CL205 – Operating Systems Lab

Lab#13 [IPC – Shared Memory]

Shared Memory

- Region of Memory that is shared by cooperating processes
- Processes exchange Data by reading/writing to the shared region

Example

server.c

```
#include <sys/types.h>
#include <sys/ipc.h>
#include <sys/shm.h>
#include <stdio.h>

#define SHMSZ 27

void main()
{
        char c;
        int shmid;
        key_t key;
        char *shm, *s;
        key = 5678;

        if ((shmid = shmget(key, SHMSZ, IPC_CREAT | 0666)) < 0)
        {
                perror("shmget");
                exit(1);
        }

        if ((shm = shmat(shmid, NULL, 0)) == (char *) -1)
        {
                perror("shmat");
                exit(1);
        }

        s = shm;

        for (c = 'a'; c <= 'z'; c++)
```

```
                *s++ = c;

        *s = NULL;

        while (*shm != '*')
                sleep(1);

        exit(0);
}
```

client.c

```
#include <sys/types.h>
#include <sys/ipc.h>
#include <sys/shm.h>
#include <stdio.h>
#define SHMSZ 27

void main()
{
        int shmid;
        key_t key;
        char *shm, *s;
        key = 5678;
        if ((shmid = shmget(key, SHMSZ, 0666)) < 0)
        {
                perror("shmget");
                exit(1);
        }

        if ((shm = shmat(shmid, NULL, 0)) == (char *) -1) {
                perror("shmat");
                exit(1);
        }

        for (s = shm; *s != NULL; s++)
                putchar(*s);

        putchar('\n');
        *shm = '*';
        shmdt(shm);
        shmctl(shmid,IPC_RMID,NULL);

        exit(0);
}
```