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CS 162 - Lab-H

Recursive vs Iterative analysis.

For this lab, I created an application called lab-h-creator which will create a csv text file with integers. I created a small, medium, and large file for the test cases. The small file has 10 items, the medium file has 10,000 items, and the large item has 1,000,000 items.

Results from the test run:

	Recursive	Iterative
Small (10)	0.1652	0.1504
Medium (10,000)	0.2580374	0.2267406
Large (1,000,000)	0.272397018	0.269313957

The results show that the iterative function is slightly faster. There are many reasons that this could be the case. Recursive functions incur an overhead due to stack frame changes and the creation of stack objects. CPU caching and pre-fetching may play a factor in the speed difference also.

I found implementations of an iterative merge sort from <http://www.geeksforgeeks.org/iterative-merge-sort/> and the recursive merge sort was found at <https://gist.github.com/codeblocks/898596>. Variations in the implementation of these functions may have an effect on the execution time also.