

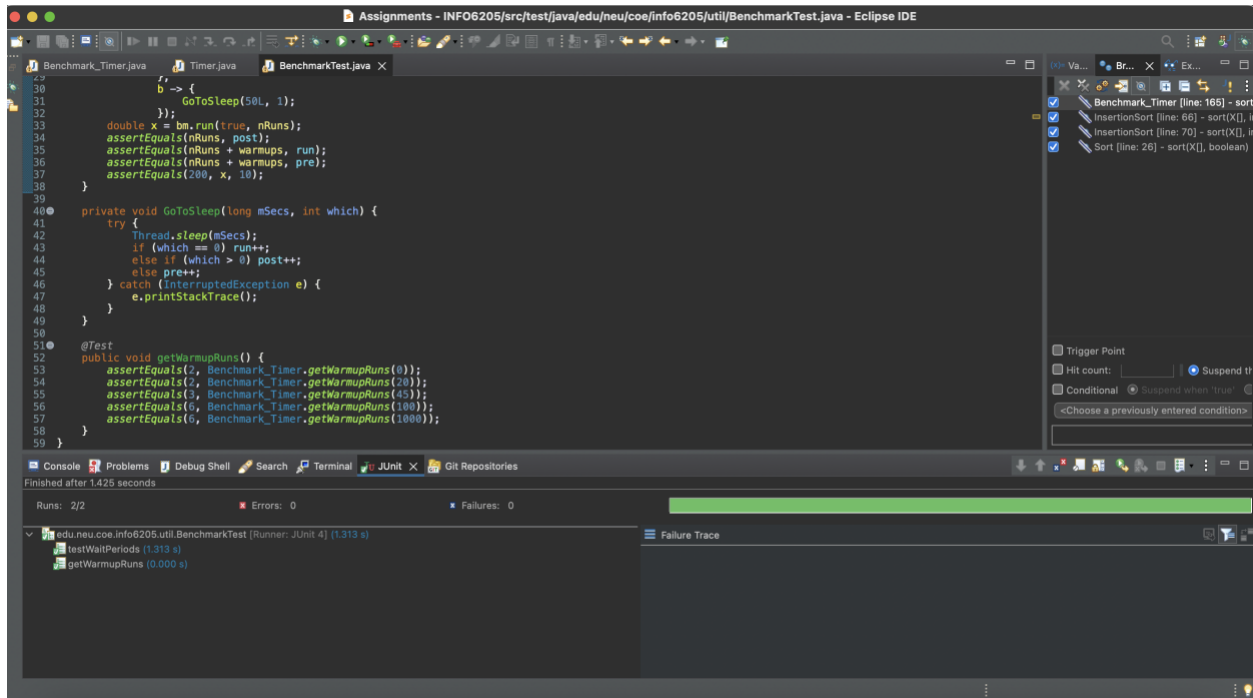
Program Structure and Algorithms
Spring 2023 (Section 8)

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Task: Benchmark

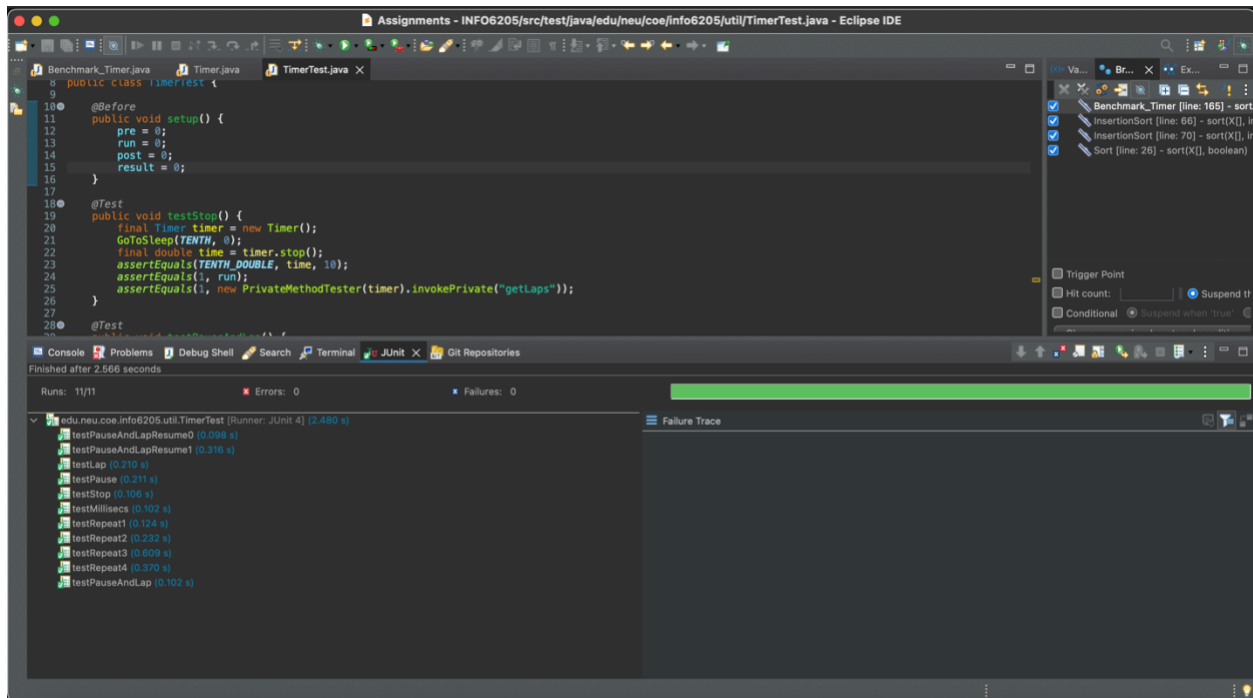
Unit Test Screenshots:

Below is the screenshot of the test cases getting passed, ran through JUnit in Eclipse, for Part 1.

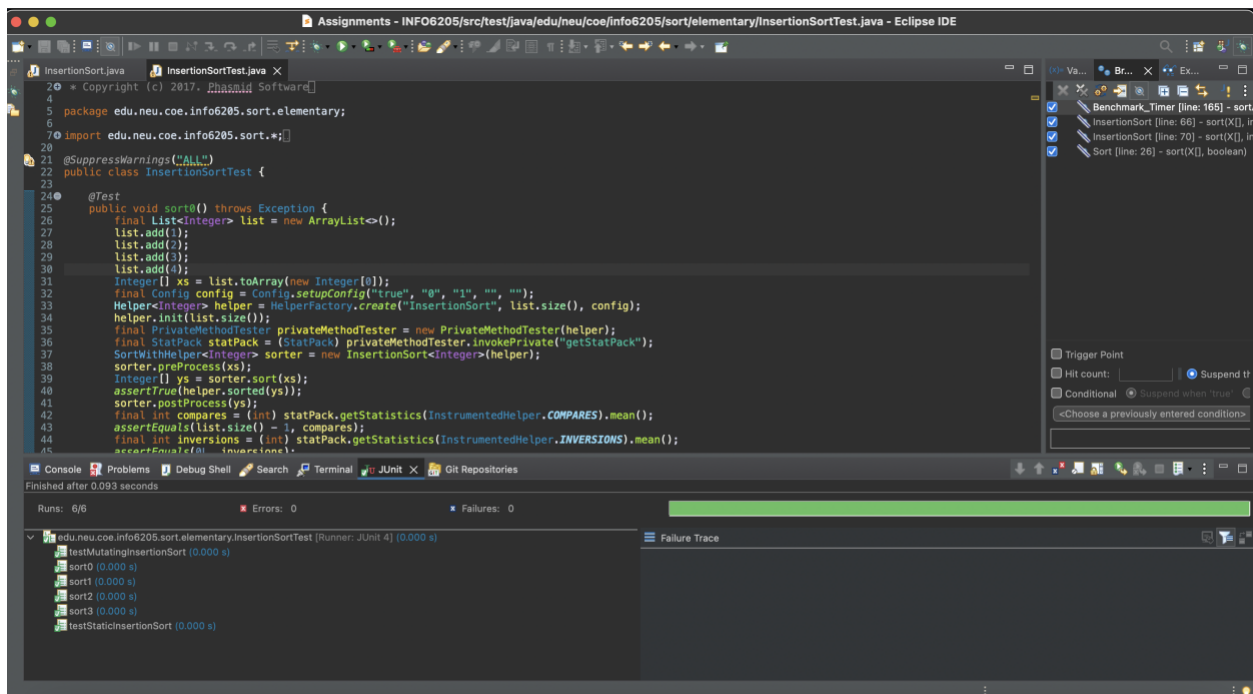


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Below is the screenshot of the test cases getting passed ran through Junit in Eclipse, for Part 2.

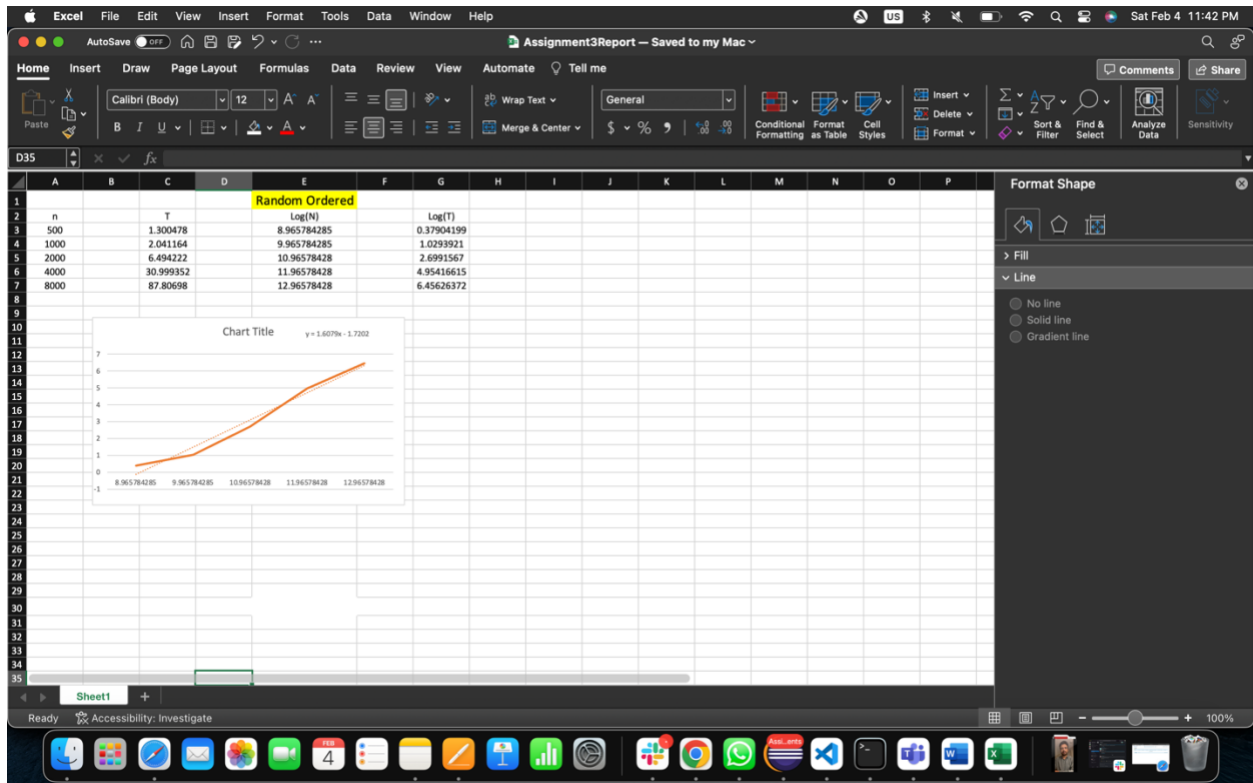


Github Repo URL: <https://github.com/rishdeore44/INFO6205.git>

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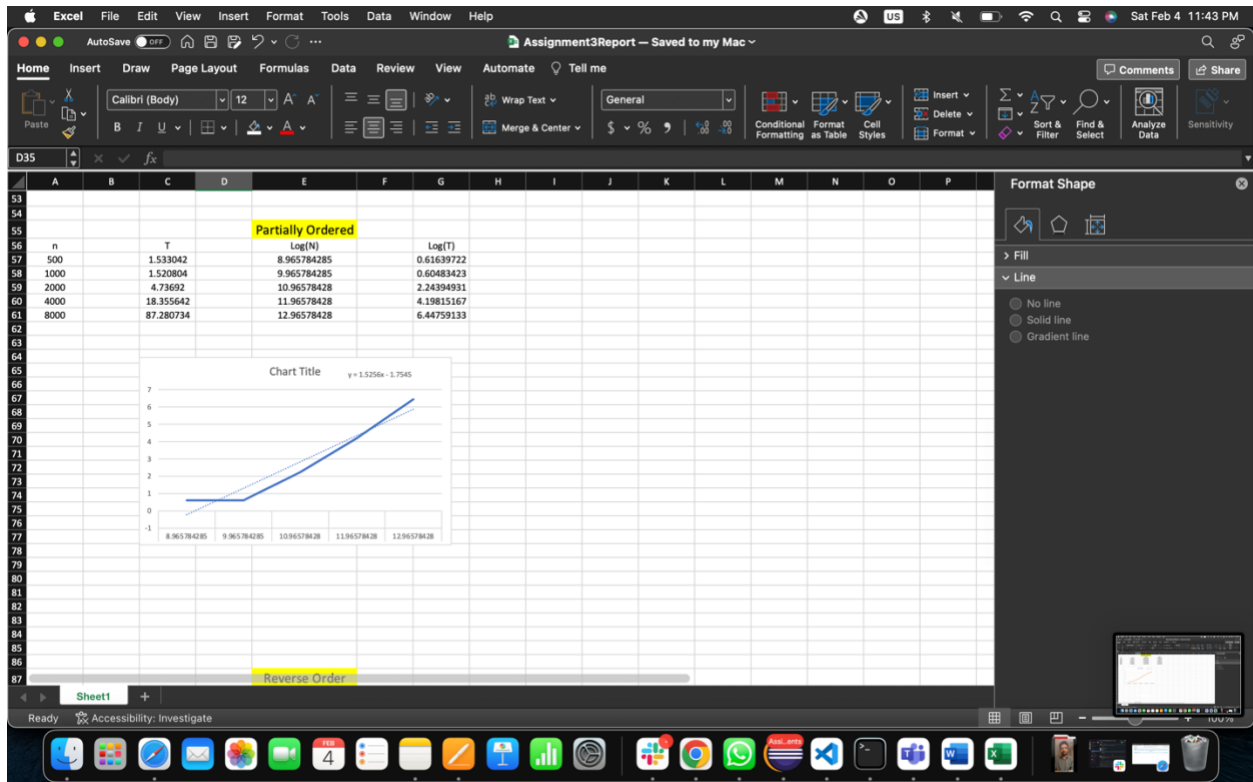
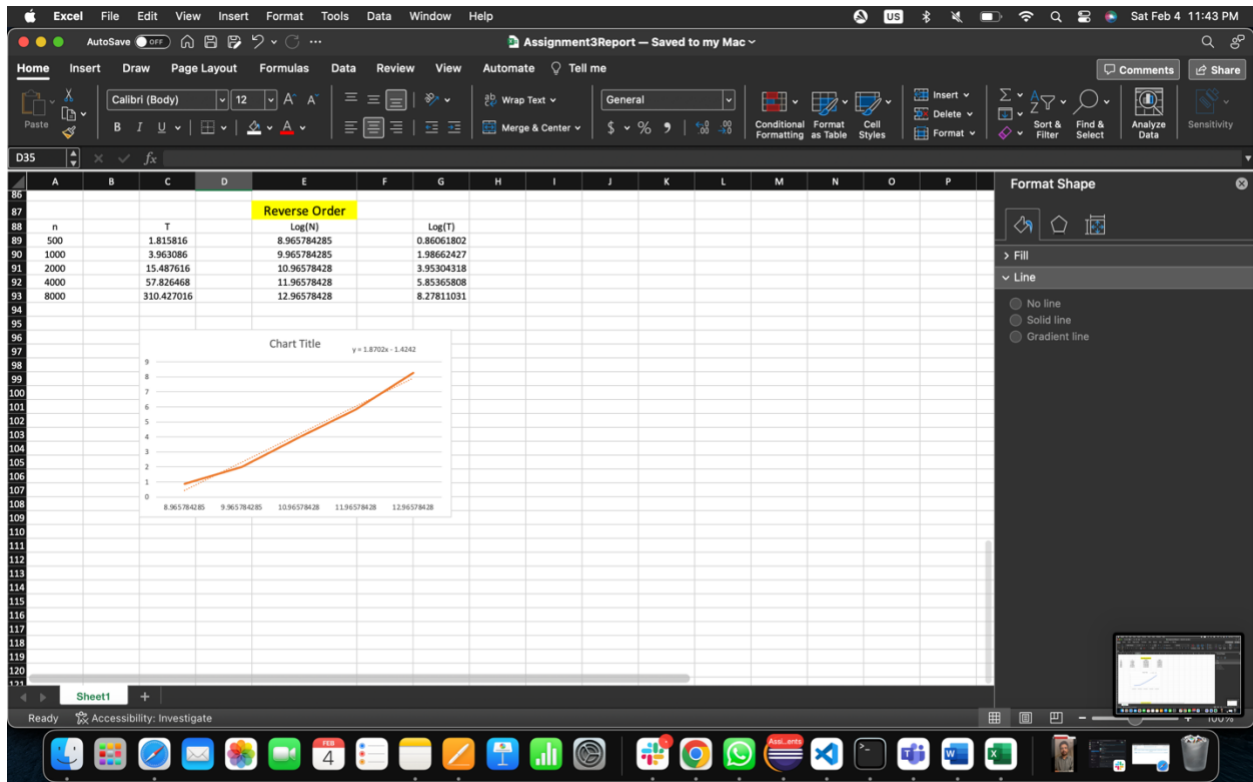
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Timing Observations:



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Conclusion:

The time it takes for an algorithm to sort an array depends on how ordered the elements are. If the elements are already sorted, it will take less time. If the elements are randomly placed, it will take more time. If the elements are in reverse order, it will take the most time. This is because the algorithm has to do more work to put the elements in the right order.

The equations of the different types of sorting on an array is described in the excel file where graph is generated. This equation is nothing but the relation between time taken by an array to execute n times and the length of an array generated randomly.

Ordered < Partial-ordered < Random < Reverse order.