**Name: Sarah Aljurbua Id No.:220410528**

**Computer Specifications**

|  |
| --- |
| **Model: Personal Spec PC**  **Processor: Intel(R) Core (TM) i7-10700F CPU**  **Number of Cores: 8 Cores, 16 logical processors**  **Clock Frequency: 2.90 GHz / 2904 Mhz Memory: 16 GB RAM** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Array Size** | **1Thread**  **CPU Time** | **2 Threads**  **CPU Time** | **% age Improvement** | **4 Threads**  **CPU time** | **% age Improvement** |
| 1000 | 1 ms | 15 ms | -1400% | 24 ms | -2300% |
| 2000 | 0 ms | 15 ms | 100% | 23 ms | 100% |
| 4000 | 1 ms | 13 ms | -1200% | 21 ms | -2000% |
| 8000 | 0 ms | 13 ms | 100% | 20 ms | 100% |
| 16000 | 0 ms | 12 ms | 100% | 19 ms | 100% |
| 32000 | 1 ms | 13 ms | -1200% | 18 ms | -1700% |
| 64000 | 2 ms | 14 ms | -600% | 20 ms | -900% |
| 128000 | 3 ms | 14 ms | -366.66% | 19 ms | -533.33% |
| 256000 | 6 ms | 16 ms | -166.66% | 21 ms | -250% |
| 512000 | 12 ms | 18 ms | -50% | 22 ms | -83.33% |
| 1024000 | 24 ms | 26 ms | -8.33% | 25 ms | -4.16% |
| 2048000 | 54 ms | 46 ms | 14.81% | 33 ms | 38.88% |
| 4096000 | 125 ms | 84 ms | 32.80% | 63 ms | 49.60% |
| 8192000 | 324 ms | 263 ms | 18.82% | 183 ms | 43.51% |
| 16384000 | 503 ms | 324 ms | 35.58% | 327 ms | 34.99% |
| 32768000 | 996 ms | 649 ms | 34.83% | 635 ms | 36.24% |
| 65536000 | 2002 ms | 1289 ms | 35.61% | 1280 ms | 36.06% |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Array Size** | **6 Threads**  **CPU Time** | **% age Improvement** | **8 Threads**  **CPU time** | **% age Improvement** |
| 1000 | 31 ms | -3000% | 39 ms | -3800% |
| 2000 | 28 ms | 100% | 36 ms | 100% |
| 4000 | 26 ms | -2500% | 35 ms | -3400% |
| 8000 | 25 ms | 100% | 34 ms | 100% |
| 16000 | 26 ms | 100% | 33 ms | 100% |
| 32000 | 26 ms | -2500% | 38 ms | -3700% |
| 64000 | 27 ms | -1250% | 38 ms | -1800% |
| 128000 | 27 ms | -800% | 34 ms | -1033.33% |
| 256000 | 29 ms | -383.33% | 38 ms | -533.33% |
| 512000 | 31 ms | -158.33% | 38 ms | -216.66% |
| 1024000 | 34 ms | -41.66% | 40 ms | -66.66% |
| 2048000 | 41 ms | 24.07% | 43 ms | 20.37% |
| 4096000 | 106 ms | 15.20% | 68 ms | 45.60% |
| 8192000 | 137 ms | 57.71% | 151 ms | 53.39% |
| 16384000 | 309 ms | 38.56% | 320 ms | 36.38% |
| 32768000 | 614 ms | 38.35% | 652 ms | 34.53% |
| 65536000 | 1263 ms | 36.91% | 1256 ms | 37.26% |