Birla Institute of Technology & Science, Pilani
Pilani Campus

II SEMESTER 2025-2026
TAKE HOME EXERCISE-1

Course No.: CS F422 **Course Title: Parallel Computing**
Deadline: As per Nalanda **Maximum Marks: 20M**

Consider the following requirements using pthreads.

(a) At most two pthreads can enter for reading in an critical area using function pthread_lab1_read_lock() and exit using pthread_lab1_read_unlock().

(b) Only one thread can enter for writing using pthread_lab1_write_lock() and no other thread should be present at that time. Writing thread exits by calling pthread_lab1_write_unlock().

(c) After a writing thread exits using pthread_lab1_write_unlock(), the next that should be given chance is reading thread. If no reading thread is waiting, a writing thread can enter.

(d) Using the above functions, write a program file "custom_lock_<idno>.c" that creates 50 threads, if thread id is even, it is reader thread else writer thread. Each writer thread will add 1 to a counter variable, reader thread will simply read the counter value.

(e) All events such as thread creation, thread reading, thread writing should be printed with thread id, even and value effected.

Files Expected: A tar file <idno>_the1.tar containing custom_lock_<idno>.c , video_link.txt, makefile, readMe.txt.

Video_link.txt should contain the URL of your video recording of your code explanantion and demo along with your voice over: Terminal prompt ($) should have your idno as the prompt. Record your explanation of code submitted. Video record your demostration for (a)-(e) along with your explanation. Please upload video in your Google drive, share it as "anyone with the link" and provide url in video_link.txt

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