**IT301 – Parallel Computing**

Assignment – 5

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1. Program 1
   1. Text, application

      Description automatically generatedText, application

      Description automatically generatedObservation – As we can see below in the two images, the time it took for the program to run sequentially is less than the time it took for the program to run parallelly. We can say that using parallel execution for small number of iterations will be slower compared to running it sequentially.
2. Program 2
   1. Code



* 1. Chart, line chart

     Description automatically generatedObservation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TIME (s) →  SCHEDULE () ↓ | 5k Iterations | 10k Iterations | 50k Iterations | 100k Iterations | 500k Iterations |
| Sequential | 0.000762 | 0.000828 | 0.001100 | 0.001532 | 0.003587 |
| Static | 0.001229 | 0.001216 | 0.001288 | 0.001376 | 0.001877 |
| Static, 10 | 0.001360 | 0.001318 | 0.001381 | 0.001496 | 0.001791 |
| Dynamic, 10 | 0.001390 | 0.001418 | 0.001628 | 0.001732 | 0.001797 |
| Guided, 10 | 0.000757 | 0.001220 | 0.001438 | 0.001280 | 0.001349 |
| Runtime | 0.001468 | 0.001640 | 0.005310 | 0.010508 | 0.037395 |

We can see from the graph that the time taken for parallel execution (except runtime) perform worse than sequential execution for lower iterations, but as the number of iterations increases it performs better. The initial worse performance is due to the overhead in creating and maintaining the threads.