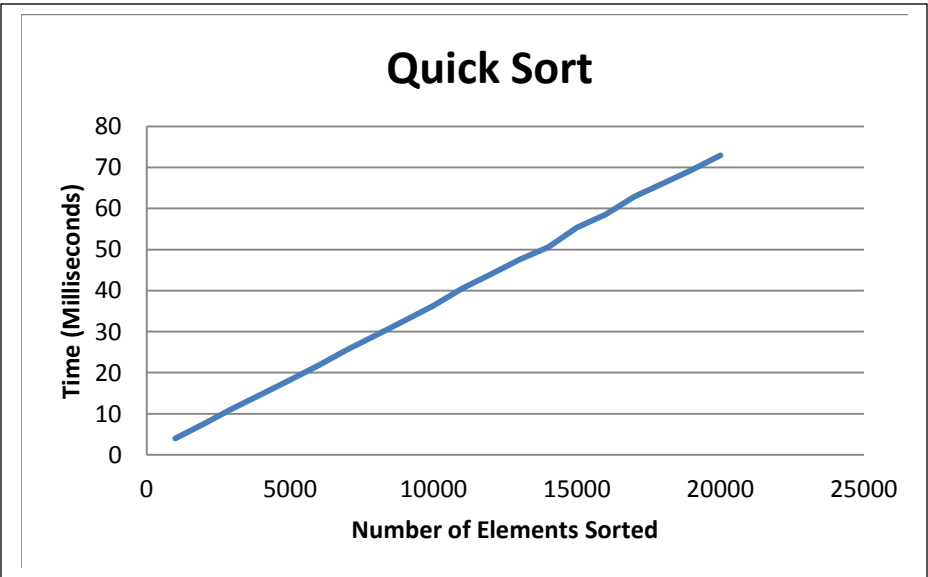
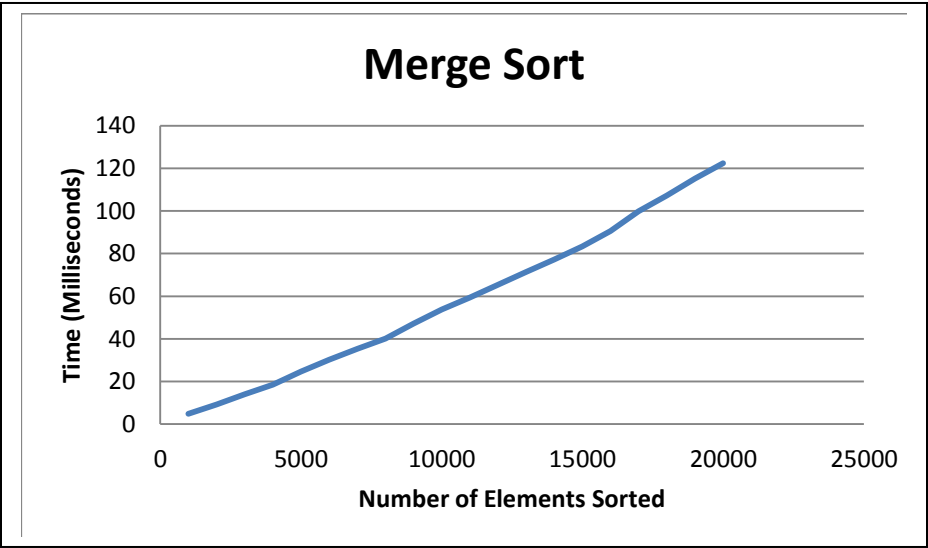
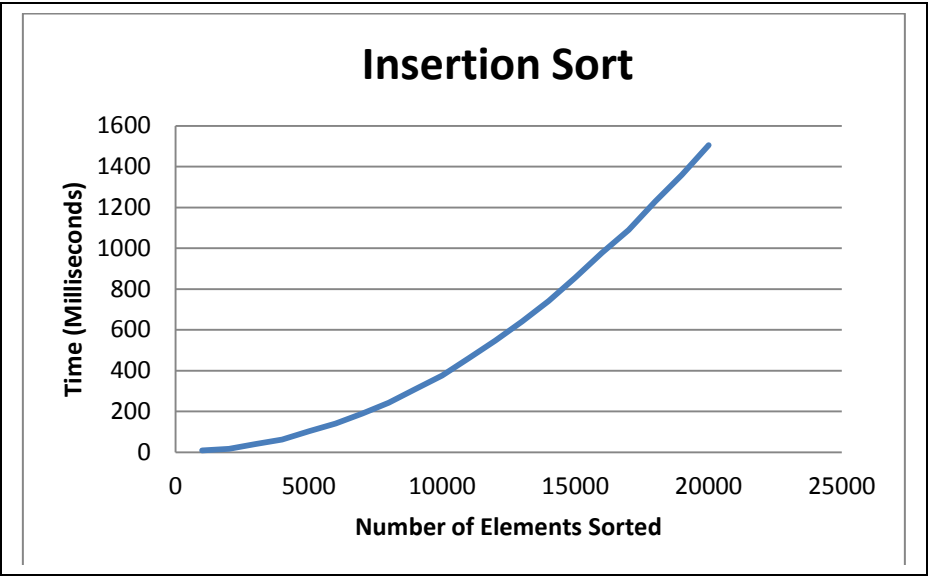
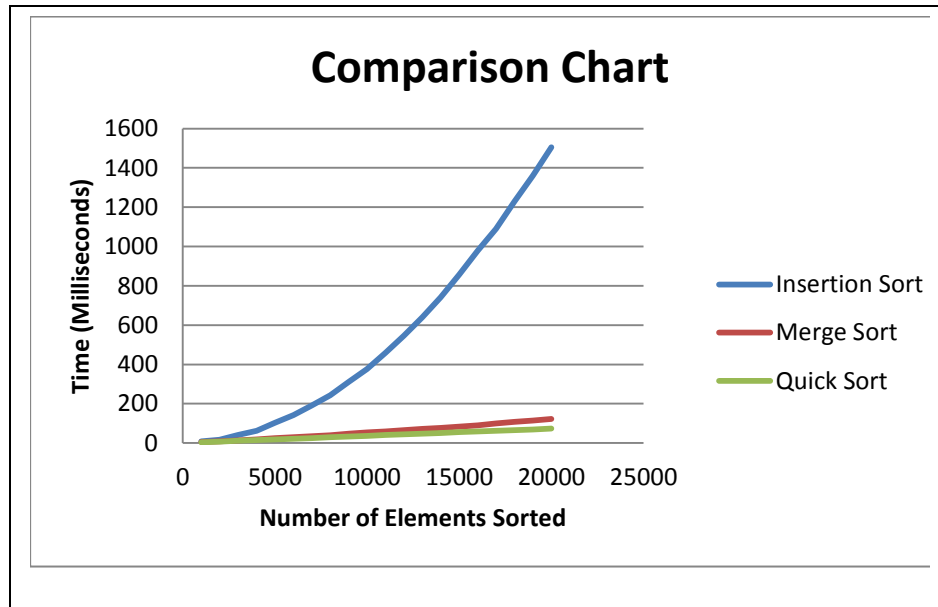


Analysis Report is at the bottom of the PDF.





Analysis Report

As you can see from the above charts, merge sort and quick sort quickly deviated from insertion sort in terms of running time, which is mainly because insertion sort has $O(n^2)$ running-time (which can be seen from the shape of the insertion sort graph which looks like a polynomial curve), while quicksort and insertion sort are both $O(n \cdot \log(n))$. Even though Quick Sort and Merge Sort have the same big-O running time and Quick Sort actually has a worse worst-case running time than Merge Sort, Quick Sort was still consistently faster than Merge Sort by around a factor of around 1.85 within the testing sorting-size from 1000 to 20000. Quick Sort's worst case running time is still extremely rare and only occurs if the smallest or largest element is chosen repeatedly as the pivot point.