Project Schedule

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| --- | --- | --- |
| Date | Task | Hours |
| 13/11/2023 | Create selection bubble and insertion sort | 4 |
| 23/9/2023 | create Quick sort algorithm | 2 |
| 23/11/2023 | create Heap sort algorithm | 2 |
| 23/12/2023 | create Mege sort algorithm | 2 |
| 27/12/2203 | -Create test documentation,  User manual and specification    -Assurance Testing | 4 |
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Complexity analysis

Sorting

Selection Sort

Time Complexity

Worst and Average Case O (n^2)

Best Case O (n^2)

Insertion Sort

Time Complexity

Worst and Average Case O (n^2)

Best Case O(n)

Bubble Sort

Time Complexity

Worst and Average Case O (n^2)

Best Case O(n)

Quick Sort

Worst case O (n^2)

Best and Average Case O (n log n)

Heap Sort

All case O(n log n)

Merge Sort

All case O(n log n)

Searching

Linear Search

Worst and Average Case O (n)

Best case O (1)

Binary Search

All case O (n log n)

Hash-Based Search

Average Case O (1)

Worst case O(n)

BST

Average Case O (n log n)

Worst case O(n)