CST 303: Concurrent and Parallel Programming Lab

Assignment: 9

1. Write MPI program to perform sum of array using MPI_send and MPI_receive calls. Divide the task manually on nu number of processes. Process with PID-0 will receive the partial sum send by rest processes and print the result.

2. Write MPI program to find sum of *n* integers on a Parallel Computing System and use MPI collective blocking communication library calls.

3. Implement an MPI program that uses collective communication (e.g., MPI_Bcast, MPI_Scatter, MPI_Gather) to distribute an array among processes.
4. Implement parallel Quick sort using MPI.
5. Use MPI reduction operations to gather and sum the partial sums to find the total sum of the array.
   Additional Programs[Q-6-7/ Not to be included in the evaluation]

6. Write a program for parallel computation of π [Help: Listing 4.5, page 117 of book uploaded].
7. Write a program to split a default communicator in two process groups of a new communicator. First group and second process groups include, respectively processes with even and odd ranks from the default communicator. [Help: Listing 4.8, page 132 of book uploaded]