

Basic Sorts - Implementing Basic Sorting Algorithms

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March 7, 2022

1 SUMMARY

For this homework, you will be implementing two sorting algorithms: *Bubble Sort* and *Insertion Sort*.

1. Download the provided starter code.
2. Implement two sorting algorithms.
3. Use the provided tester to check if each method is working correctly.
4. **FILES TO DOWNLOAD:** [BasicSorts.zip](#)
5. **FILES TO SUBMIT:** BasicSorts.java

1.1 BASICSORTS.JAVA

You will be implementing two sorting algorithms for this homework. They are listed below:

```

1  /**
   * Slow sort number 1. Bubble sort.
3  */
   public static<T extends Comparable<T>> void bubbleSort(T[] list);
5
   /**
7  * Usually slow sort number 2. Insertion sort.
   */
9  public static<T extends Comparable<T>> void insertionSort(T[] list);

```

You may add additional helper methods that might be useful in implementing these sorting algorithms. Some methods that may be useful, but are optional, include swapping two elements given indices i and j . We've provided the header for an optional *swap()* method should you want it.

The provided tester (*Tester.java*) will read in an integer from the keyboard (*size*). Then, a list of numbers of this size is created and the tester will call each of your sorting methods one at a time. The tester will call each of your sorting methods one at a time. For each, it will take the result and check if 1) the sizes of the unsorted and sorted lists are still the same, 2) the elements in the sorted list are indeed in sorted order, and 3) the sorted list contains the same elements in total that the original list does. If any of these checks fail, you should get a notification to that effect.

1.2 GRADESCOPE

You should submit your code to *Gradescope*. If you are having trouble with your submission, you should double check the following common problems:

1. Make sure you are only submitting one file, and it is called *BasicSorts.java* exactly.
2. Make sure you keep the package statement at the top of the file (package sorting;).
3. Your code should **NOT contain any additional import statements**
4. Make sure you **DO NOT** submit a *main method* in your file.
5. Make sure your file is **NOT printing anything to the console**. Your methods should simply return the correct results.