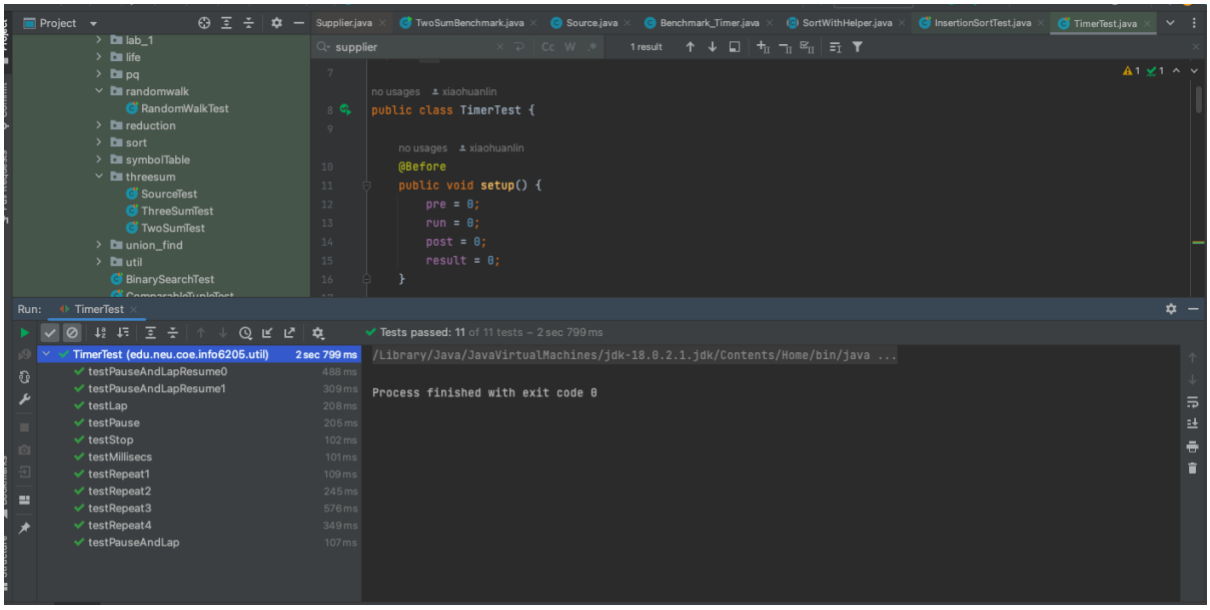
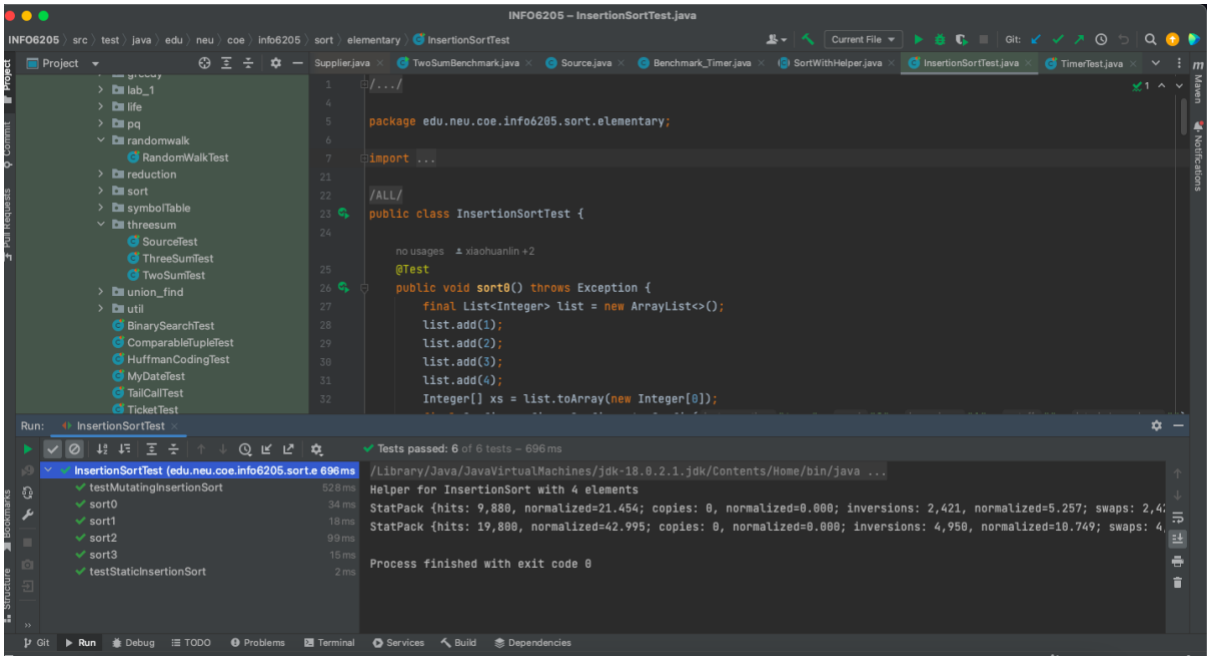
Assignment 3 - Benchmark

Part 1 – Timer Unit Tests Success

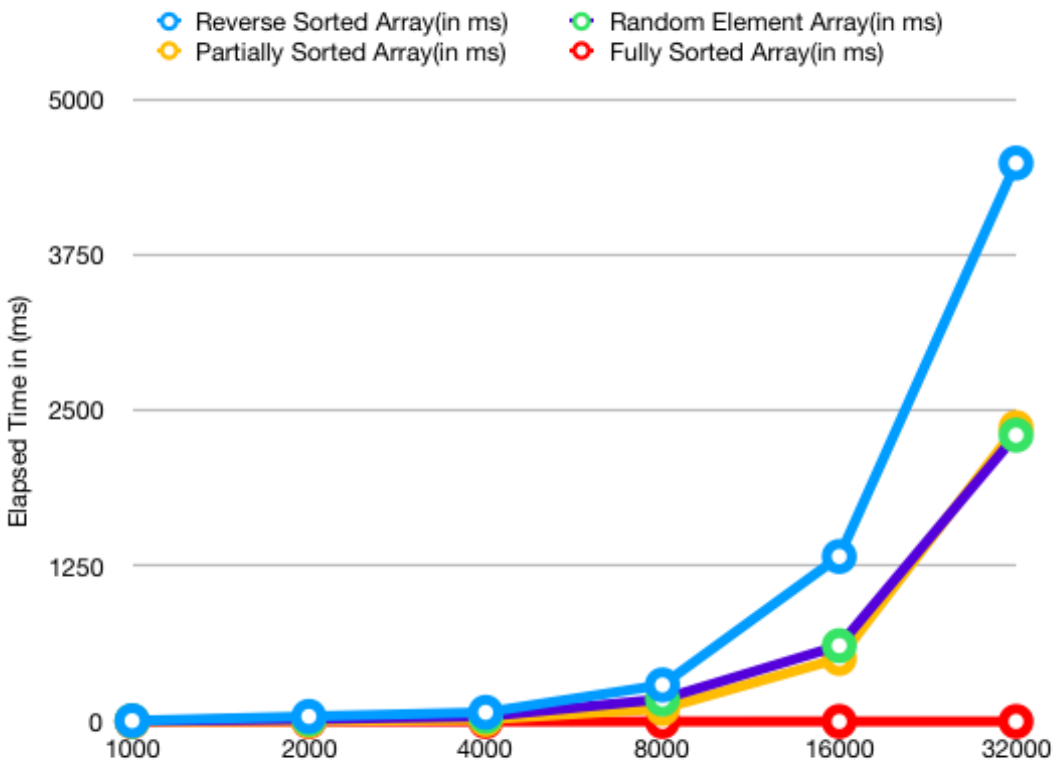


Part 2 - Insertion Sort Tests Success



Part 3 - Insertion Sort Analysis

Input Size	Reverse Sorted(in ms)	Random Element(in ms)	Partially Sorted(in ms)	Fully Sorted(in ms)
1000	6.2	4.4	1.2	0.0
2000	40.75	19.1	4.35	0.0
4000	73.8	40.8	16.1	0.0
8000	294.4	180.35	103.15	0.05
16000	1327.45	610.2	507.5	0.15
32000	4493.35	2303.75	2364.1	0.25



The above graph is a representation of relation between run time of insertion sort for different types of arrays with input array size(n)
From the above graphs of runtime analysis, we can conclude the following –

1. The growth rate of **Reverse Sorted Array > Random Element Array > Partially Sorted Array > Fully Sorted Array.**
2. The graphs of Reverse Sorted Array, Random Element Array and Partially sorted array are growing as n^2
3. The graph of fully sorted array is growing as n