National University of Computer and Emerging Sciences



**Laboratory Manual**

*for*

**Operating Systems Lab**

**(CS 205)**

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| Course Instructor | Dr Zeeshan Ali Khan |
| Lab Instructor(s) | Mr. Usman Anwer  M Aiss Shahid |
| Section | CS-4E |
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Department of Computer Science

FAST-NU, Lahore, Pakistan

**Lab Topic:**

* Threads and Multithreading

What is mutex: https://www.geeksforgeeks.org/mutex-lock-for-linux-thread-synchronization/

**Task 1:**

Write a program that creates two threads and passes an integer value to each thread. Each thread should increment the integer it receives by 1, print the new value, and then wait for 1 second before exiting. The main program should wait for both threads to finish before printing "Done!" and exiting.

**Task 2:**

Write a program that creates four threads and uses them to parallelize the calculation of the sum of an array of integers. The program should divide the array into four equal parts and assign each thread a part to sum. The main program should wait for all threads to finish and then print the total sum.

**Task 3:**

Write a multi-threaded C/C++ code with one thread printing all even numbers and the other all odd numbers. The output should always be in sequence ie. 0,1,2,3,4....etc.