**CSCI 470/502 Assignment 5 – Concurrency and Animation Summer 2019**

**150 points**

**Grading Guidelines**

Any compilation errors will earn a zero, unless submitted again. Your submission will not be graded and earn points if it uses a GUI Builder from an IDE.

**SortAnimationApp**

JFrame Missing title: -3 points

Missing panel: -10 points

Misnamed classes: -10 points

Missing button to populate array: -5 points

*Populate* button does not work: -3 points

Missing List/ComboBox for sorting speed: -5 points

List/ComboBox does not work: -3 points

Missing button for sorting array: -5 points

*Sort/Pause/Resume* button does not work: -3 points

**Button *Populate***

Does not display array values: -5 points

Does not enable other buttons (like *Sort*): -3 points

**List/ComboBox to Select a Sort Speed**

Does not change the speed of the animation: -5 points

**Button *Sort/Pause/Resume***

Does not disable/enable or change label as necessary: -5 points

Does not create and start, stop and resume thread: -10 points

***Each of the following applies to each of the two sorting panels!***

**Class SortPanel extending JPanel**

Missing List/ComboBox for selecting algorithms: -5 points

List/ComboBox does not work: -3 points

Mismatch selection implementation: -5 points

**Class SortAnimationPanel**

Does not implement Runnable: -15 points

**Array**

Array out of bounds exception: -5 points

Panel width does not match the number of array elements: -3 points

Panel height does not match the maximum value in the array: -3 points

**Repainting**

Does not repaint panel at each swap: -5 points.

***The following applies to the application as a whole!***

Failure to use SwingUtilities.invokeLater() to begin GUI: -10 points

**Algorithms**

Missing any of three sorting algorithms: -10 points

Missing at least one *O(N2)* sort: -3 points

Does not sort all the elements: -5 points

**Multithreading**

Does not add a new thread each time the *Sort* button is clicked: -10 points

Does not activate *Populate* button after sorting array stops: -3 points

**Any Exceptions/Warnings**

Considering your experience with earlier assignments, ***no*** unhandled exceptions are expected in your source code, all the statements that can throw exceptions should be written in try/catch block, exceptions should be caught and displayed either on the JPanel or the command line.

**Note**

Every attempt has been made to make this list comprehensive but there will be other aspects of grading for which an assignment solution might lose points.