

Lab IV
12. Feb. 2016

For this lab, you will be implementing multiple sorting algorithms and comparing their execution time. For each problem, generate a list of N random integers and sort them using the specified sorting algorithm. Choose large values for N in order for the runtime comparison to be more accurate.

To calculate the execution time of a sorting algorithm, use Java's *System.currentTimeMillis()* method.

Example:

```
...  
long startTime = System.currentTimeMillis();  
bubbleSort(A);  
long runtime = System.currentTimeMillis() - startTime();  
System.out.println("Bubble sort: " + runtime);  
...
```

Problem 1

Sort the generated list of integers using the efficient bubble sort algorithm.

Problem 2

Sort the generated list of integers using the insertion sort algorithm.

Problem 3

Sort the generated list of integers using the selection sort algorithm.

Problem 4

Sort the generated list of integers using the merge sort algorithm.

Problem 5 (Optional)

Sort the generated list of integers using your own sorting algorithm. The algorithm can be a combination of multiple known sorting algorithms.