MPI Assignment

Report of Problem 2:

Configuration:
No. of CPU: 8
Memory: 8 GB

Table 1: Comparison of performance of Polynomial evaluation using MPI where Data Size=50k, and Chunk Size=77

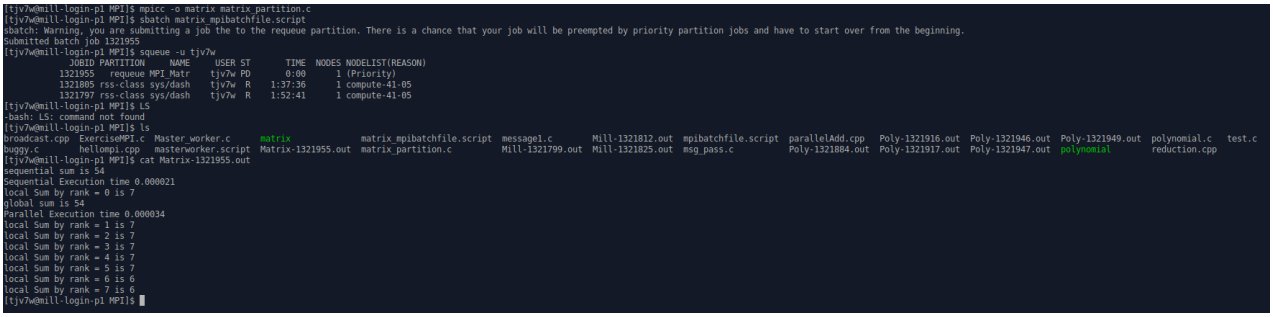
No of Processors	Parallel Time	Sequential	Speedup
4	3.766103	11.534026	3.0626
8	1.376371	9.648367	7.0100

Table 2: Comparison of performance of Polynomial evaluation using MPI where Data Size=100k, and Chunk Size=77

No of Processors	Parallel Time	Sequential	Speedup
4	15.376041	47.860284	3.112653
8	5.291778	29.473186	5.569618

Screenshot

Screenshot of program 1



Screenshot of program 2

```
[tjv7w@mill-login-p1 ~]$ cd Desktop/PDP/MPI
[tjv7w@mill-login-p1 MPI]$ module load openmpi/4.1.5/gcc/12.2.0
[tjv7w@mill-login-p1 MPI]$ sbatch polynomial.script
sbatch: Warning, you are submitting a job the to the requeue partition. There is a chance that your job will be preempted by priority partition jobs and have to start over from the beginning.
Submitted batch job 1323260
[tjv7w@mill-login-p1 MPI]$ squeue -u tjv7w
             JOBID PARTITION     NAME     USER ST       TIME  NODES NODELIST(REASON)
           1323260   requeue MPI_Poly    tjv7w  R       0:04      1 compute-15-07
           1322467 rss-class sys/dash    tjv7w  R    2:52:26      1 compute-41-01
[tjv7w@mill-login-p1 MPI]$ ls
a.out            Matrix-1321955.out          Poly-1323260.out
broadcast.cpp    matrix_mpibatchfile.script  polynomial
buggy.c          matrix_partition.c          polynomial.c
ExerciseMPI.c    message1.c                  polynomial.script
hellompi.cpp     mpibatchfile.script         reduction.cpp
Master_worker.c  msg_pass.c                  test.c
matrix           parallelAdd.cpp
[tjv7w@mill-login-p1 MPI]$ cat Poly-1323260.out
Sequential Sum: 9932.637374
Sequential Execution time 9.648367
Worker 3 received termination signal
Worker 4 received termination signal
Worker 7 received termination signal
Worker 5 received termination signal
Worker 1 received termination signal
Worker 6 received termination signal
Worker 2 received termination signal
Final result of polynomial evaluation: 9932.64
Parallel Sum: 9932.637374
Parallel Execution time 1.376371
Correct: Parallel and Sequential Results Match
[tjv7w@mill-login-p1 MPI]$
```