

Assignment 5 - Simple MultiThreader

Implementation:

In this assignment we have helped to create a SimpleMultithreader, which is a simple implementation of a Multithreader in c language that can be used or included in a program created by the user. This program demonstrates the implementation of parallel processing using multithreading with pthreads and lambda expressions . It defines two thread functions, singleThreadFunction and doubleThreadFunction, that execute lambda functions on different segments of the loop. The program passes lambdas dynamically, allowing users to define custom operations for each thread to perform. For single loop operations, the program divides the loop range between low and high into chunks based on the number of threads and each thread executes the lambda function for its assigned range. Similarly, for double-loop operations, the program splits the outer loop into chunks while running the inner loop fully for each thread. Threads are created and executed simultaneously. The performance is measured using the chrono library.

Contributions:

- 1) Dhruv Jain: Double loop thread function, parallel for (double loop implementation), main
- 2) Varun Srivastava: thread structure, Single loop thread function, parallel for (Single loop).

Github repository: <https://github.com/dhruv230605/OS-Assignment-5>