National University of Computer and Emerging Sciences

**Laboratory Manual**

*for*

**Operating Systems Lab**

**(CL-220)**

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| Section | 5B |
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## Objectives

In this lab, students will practice process synchronization using semaphores

# Lab Questions

## Question 1

Create a private shared memory in C/C++. The parent process creates a child process. The first child reads the contents of a file (file name passed as a command line argument) and writes it to the shared memory. The second child reads from the shared memory, removes all duplicate integers from the data, and writes the modified data back to the shared memory. Finally, the parent process reads from the shared memory and writes the changed data back to the same file using open, read, and write system calls.

Note: Private shared memory is the shared memory that is only accessible by the process that created it and its children processes. Private shared memory is declared by passing IPC_PRIVATE as the key. Also, you do not need to explicitly attach the private shared memory child process since the child inherits the parent's address space.