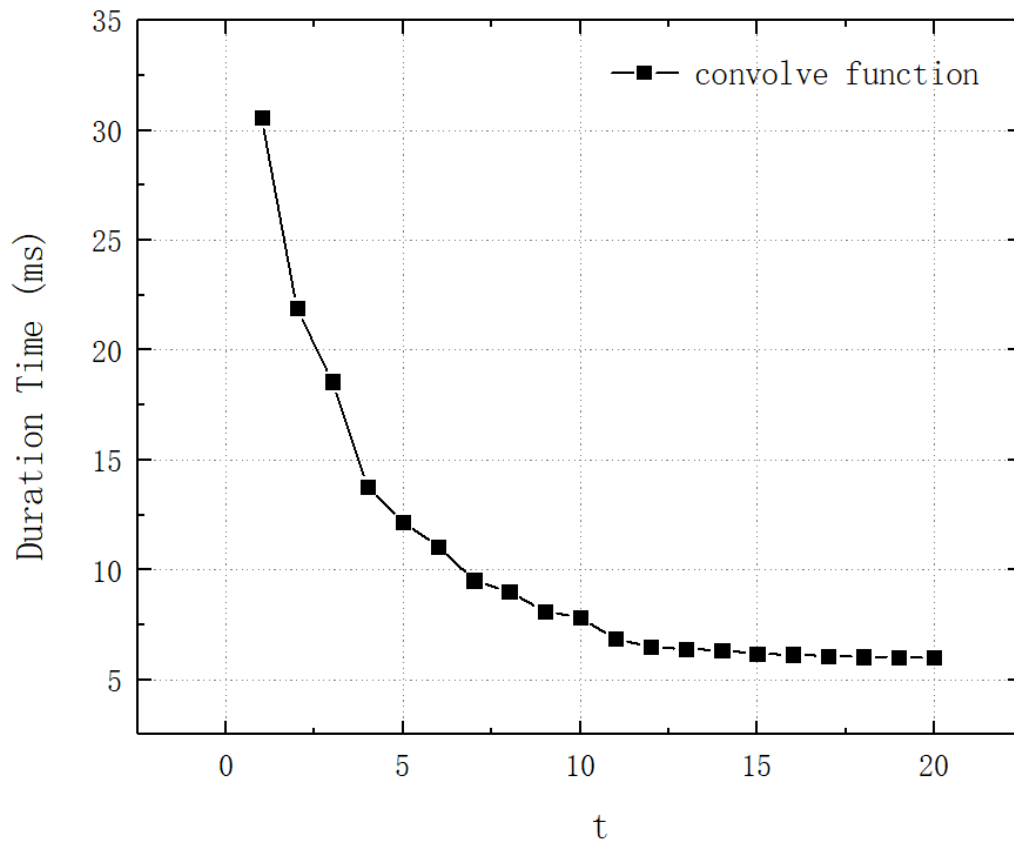


## HW08 Task2 c



My observations from the plot are as follows:

1. **Increase in Threads and Performance:** As the number of threads increases, performance improves. This is because more threads can execute the computation in parallel, resulting in faster task completion. This performance improvement is significant, especially when transitioning from a single-threaded execution to using multiple threads.
2. **Diminishing Returns in Performance:** However, as the number of threads continues to increase, the rate of performance improvement starts to decrease. This is because the overhead associated with managing threads, synchronization, and memory sharing starts to offset the benefits of parallelism. At this point, we may observe a diminishing efficiency in performance improvement, and it may even plateau.
3. **Hardware Dependence:** The extent of performance improvement limitations depends on the hardware and characteristics of the application. Different processor architectures, memory configurations, and cache hierarchies will affect performance differently. Therefore, the point at which performance plateaus may vary with hardware.
4. **Task Characteristics:** The nature of the task also influences the limitations of performance improvement. Some tasks are highly amenable to parallelization, while others may not be. Therefore, the optimal thread count depends on the characteristics of the task.