

LAB Assignment 10

Operating Systems (UCS-303)

Instructions: The instructor is required to discuss the concept of Multithreading with the students and the students have to implement following.

1. Write a C programs to implement multithreading where first thread calculates the sum of the elements of shared data (int data [10]), another thread finds the maximum value, and the third thread finds the minimum value. The main thread waits for these threads to finish and prints their results.
2. Two threads thread1 and thread2 are updating the common variable inside a critical section. Write a program using semaphore to ensure that only one thread can access the critical section at a time, to prevent the race condition.
3. Create a program that simulates a simple bank with multiple accounts and multiple clients making deposits (thread1) and withdrawals (thread2) concurrently. The goal is to ensure that account balances remain consistent even with concurrent operations. Use mutex locks to implement this.

Note: Home Assignment

1. Write a solution using semaphore for Producer Consumer Problem.