**Program Structures & Algorithms**

**Spring 2022**

**Assignment No. 4**

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* **Task:** Merge sort using Parallel processing
* **Output screenshot:**

**Table

Description automatically generated**

* **Relationship Conclusion:**

Although it is challenging to decide the optimal number of threads and cutoff required to run the experiment, it is machine-dependent. But, from the following experiment, it can be observed that:

* If the thread count is more and the cutoff is set within the range of 30 to 50% of the array input, then the time to do parallel sorting is less. Although this observation is different for input as massive as 20 million because for this size of the information, the optimal thread count was 16, and the cutoff was 19 million, sorting the array in 993ms.
* The overall time taken is, of course, more if the array size is enormous.
* **Evidence / Graph**

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