

Program 12 – Sorting**100 points****IMPORTANT**

You must write your code while **carefully following the “IT 179 Program Grading Guidelines”** described in the file **posted with Program 1**.

Set-Up

Create a new Java project named: **P12**. Next, inside the created Java project **P12**, create a Java package.

Objective

Practice with sorting algorithms.

Figure 1 shows a recursive **modified** version of a selection sort algorithm that we call (in this assignment) **minmaxSelectionSort()**. Figure 1 shows a version of minmaxSelectionSort() that contains **three errors**.

```
static void swapElements(int[] tab, int i, int j)
{
    int tmp = tab[j];
    tab[i] = tab[j];
    tab[j] = tmp;
}

static void minmaxRecursiveSelectionSort(int[] tab, int i, int j)
{
    int min = 0;
    int max = tab.length - 1;

    if (i > j)
        return;

    for (int k = i + 1; k <= j; k++)
    {
        if (tab[k] > tab[max])
            max = k;
        if (tab[k] < tab[min])
            min = k;
    }

    swapElements(tab, i, min);
    swapElements(tab, j, max);
    minmaxRecursiveSelectionSort(tab, i + 1, j - 1);
}
```

Figure 1.

1. Find and fix the **three errors**.
2. We would like to write a new method **reverseSort(....)** that sorts its input in **descending order**. Write the method `reverseSort()` using **ONLY** the given two methods: `minmaxSelectionSort()` [AFTER CORRECTION] and `swap()`

Note: the method `reverseSort()` does not have to be recursive.

Submission

Zip your .java files and submit the P12.zip file to the **Program 12** assignment on ReggieNet.

Grading will be in accordance with the Program Grading Criteria provided on the Important Resources page on ReggieNet.