**Government College University, Lahore**

**Operating Systems Lab.**

**Semester: 5th Session: 2019-23**

**Section: A/B/C**

**Assignment-6 (Individual)**

**Submission Date:** (The day before your lab, 12:00 midnight)

**Note**: Understanding the assignment is part of the assignment.

**Inter Process Communication (IPC)**

In computing, inter-process communication (IPC) is a set of methods for the exchange of data among multiple processes. Processes may be running on one or more computers connected by a network.

Commonly used methods for IPC are:

1. File

2. Pipe

3. Shared memory

The method of IPC used may vary based on the bandwidth and latency of communication between the threads, and the type of data being communicated.

There are several reasons for providing an environment that allows process cooperation:

* Modularity
* Information Sharing
* Convenience
* Computation Speedup

(Source: Wikipedia)

Suppose we are working in a Microsoft word. Now the word is running as a separate process and has its own address space. For simplicity assume that address space is the RAM allocated to a process. No process can ever have access to another process's address space directly.

So, OS provides us different mechanism for this so that 2 or more processes can communicate with each other. Now if we try to insert a graphical chart in word document it will open a Microsoft excel document, which will contain the numerical data for the chart. From now on every change in numerical data in excel will be reflected in the word document.

This shows that there is some sort of communication going on between the two processes. This is just a very basic example to show the mechanism.

**Shared Memory**:

Shared memory (SHM) is one method of inter-process communication (IPC) whereby 2 or more processes share a single chunk of memory to communicate.

**Assignment**:

You will use two processes and make them communicate with each other via shared memory.

Write two programs that illustrate the passing of a simple piece of memory (a string) between the processes:

Make two processes as:

1. shm\_server.c
2. shm\_client.c

* Process 1 simply creates a string (you can take any random string) and create a shared memory portion of 16bytes.
* Process 2 will attach itself to the created shared memory portion and uses the string (use printf).