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Program Structures & Algorithms

Fall 2021

Assignment No. 2

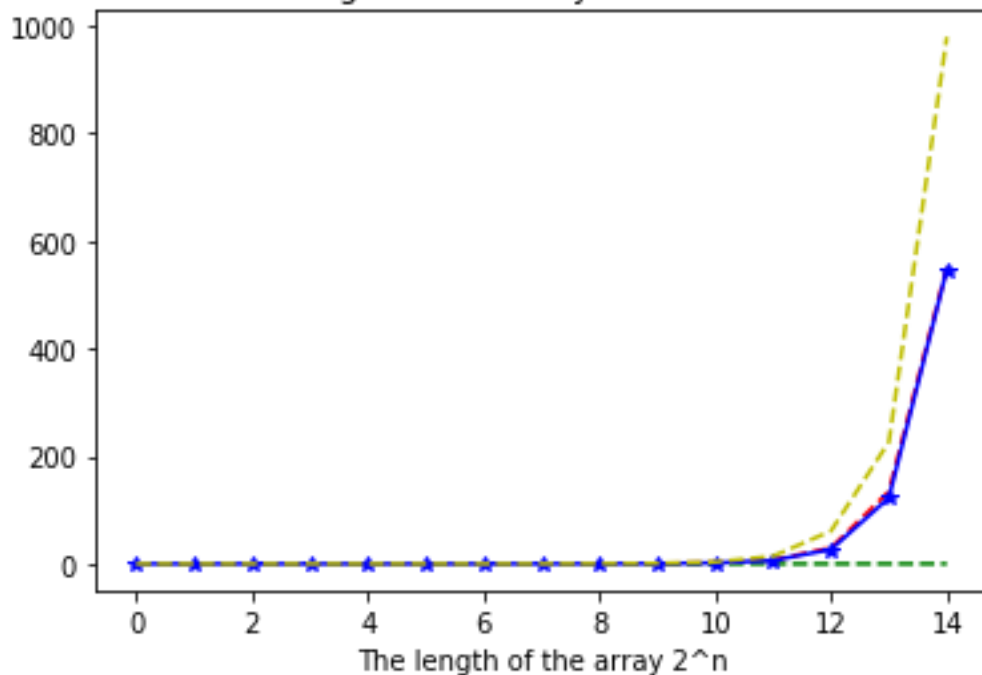
- ⊙ **Task (List down the tasks performed in the Assignment)**
 - Part 1, Implement Class Timer
 - Part 2, Implement Class InsertionSort
 - Part 3, Implement main method in InsertionSort and compare the time growth of the 4 kind of order

- ⊙ **Relationship Conclusion:**

growth(ordered) < growth(random) \approx growth(partially ordered) < growth(reverse ordered)

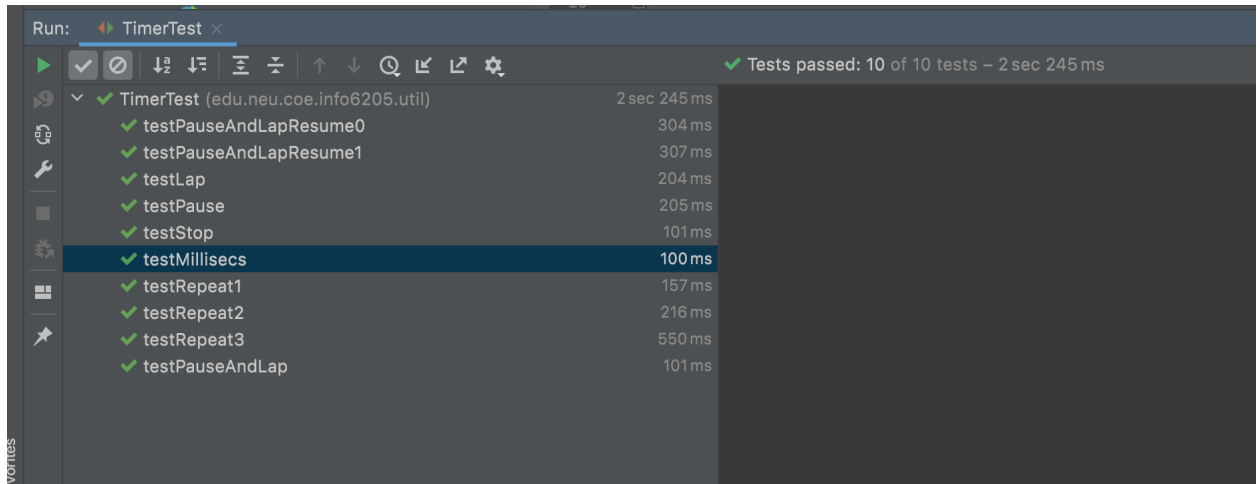
- ⊙ **Evidence to support the conclusion:**

Relation between the length of the array and sort time for 4 different order



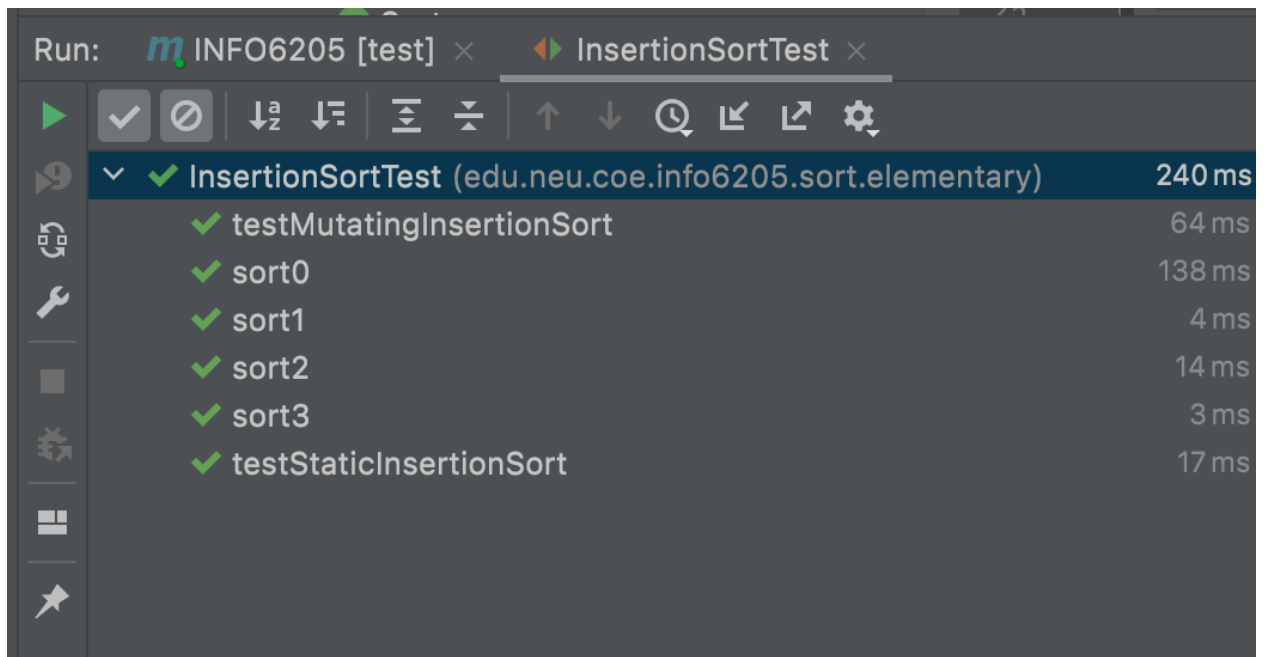
Output (Snapshot of Code output in the terminal)

TimerTest



Run: TimerTest		Tests passed: 10 of 10 tests – 2 sec 245 ms
✓	TimerTest (edu.neu.coe.info6205.util)	2 sec 245 ms
✓	testPauseAndLapResume0	304 ms
✓	testPauseAndLapResume1	307 ms
✓	testLap	204 ms
✓	testPause	205 ms
✓	testStop	101 ms
✓	testMillisecs	100 ms
✓	testRepeat1	157 ms
✓	testRepeat2	216 ms
✓	testRepeat3	550 ms
✓	testPauseAndLap	101 ms

InsertionSortTest



Run: INFO6205 [test] InsertionSortTest		
✓	InsertionSortTest (edu.neu.coe.info6205.sort.elementary)	240 ms
✓	testMutatingInsertionSort	64 ms
✓	sort0	138 ms
✓	sort1	4 ms
✓	sort2	14 ms
✓	sort3	3 ms
✓	testStaticInsertionSort	17 ms

Main() in InsertionSort.java

28 kB at 65 kB/s)

2021-09-24 12:52:34 DEBUG Config - Config.get(helper, instrument) = false

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkRandom with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkOrdered with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkPartially with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkReversed with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkRandom with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkOrdered with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkPartially with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkReversed with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkRandom with 1,000 runs

2021-09-24 12:52:34 INFO Benchmark_Timer - Begin run: InsertSortBenchmarkOrdered with 1,000 runs