Program Structures & Algorithms

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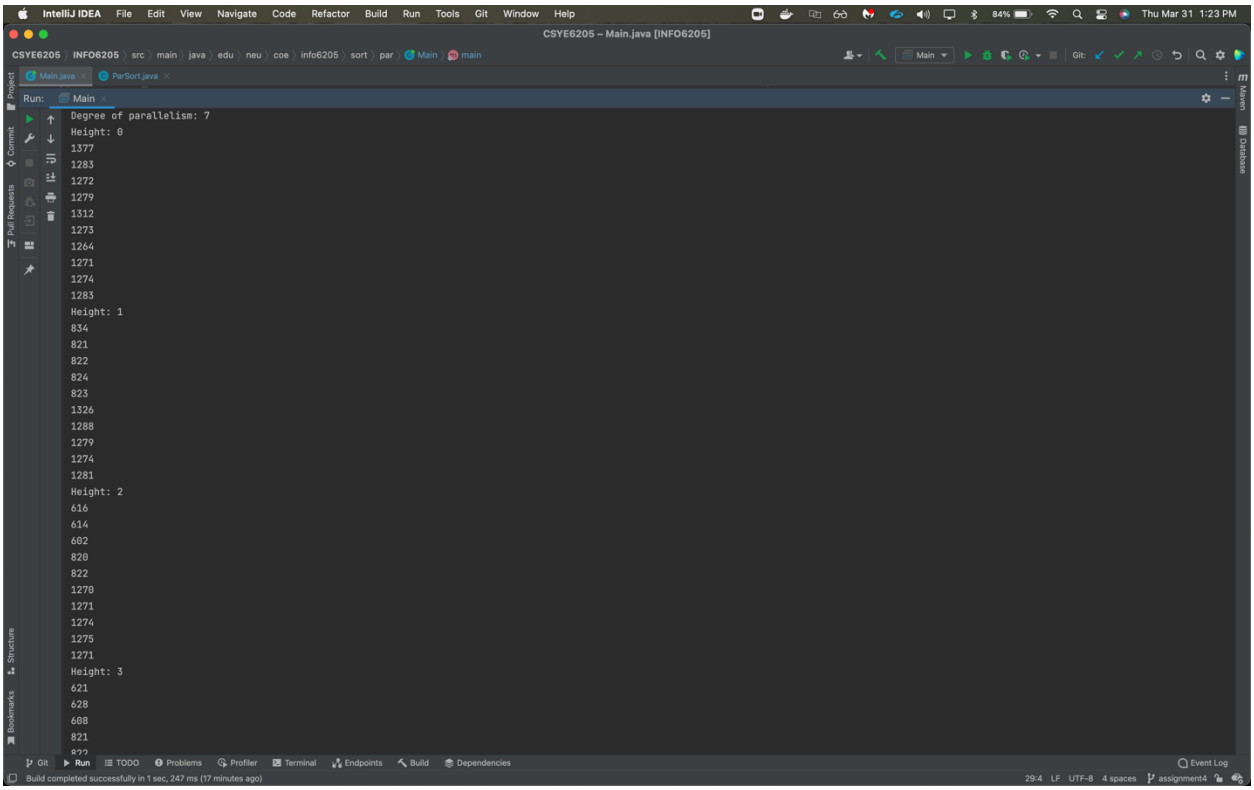
Assignment No. 4

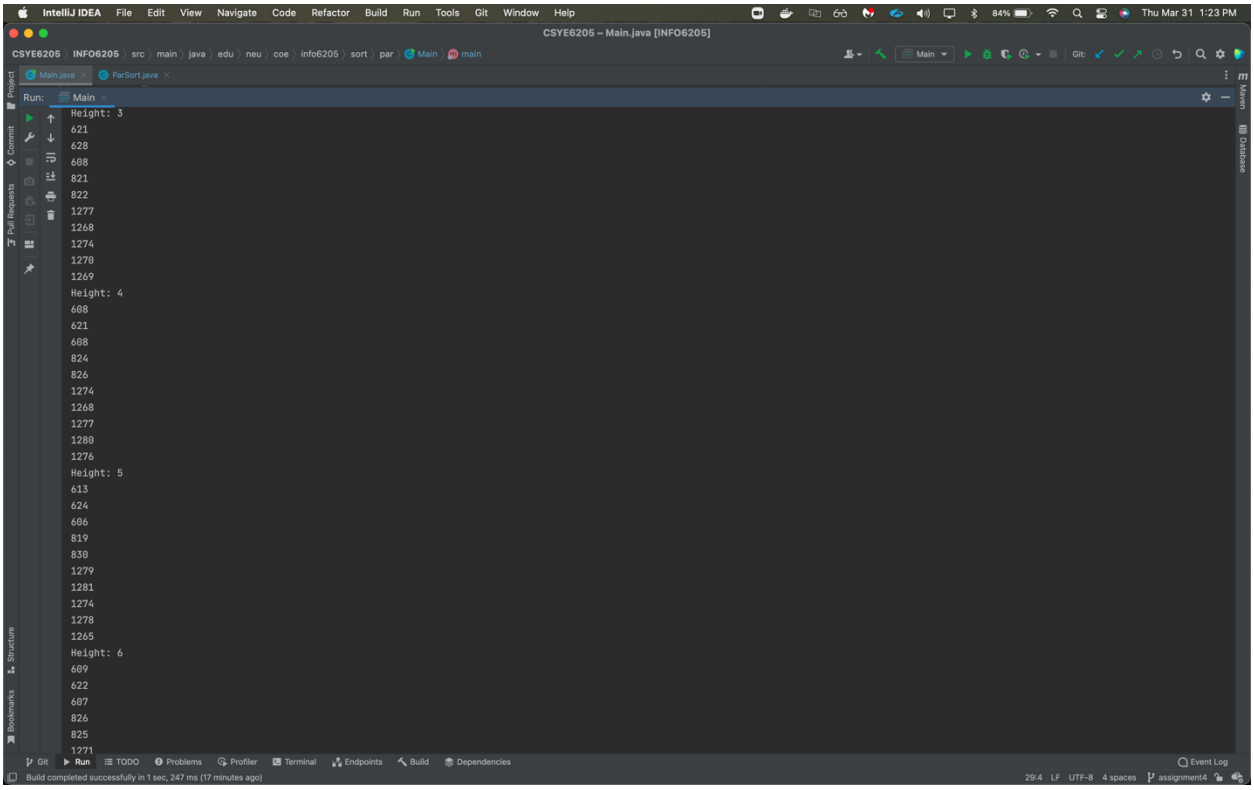
Name: Raj Mehta

(NUID): 001094914

- **Task**
  - Implement a parallel sorting algorithm such that each partition of the array is sorted in parallel. You will consider two different schemes for deciding whether to sort in parallel.
  - A cutoff (defaults to, say, 1000) which you will update according to the first argument in the command line when running. It's your job to experiment and come up with a good value for this cutoff. If there are fewer elements to sort than the cutoff, then you should use the system sort instead.
  - Recursion depth or the number of available threads. Using this determination, you might decide on an ideal number (t) of separate threads (stick to powers of 2) and arrange for that number of partitions to be parallelized (by preventing recursion after the depth of $lg\ t$ is reached).
  - An appropriate combination of these.

- **Output screenshot**





- **Relationship Conclusion**
  - We can see from the graphs that at “height = 0”, the performance is the worst. Then, as the height increases, the performance increases considerably. But, from the point of “height = 3”, we see that the performance increase is not very good.

- **Evidence / Graph**