

Parallel and Distributed Processing

Assignment 02

Multi-threading

Attique Dawood

21-02-2025

Due: 02-03-2025 2359 Hours

Last Modified: Friday 21st February, 2025, 01:16

Question 1:

1. Create an asynchronous chat application using TCP client/server model in C++.
2. Client and server should be able to send/receive messages at any time.
3. Please use the provided makefile for this part. This makes it easier to run and test your code.

Question 2:

1. Write a multi-threaded C++ programme for matrix multiplication $\mathbf{C} = \mathbf{A} \times \mathbf{B}$.
2. Make a graph showing time taken by single-threaded vs multi-threaded implementation that shows how the performance scales as the number of threads are increased.
3. Make another graph showing how the problem scales as the matrix size is varied. For simplicity and consistency, you can choose to have square matrices.
4. Be sure to mention hardware specs and your observations in a separate pdf document and place it with code file(s).

Note 1: Please create two folders for these two questions named 'ChatsApp' and 'MatMul.' Add these folders to a zip file with your name and submit that. For example, Attique_Dawood.zip.

Note 2: Please provide makefiles for both questions and make sure to remove any object/executable files before submission.