the largest possible interval

Sample Input 0

```
5
100
90
78
60
120
```

Sample Output 0

```
20
```

Sample Input 1

```
8
22
19
4
31
1
16
30
6
```

Sample Output 1

```
10
```

Finding Median

Given an unsorted list of integers, print the median of the soted version using heap. If there isn't a median, then print "Not Exist".

Input Format

The first line contains two integers N, the number of elements in the list.

Each of the next N lines contains an integer represents an element in the list.

Constraints

- 0 <= N <= 10^4
- -10^9 <= number <= 10^9

Output Format

Print the median of the list. Format is only one place after decimal point for floating numbers and no unnecessary zeroes in the number has no fraction.

Sample Input 0

```
5
9
12
80
21
34
```

Sample Output 0

```
21
```

Sample Input 1

```
6
3
5
1
4
2
6
```

Sample Output 1

```
3.5
```