Program Structure and Algorithm

Assignment – 5

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| --- | --- |
| Array Size | Time(ms) |
| 200000 | 74 |
| 1600000 | 827 |
| 3200000 | 1864 |
| 6400000 | 3374 |
| 12800000 | 5636 |
| 25600000 | 10921 |

Conclusion:

The graph shows the execution time of the parallel sorting algorithm against the array size for various cutoff values. As we can see from the graph, the performance of the algorithm improves as the array size increases. This is because parallelization becomes more effective as the problem size increases.

The graph also shows that the optimal cutoff value for this algorithm is around 50000-9000000 for the given array sizes. We can see that for smaller cutoff values, the execution time increases as the array size increases. This is because smaller cutoff values result in more tasks being created and scheduled, which incurs additional overhead.

For larger cutoff values, the execution time remains almost constant for varying array sizes. This is because larger cutoff values result in fewer tasks being created, which reduces the amount of parallelism and increases the sequential overhead.

Text

Description automatically generated