Project Proposal

Matrix Multiplication(Shared memory)

Section: F

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• Introduction:

- Shared memory is a memory shared between two or more processes. However, why do we need to share memory or some other means of communication.
- To reiterate, each process has its own address space, if any process wants to communicate with some information from its own address space to other processes, then it is only possible with IPC (inter process communication) techniques. As we are already aware, communication can be between related or unrelated processes.
- Usually, inter-related process communication is performed using Pipes or Named Pipes. Unrelated processes (say one process running in one terminal and

another process in another terminal) communication can be performed using Named Pipes or through popular IPC techniques of Shared Memory and Message Queues.

- We have seen the IPC techniques of Pipes and Named pipes and now it is time to know the remaining IPC techniques viz., Shared Memory, Message Queues, Semaphores, Signals, and Memory Mapping.

CONCEPT:

We will be building a multiplication tool. The user will be asked to enter the matrix NxN matrix. We will save matrixes in a different file and the output will be generated through a different file. IPC will be used.

IPC through shared memory:

Inter Process Communication through shared memory is a concept where two or more process can access the common memory. And communication is done via this shared memory where changes made by one process can be viewed by another process.

INTENDED SYSTEM CALLS THAT WE WILL USE:

ftok(): is use to generate a unique key.
shmget(): int shmget(key_t,size_tsize,intshmflg); upon successful completion, shmget() returns an identifier for the shared memory segment.
shmat(): Before you can use a shared memory segment, you have to attach yourself to it using shmat(). void *shmat(int shmid ,void *shmaddr ,int shmflg);
shmid is shared memory id. shmaddr specifies specific address to use but we should set it to zero and OS will automatically choose the address.