

Class Sorter03

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```
/***
 * Sorter03 is used to sort arrays from Driver03
 *
 * @author Nathan Chen
 * @version 3-18-19
 * @period 2
 * @teacher Coglianese
 */
public class Sorter03{
    /**
     * Sorts array given with bubble sort algorithm
     *
     * @param array Array of ints to sort
     */
    public static void bubbleSort(int[] array) {
        boolean b=true;
        while(b) {
            b=false;
            for(int i=0;i<array.length-1;++i) {
                if(array[i]>array[i+1]){
                    swap(array,i,i+1);
                    b=true;
                }
            }
        }
    }

    /**
     * Sorts array given with insertion sort algorithm
     *
     * @param array Array of ints to sort
     */
    public static void insertionSort(int[] array) {
        for(int i=1;i<array.length;++i){
            int temp=array[i];
            int j=i-1;
            while(j>=0&&array[j]>temp) {
                array[j+1]=array[j];
                j=j-1;
            }
            array[j+1]=temp;
        }
    }

    /**
     * Swaps two elements in an array
     *
     * @param array Array of ints to swap
     * @param a First integer index
     */
}
```

Class Sorter03 (continued)

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```
* @param b      Second integer index
*/
public static void swap(int[] array, int a, int b){
    array[a]=(array[a]+array[b])-(array[b]=array[a]);
}

/**
 * Shifts an element down an array
 *
 * @param array  Array of ints to shift
 * @param a      Integer index of shifting element
 * @param b      Integer index of final resting place
 */
public static void shift(int[] array, int a, int b) {
    int temp=array[a];
    for(int i=a;i>b;--i){
        array[i]=array[i-1];
    }
    array[b]=temp;
}
}
```