PROCESSES VS THREADS TESTING

COMP 8005

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# Testing

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| **#** | **DESCRIPTION** | **STEPS** | **EXPECTED RESULT** | **ACTUAL RESULT** | **RESULT** |
| 1 | Correctly implemented Taylor Series to approximate Pi | 1. Run the program with 1 iteration 2. Run the program with 10000 iterations | accuracy of pi increases as number of iterations increases | accuracy of pi increases as number of iterations increases | PASS |
| 2 | Time measurement is correct | 1. Run the program with 10000 iterations 2. Take note of elapsed time via system clock | Printed elapsed time matches actual elapsed time | Printed elapsed time matches actual elapsed time | PASS |
| 3 | Time of computation decreases as number of workers increases | 1. Run the program with 10000000 iterations with 1 worker 2. Run the program with 10000000 iterations with 4 workers | Elapsed time is reduced with more workers | Elapsed time is reduced with more workers | PASS |
| 4 | Pi approximation is the same regardless of process workers and thread workes | 1. Run the program with 10000000 iterations and 4 processes 2. Run the program with 10000000 iterations and 1 process with 4 threads | Approximated value of Pi is the same in both scenarios | Approximated value of Pi is the same in both scenarios | PASS |
| 5 | Work is spread evenly amongst workers | 1. Run the program with 1000000 iterations with 8 workers 2. Monitor top or htop to see CPU core distribution | All cores are utilized | All cores are utilized | PASS |
| 6 | Fully uses compute cores | 1. Run the program with 1000000 iterations with 8 workers 2. Monitor top or htop to see CPU core distribution | All cores are utilized | All cores are utilized | PASS |
| 7 | Correctly spawns number of threads per process | 1. Run the program with 1000000 iterations with 2 processes with 4 threads per process 2. Monitor htop to see number of processes and threads | See 2 processes and 8 threads in htop | See 2 processes and 8 threads in htop | PASS |
| 8 | Help message displays correctly | 1. Run the program with the –help arg | See help message | See help message | PASS |

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