Name (NUID)

Program Structures & Algorithms

Fall 2021

Assignment No. N

- **Task**

To Implement a parallel sorting algorithm such that each partition of the array is sorted in parallelCode for merge
The merge sort is done such that separate threads are to be used for partition of the array

Task 1:

Finding a cutoff value such that the the parsort can be switched to system sort if values fall below cutoff. That particular size of cutoff is found to be 60,000 elements (see cutoff.png)
The sort value time for with single thread and no thread(system sort) are compared by taking averages for 5 experiments.

Task 2 & 3:determining, an ideal number (*t*) of separate threads and arrange for that number of partitions to be parallelized .

The size of the array are increased systematically along with the number of threads
For a given array size, the number of threads are increased to a certain value.The same is repeated for different array sizes.
From the graph(see RecursionDepth.png) , the ideal number of threads can be seen to be around 5/6 threads (the lowest point from the graph

for all array sizes)

Screenshots are attached in the folder.