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n\_marthely

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Practice Sorting

Closest Numbers

Problem

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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  $[1, 2, 2, 3, 3, 3, 4, 4, 5]$ .

**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

Author

HackerRank

Difficulty

Easy

Max Score

35

Submitted By

58726

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Sorting

Pair

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Python 3

```

1  #!/bin/python3
2
3  import math
4  import os
5  import random
6  import re
7  import sys
8
9  # Complete the closestNumbers function below.
10 def closestNumbers(arr):
11
12     arr.sort()
13     min_dif = abs(arr[0]-arr[1])
14     ans = []
15     for i in range(len(arr)-1):
16         d = abs(arr[i]-arr[i+1])
17         if d==min_dif:
18             ans += [arr[i], arr[i+1]]
19             min_dif = d
20         elif d<min_dif:
21             ans = [arr[i], arr[i+1]]
22             min_dif = d
23     return ans
24
25 input()
26 print(*closestNumbers(list(map(int,input().split()))))
27
28

```

Line: 12 Col: 5

Upload Code as File

☐ Test against custom input

Run Code

Submit Code

After submitting my code :

## Congratulations!

You have passed the sample test cases. Click the submit button to run your code against all the test cases.

✓ Sample Test case 0

✓ Sample Test case 1

Input (stdin)

Download

```
1 10
2 -20 -3916237 -357920 -3620601 7374819 -7330761 30 6246457 -64
61594 266854
```


Your Output (stdout)

```
1 -20 30
```

Expected Output

Download

```
1 -20 30
```



You have earned 35.00 points!  
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7%


35/100


## Congratulations


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Next Challenge

✓ Test case 0

✓ Test case 1 

✓ Test case 2 

✓ Test case 3 

✓ Test case 4 

✓ Test case 5

Compiler Message

Success

Input (stdin)

Download

```
1 10
2 -20 -3916237 -357920 -3620601 7374819 -7330761 30 6246457 -6461594 2
66854
```

Expected Output

Download

```
1 -20 30
```

Your Closest Numbers submission got 35.00 points.
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You are now 65 points away from the 2nd star for your problem solving badge.

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<p>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.</p> <p><b>Example</b></p> <p><math>arr = [5, 2, 3, 4, 1]</math></p> <p>Sorted, <math>arr' = [1, 2, 3, 4, 5]</math>. Several pairs have the minimum difference of 1: <math>[(1, 2), (2, 3), (3, 4), (4, 5)]</math>. Return the array <math>[1, 2, 2, 3, 3, 4, 4, 5]</math>.</p> <p><b>Note</b></p> <p>As shown in the example, pairs may overlap.</p>					

Author	HackerRank
Difficulty	Easy
Max Score	35
Submitted By	58726

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RESOURCES

Problem	Submissions	Leaderboard	Discussions	Editorial	Topics
RESULT	SCORE	LANGUAGE	TIME		
Accepted	35.0	Python 3	16 minutes ago		<a href="#">View Results</a>

My code:

```
#!/bin/python3
```

```
import math
import os
import random
import re
import sys
```

# Complete the closestNumbers function below.

```
def closestNumbers(arr):
```

```
    arr.sort()
    min_dif = abs(arr[0]-arr[1])
    ans = []
    for i in range(len(arr)-1):
        d = abs(arr[i]-arr[i+1])
        if d==min_dif:
            ans += [arr[i], arr[i+1]]
            min_dif =d
        elif d<min_dif:
            ans = [arr[i], arr[i+1]]
            min_dif =d
    return ans
```

```
input()
print(*closestNumbers(list(map(int,input().split()))))
```