Closest Numbers ★

| Problem | Submissions | Leaderboard | Discussions | Editorial 🔒 |

Sorting is useful as the first step in many different tasks. The most common task is to make finding things easier, but there are other uses as well. In this case, it will make it easier to determine which pair or pairs of elements have the smallest absolute difference between them.

Example

$arr = [5, 2, 3, 4, 1]$

Sorted, $arr' = [1, 2, 3, 4, 5]$. Several pairs have the minimum difference of 1: $[(1, 2), (2, 3), (3, 4), (4, 5)]$. Return the array $[1, 2, 2, 3, 3, 4, 4, 5]$.

Note

As shown in the example, pairs may overlap.

Given a list of unsorted integers, arr, find the pair of elements that have the smallest absolute difference between them. If there are multiple pairs, find them all.

Function Description

Complete the closestNumbers function in the editor below.

closestNumbers has the following parameter(s):

- int arr[n]: an array of integers

Returns

- int[]: an array of integers as described

Input Format

The first line contains a single integer n, the length of arr.

The second line contains n space-separated integers, $arr[i]$.

Constraints

- $2 \leq n \leq 200000$
- $-10^7 \leq arr[i] \leq 10^7$
- All $a[i]$ are unique in arr.

Output Format

Sample Input 0

```
10
-20 -3916237 -357920 -3620601 7374819 -7330761 30 6246457 -6461594 266854
```

Sample Output 0

```
-20 30
```

Explanation 0

(30) - (-20) = 50, which is the smallest difference.

Sample Input 1

```
12
-20 -3916237 -357920 -3620601 7374819 -7330761 30 6246457 -6461594 266854 -520 -470
```

Sample Output 1

```
-520 -470 -20 30
```

Author | HackerRank
Difficulty | Easy
Max Score | 100
Submitted By | 6788

NEED HELP?

🔲 View discussions

📖 View editorial

🏆 View top submissions

RATE THIS CHALLENGE

★ ★ ★ ★ ★

MORE DETAILS

⬇ Download problem statement

⬇ Download sample test cases

✎ Suggest Edits

f ✗ in

Explanation 1

(-470) - (-520) = 30 - (-20) = 50, which is the smallest difference.

Sample Input 2

```
4
5 4 3 2
```

Sample Output 2

```
2 3 3 4 4 5
```

Explanation 2

Here, the minimum difference is 1. Valid pairs are (2, 3), (3, 4), and (4, 5).

Change Theme   Language | Python 3 ⌄ |

```python
1   #!/bin/python3
2
3   import math
4   import os
5   import random
6   import re
7   import sys
8
9   #
10  # Complete the 'closestNumbers' function below.
11  #
12  # The function is expected to return an INTEGER_ARRAY.
13  # The function accepts INTEGER_ARRAY arr as parameter.
14  #
15
16  def closestNumbers(arr):
17      # Write your code here
18
19  if __name__ == '__main__':
20      fptr = open(os.environ['OUTPUT_PATH'], 'w')
21
22      n = int(input().strip())
23
24      arr = list(map(int, input().rstrip().split()))
25
26      result = closestNumbers(arr)
27
28      fptr.write(' '.join(map(str, result)))
29      fptr.write('\n')
```

Line: 32 Col: 1

⬆ Upload Code as File   ☐ Test against custom input

Run Code   **Submit Code**