Your Day 20: Sorting submission got 30.00 points. Tweet

You are now 1 challenge away from the 4th star for your 30 days of code badge.

Try the Next Challenge | Try a Random Challenge

Day 20: Sorting

by AvmnuSng

Problem Submissions Leaderboard Discussions Editorial Tutorial

Objective

Today, we're discussing a simple sorting algorithm called *Bubble Sort*. Check out the Tutorial tab for learning materials and an instructional video!

Consider the following version of Bubble Sort:

Submitted 50020 times
Max Score 30

Need Help?

```
    for (int i = 0; i < n; i++) {
        // Track number of elements swapped during a single array traversal
        int numberOfSwaps = 0;

        for (int j = 0; j < n - 1; j++) {
            // Swap adjacent elements if they are in decreasing order
            if (a[j] > a[j + 1]) {
                swap(a[j], a[j + 1]);
                numberOfSwaps++;
            }
        }

        // If no elements were swapped during a traversal, array is sorted
        if (numberOfSwaps == 0) {
            break;
        }
    }
```

Task

Given an array, , of size distinct elements, sort the array in *ascending* order using the *Bubble Sort* algorithm above. Once sorted, print the following lines:

1. `Array is sorted in numSwaps swaps.`
   where is the number of swaps that took place.
2. `First Element: firstElement`
   where is the *first* element in the sorted array.
3. `Last Element: lastElement`
   where is the *last* element in the sorted array.

Hint: To complete this challenge, you will need to add a variable that keeps a running tally of *all* swaps that occur during execution.

Input Format

The first line contains an integer, , denoting the number of elements in array .
The second line contains space-separated integers describing the respective values of .

Constraints

-
- , where .

Output Format

Print the following three lines of output:

1. `Array is sorted in numSwaps swaps.`
   where is the number of swaps that took place.
2. `First Element: firstElement`
   where is the *first* element in the sorted array.
3. `Last Element: lastElement`
   where is the *last* element in the sorted array.

Sample Input 0

```
3
1 2 3
```

View Tutorial

View Discussions

View Editorial Solution

View Top Submissions

Rate This Challenge:

Download problem statement

Download sample test cases

Suggest Edits

Sample Output 0

```
Array is sorted in 0 swaps.
First Element: 1
Last Element: 3
```

Explanation 0

The array is already sorted, so swaps take place and we print the necessary lines of output shown above.

Sample Input 1

```
3
3 2 1
```

Sample Output 1

```
Array is sorted in 3 swaps.
First Element: 1
Last Element: 3
```

Explanation 1

The array is *not sorted*, so we perform the following swaps:

1.

2.

3.

At this point the array is sorted and we print the necessary lines of output shown above.

Current Buffer (saved locally, editable)

Python 3

```
#!/bin/python3

import sys

n = int(input().strip())
a = list(map(int, input().strip().split(' ')))
# Write Your Code Here

total_swaps = 0
for i in range(n):
    number_of_swaps = 0
    for j in range(n-1):
        if a[j] > a[j+1]:
            a[j], a[j+1] = a[j+1], a[j]
            number_of_swaps = number_of_swaps + 1
```

```
    total_swaps = total_swaps + number_of_swaps
    if number_of_swaps == 0:
        break;
print("Array is sorted in {0} swaps.".format(total_swaps))
print("First Element: {0}".format(a[0]))
print("Last Element: {0}".format(a[-1]))
```

Line: 21 Col: 26

Test against custom input

Run Code | Submit Code

Congrats, you solved this challenge!

Challenge your friends:

Test Case #0 | Test Case #1 | Test Case #2

You've earned 30.00 points. You are now 1 challenge away from the 4th star for your 30 days of code badge.

Next Challenge