This time around I’ve decided to test three different algorithms because their behavior should be interesting. The algorithms I’ve chosen are Merge Sort, Heap Sort, and Counting Sort. I chose Merge Sort and Heap Sort because they boast a best, worst and average case performance of O(n log n). So I wanted to see which of the two actually perform better on my system. I chose to include Counting Sort because all of my inputs are going to be random integers from 0 to 1000 so at some point counting sort should have performance O( n ).

The way my solution works is it makes and array of X random elements, starts a timer sorts the array and stops the timer, then records that time in a file. This process is done on a loop from 1 to 20,000.

The resulting Graphs for the 3 algorithms are as follows:

Merge Sort:

Heap Sort:

Counting Sort: