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:

1. Inter-process communication using shared memory.
2. Inter-process communication using 2 pipes.

Important Note:

- Comment your code intelligently.
- Indent your code properly.
- Use meaningful variable names.
- Use meaningful prompt lines/labels for input/output.
- Use meaningful project and C/C++ file name.

1. **[Shared Memory]** Create a shared memory such that one process writes an array of integers of size 5 taken from the user and the second process read from the shared memory and display the square of those integers.

2. **[Shared Memory]** Create a private shared memory in C/C++. The process then creates a child and waits for the child to write the file's contents to shared memory. The parent then reads the shared memory and changes the case of each character and removes all integers from the data. The child reads it back and writes the changed data back to the same file. (The file name is passed as command line argument).

3. [Pipes] Design a program using ordinary pipes in which one process sends a string message to a second process, and the second process reverses the case of each character in the message and sends it back to the first process. For example, if the first process sends the message Hi There, the second process will return hI tHERE. This will require using two pipes, one for sending the original message from the first to the second process, and the other for sending the modified message from the second back to the first process.