CS546 Parallel and distributed Processing
Programming Assignment
Manual

This assignment is done in PThreads and MPI,run on Linux local machine and Jarvis Cluster.Here are the main programs to be executed:

1. Serlization.c
2. Pthreads.c
3. Mpi
    1. Mpifinal.c
    2. jay.sh

Execution:
These programs are run on linux Local Mahine and Jarvis Cluster.

1.Local Machine

1.Serlization.c

Compile with "gcc Serlization.c -o test" and run ./test 2000 2 outputfile.txt (2000 is the Matrix size,2 is the random seed and outputfile.txt to store the output)

```
chiru@chiru:~/Desktop$ gcc ser.c -o test
chiru@chiru:~/Desktop$ ./test 2000 2 ser.txt
filename = ser.txt

Matrix dimension N = 2000.

Initializing...
```

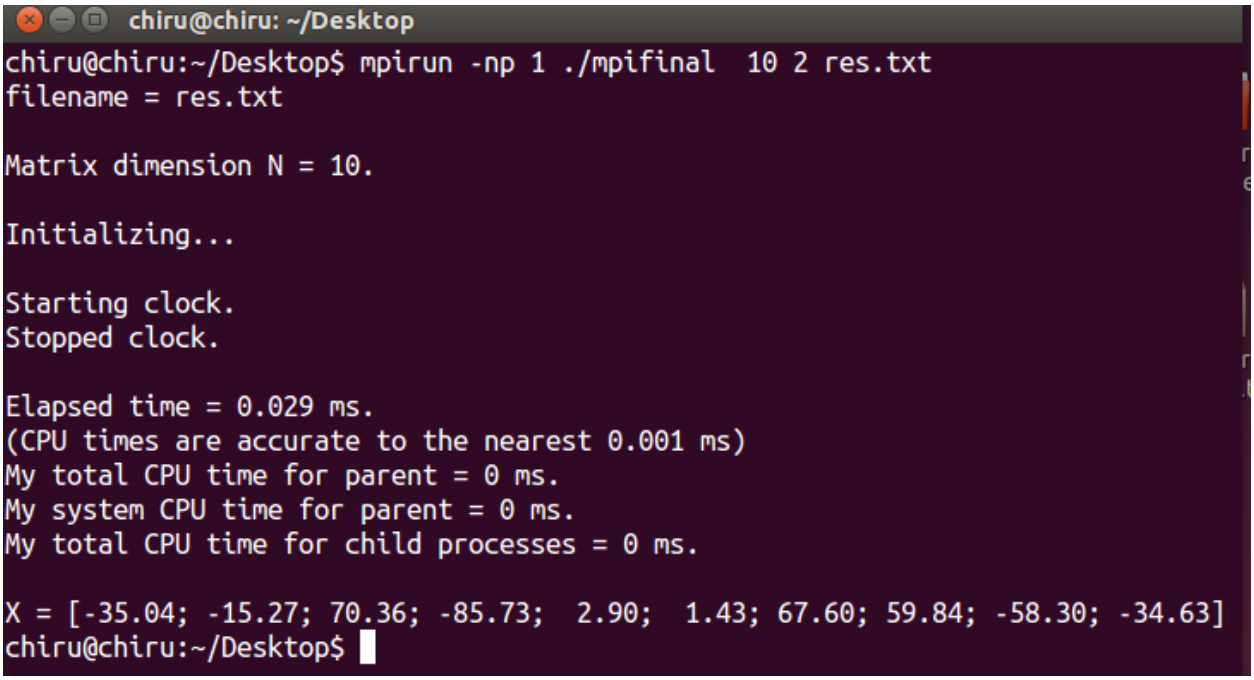
2. PThreads.c

Compile the code with "gcc PThreads.c -o test -lpthread" and run ./test 1000 2 Outputfile.txt (Here we need to give three command line arguments i.e Matrix size,randon seed and output file name)

```
chiru@chiru:~/Desktop$ gcc PThreads.c -o test -lpthread
chiru@chiru:~/Desktop$ ./test 100 2 threadout.txt
filename = threadout.txt
```

3. **Mpifinal.c**

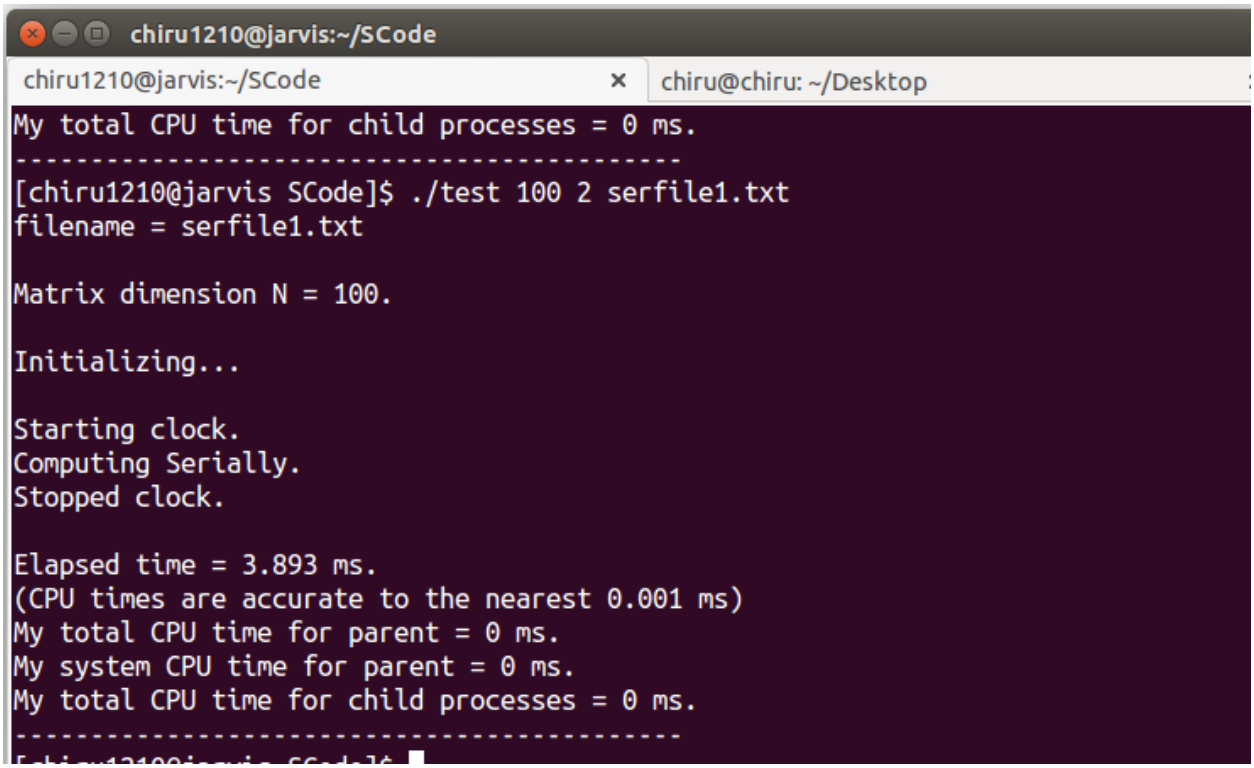
Compile the code with "mpicc mpifinal.c -o test1 -lm" and run "mpirun -np 1 ./test1 2000 2 output.txt" (Here we need to give three command line arguments i.e Matrix size, randon seed and output file name).



2.Jarvis Machine

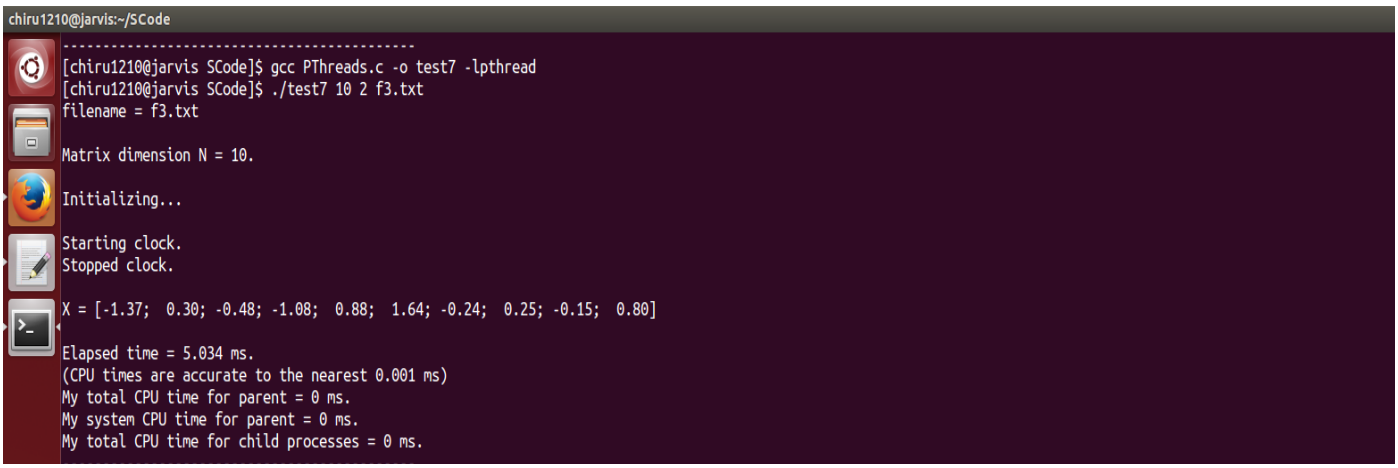
1.Serlization.c

Compile with "gcc Serlization.c -o test" and run ./test 2000 2 outputfile.txt (2000 is the Matrix size,2 is the random seed and outputfile.txt to store the output)



2. PThreads.c

Compile the code with "gcc PThreads.c -o Test -lpthread" and run ./Test 1000 2 Outputfile.txt (Here we need to give three command line arguments i.e Matrix size,randon seed and output file name)



3. **Mpifinal.c**

Compile the code with "mpicc mpifinal.c -o mpifinal -lm" .

Job submission script contains(jay.sh) : mpirun -npernode 8 ./mpifinal 2000 2 output.txt (Here we need to give three command line arguments i.e Matrix size,randon seed and output file name).

Run the above script as: qsub -cwd -pe mpich 4 jay.sh

Check the number of jobs submitted in the queue: qstat

Check the output by : cat jay.sh.16o91(16o91 is the job id of the particular job)

```
[chiru1210@jarvis SCode]$ vi jay.sh
[chiru1210@jarvis SCode]$ qsub -cwd -pe mpich 4 jay.sh
Your job 16490 ("jay.sh") has been submitted
[chiru1210@jarvis SCode]$ ls -l
total 260
-rw-r--r-- 1 chiru1210 iit_students 14007 Sep 26 17:47 f1.txt
-rw-r--r-- 1 chiru1210 iit_students  5607 Sep 26 17:49 f2.txt
-rw-r--r-- 1 chiru1210 iit_students 16996 Sep 26 18:00 f3.txt
-rw-r--r-- 1 chiru1210 iit_students 14007 Sep 27 14:58 file1.txt
-rwxr--r-- 1 chiru1210 iit_students    44 Sep 27 15:04 jay.sh
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 15:30 jay.sh.e16471
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 15:39 jay.sh.e16472
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 16:43 jay.sh.e16477
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 16:43 jay.sh.e16478
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 16:46 jay.sh.e16479
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 27 14:58 jay.sh.e16489
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 27 15:04 jay.sh.e16490
-rw-r--r-- 1 chiru1210 iit_students  4706 Sep 26 15:33 jay.sh.o16471
-rw-r--r-- 1 chiru1210 iit_students  2405 Sep 26 15:39 jay.sh.o16472
-rw-r--r-- 1 chiru1210 iit_students  1252 Sep 26 16:46 jay.sh.o16477
-rw-r--r-- 1 chiru1210 iit_students   677 Sep 26 16:45 jay.sh.o16478
-rw-r--r-- 1 chiru1210 iit_students   385 Sep 26 16:47 jay.sh.o16479
-rw-r--r-- 1 chiru1210 iit_students   383 Sep 27 14:58 jay.sh.o16489
-rw-r--r-- 1 chiru1210 iit_students    84 Sep 27 15:04 jay.sh.o16490
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 15:30 jay.sh.pe16471
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 15:39 jay.sh.pe16472
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 16:43 jay.sh.pe16477
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 16:43 jay.sh.pe16478
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 26 16:46 jay.sh.pe16479
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 27 14:58 jay.sh.pe16489
-rw-r--r-- 1 chiru1210 iit_students     0 Sep 27 15:04 jay.sh.pe16490
-rw-r--r-- 1 chiru1210 iit_students   121 Sep 26 15:30 jay.sh.po16471
-rw-r--r-- 1 chiru1210 iit_students   105 Sep 26 15:39 jay.sh.po16472
-rw-r--r-- 1 chiru1210 iit_students   153 Sep 26 16:43 jay.sh.po16477
-rw-r--r-- 1 chiru1210 iit_students   121 Sep 26 16:43 jay.sh.po16478
-rw-r--r-- 1 chiru1210 iit_students   105 Sep 26 16:46 jay.sh.po16479
-rw-r--r-- 1 chiru1210 iit_students   105 Sep 27 14:58 jay.sh.po16489
-rw-r--r-- 1 chiru1210 iit_students   153 Sep 27 15:04 jay.sh.po16490
```