

Program Structures and Algorithms

Spring 2024

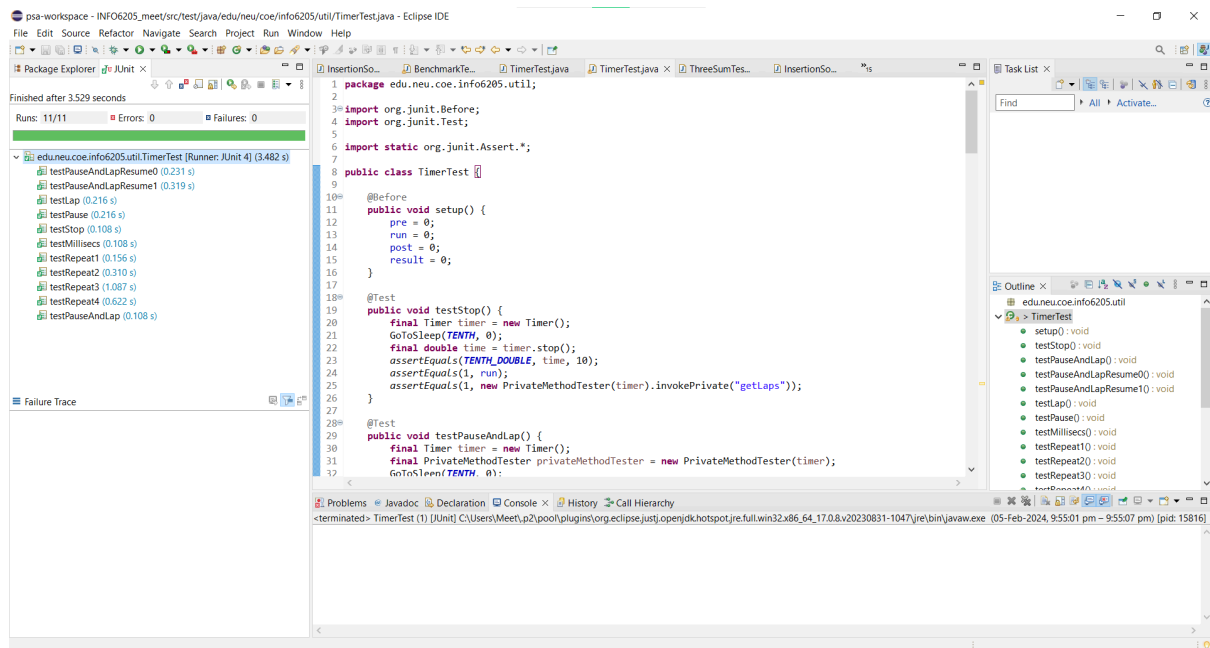
NAME: Meet Karnik

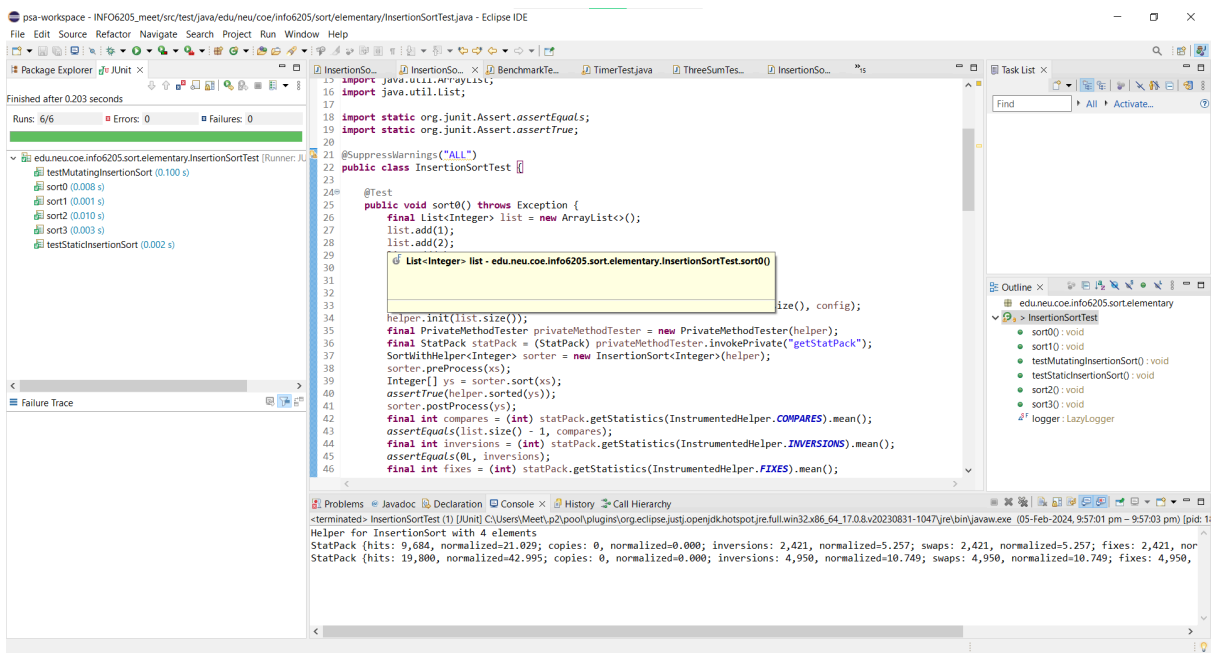
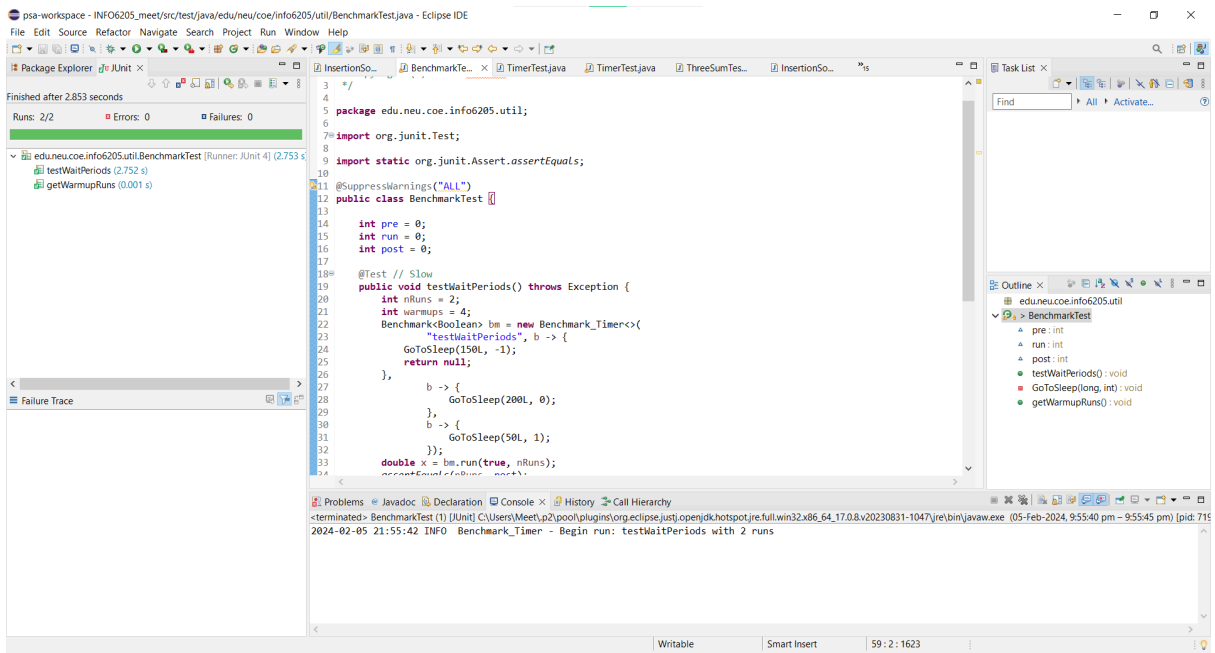
NUID: 002795334

GITHUB LINK: https://github.com/karnikmeet/INFO6205_meet

Task: Assignment 3(Benchmark)

Unit Test Screenshots:





Timing Observations: Here is a table which shows the time taken by Insertion Sort to sort arrays of integers in Random order, ordered, partially ordered & reverse ordered. Each array has a number of integers(N) which gets doubled on each iteration.

For N=1000			For N=2000			For N=4000		
Order	Time taken(in seconds)		Order	Time taken(in seconds)		Order	Time taken(in seconds)	
Random order	1.922		Random order	2.057		Random order	0.979	
Ordered	1.637		Ordered	1.689		Ordered	1.806	
Partially Ordered	2.003		Partially Ordered	1.043		Partially Ordered	1.061	
Reverse ordered	1.571		Reverse ordered	0.985		Reverse ordered	0.986	
For N=8000			For N=16000					
Order	Time taken(in seconds)		Order	Time taken(in seconds)				
Random order	1.936		Random order	1.034				
Ordered	0.912		Ordered	0.964				
Partially Ordered	0.784		Partially Ordered	0.972				
Reverse ordered	0.77		Reverse ordered	0.952				

From the above timings, it can be observed that Insertion Sort works faster when the array is in reverse order.