PSA – Assignment 1

Hits as Time Predictor

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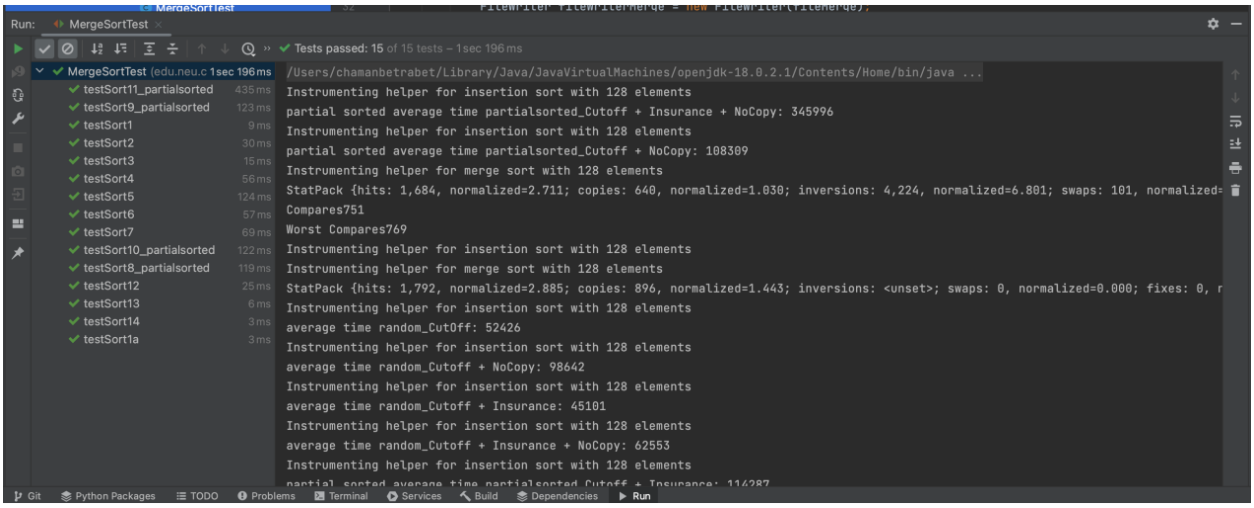
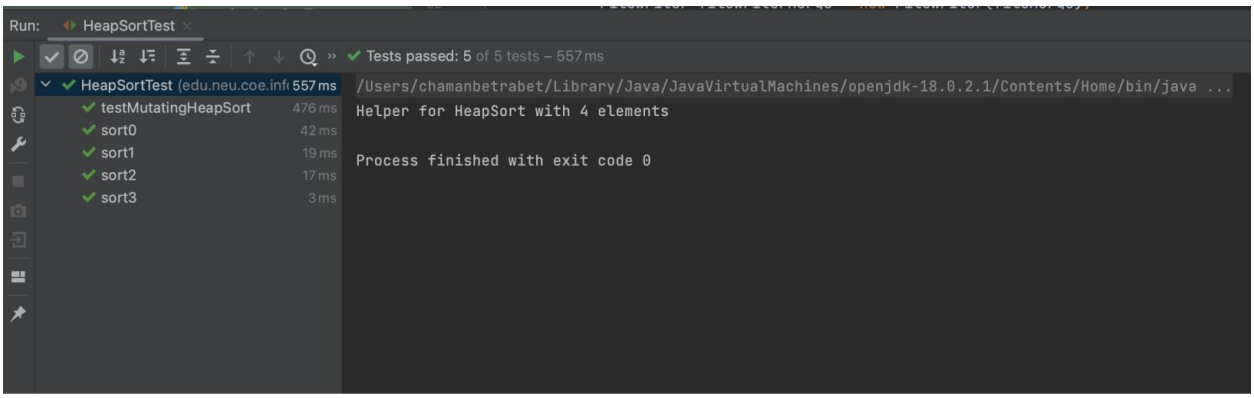
1. **Relationship:**-
   Based on the analysis, several factors can impact the duration required for sorting an array using merge sort, dual pivot quick sort, or heap sort algorithms. Each of these sorting methods results in varying numbers of swaps, compares, and copies. As per the findings, merge sort requires the least number of swaps and compares, but has the highest number of copies compared to quick sort and heap sort, which do not require any copies.

2. Test cases:-
   Merge sort



   Heap sort



Quick sort


Run:
QuickSortTest
Tests passed: 2 of 2 tests – 494 ms
QuickSortTest (edu.neu.coe.inl 494 ms
testSort 490 ms
testPartition 4 ms
/Users/chamanbetrabet/Library/Java/JavaVirtualMachines/openjdk-18.0.2.1/Contents/Home/bin/java ...
Process finished with exit code 0