Practice Compete Jobs Rank Leaderboard

Dashboard > Algorithms > Sorting > Insertion Sort - Part 1

Badge Progress (Details)

Points: 364.57 Rank: 117559

Insertion Sort - Part 1

by HackerRank

Problem Submissions Leaderboard Discussions

Sorting

One common task for computers is to sort data. For example, people might want to see all their files on a computer sorted by size. Since sorting is a simple problem with many different possible solutions, it is often used to introduce the study of algorithms.

Insertion Sort

These challenges will cover *Insertion Sort*, a simple and intuitive sorting algorithm. We will first start with an already sorted list.

Insert element into sorted list

Given a sorted list with an unsorted number e in the rightmost cell, can you write some simple code to *insert* e into the array so that it remains sorted?

Print the array every time a value is shifted in the array until the array is fully sorted. The goal of this challenge is to follow the correct order of insertion sort.

Guideline: You can copy the value of e to a variable and consider its cell "empty". Since this leaves an extra cell empty on the right, you can shift everything over until V can be inserted. This will create a duplicate of each value, but when you reach the right spot, you can replace it with e.

Input Format

There will be two lines of input:

- $Size$ - the size of the array
- Arr - the array containing $Size - 1$ sorted integers and 1 unsorted integer e in the rightmost cell

Output Format

On each line, output the entire array every time an item is shifted in it.

Constraints

$1 \le Size \le 1000$
$-10000 \le e \le 10000, e \in Arr$

Sample Input

```
5
2 4 6 8 3
```

Sample Output

```
2 4 6 8 8
2 4 6 6 8
2 4 4 6 8
2 3 4 6 8
```

Explanation

3 is removed from the end of the array.
In the 1^{st} line $8 > 3$, so 8 is shifted one cell to the right.
In the 2^{nd} line $6 > 3$, so 6 is shifted one cell to the right.
In the 3^{rd} line $4 > 3$, so 4 is shifted one cell to the right.
In the 4^{th} line $2 < 3$, so 3 is placed at position 2.

Task

Complete the method insertionSort which takes in one parameter:

- Arr - an array with the value e in the right-most cell.

Next Challenge

In the next Challenge, we will complete the insertion sort itself!

Submissions:97803

Max Score:30
Difficulty: Easy

Rate This Challenge:
☆ ☆ ☆ ☆ ☆

More

Current Buffer (saved locally, editable)

C++14

```
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;
void insertionSort(vector <int>  ar)
{


}
int main(void) {
    vector <int>  _ar;
    int _ar_size;
    cin >> _ar_size;
    for(int _ar_i=0; _ar_i<_ar_size; _ar_i++) {
        int _ar_tmp;
        cin >> _ar_tmp;
        _ar.push_back(_ar_tmp);
    }

    insertionSort(_ar);
    return 0;
}

```

Line: 1 Col: 1

Upload Code as File   □ Test against custom input   Run Code   Submit Code

Testcase 0 ✖

Your code did not pass this test case.

Input (stdin)

```
5
2 4 6 8 3
```

Your Output (stdout)

~ no response on stdout ~

Expected Output

```
2 4 6 8 8
2 4 6 6 8
2 4 4 6 8
2 3 4 6 8
```

Compiler Message

```
Wrong Answer
```