# Assignment 4 – OpenMP - loops

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## 1. Reduce

Question:
Run the code on mamba, in the reduce/ directory, using make bench. Plot speedup charts with make plot. Does the plots make sense? Why?

Answer:
For static scheduling as the threads increase, speedup increases for large number of N, because parallelism comes into consideration for large N. While in dynamic scheduling, along with the number of threads, granularity plays an important role for increasing the speedup. As granularity increases and is in good proportion with N, data processed in a single chunk for large N is more. Thus, for large N and threads, speedup increases with increase in granularity because of the less overhead to exchange data between the tasks or processes. Overall the speedup is more or less constant throughout the graphs.

## 2. Numerical Integration

Question:
Run the code on mamba, in the numint/ directory, using make bench. Plot charts with make plot. Does the plot make sense? Why?

Answer:
From the plots it can be seen that, for increase in thread number, when the value of N and granularity are proportional or optimal then the speedup is high for lower intensities because the cost for computing the function is less. While for other values where the chunk size is irregular speedups vary randomly because there needs to be some proportionality between granularity and the value of N depending on the intensity of the function.