

Assignment 7

Client.c

```
// Client.c
#include <stdio.h>
#include <stdlib.h>
#include <sys/ipc.h>
#include <sys/shm.h>
#include <string.h>
#include <unistd.h>

#define SHM_KEY 12345
#define SHM_SIZE 1024

int main() {
    int shmid;
    char *shm_ptr;

    // Attach to the shared memory segment created by the server
    shmid = shmget(SHM_KEY, SHM_SIZE, 0666);
    if (shmid < 0) {
        perror("shmget");
        exit(1);
    }

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

```
// Read and display the message from shared memory
printf("Client: Message from shared memory: %s\n", shm_ptr);

// Signal the server that the message has been read
*shm_ptr = '*';

// Detach from shared memory
shmdt(shm_ptr);

return 0;
}
```

Server.c

```
// Server.c
#include <stdio.h>
#include <stdlib.h>
#include <sys/ipc.h>
#include <sys/shm.h>
#include <string.h>
#include <unistd.h>

#define SHM_KEY 12345
#define SHM_SIZE 1024

int main() {
    int shmid;
    char *shm_ptr;

    // Create shared memory segment
```

```
    shmkey = shmget(SHM_KEY, SHM_SIZE, 0666 | IPC_CREAT);
    if (shmkey < 0) {
        perror("shmget");
        exit(1);
    }

    // Attach to shared memory segment
    shm_ptr = (char *)shmat(shmkey, NULL, 0);
    if (shm_ptr == (char *)-1) {
        perror("shmat");
        exit(1);
    }

    // Write message to shared memory
    strcpy(shm_ptr, "Hello from Server!");

    printf("Server: Message written to shared memory.\n");

    // Wait for the client to read the message
    while (*shm_ptr != '*')
        sleep(1);

    printf("Server: Client has read the message.\n");

    // Detach and remove shared memory segment
    shmdt(shm_ptr);
    shmctl(shmkey, IPC_RMID, NULL);

    return 0;
}
```

Output :

```
swikar@LAPTOP-3VLQDHIH:~$ gcc client.c -o client
swikar@LAPTOP-3VLQDHIH:~$ ./server
Server: Message written to shared memory.
Server: Client has read the message.
```

```
swikar@LAPTOP-3VLQDHIH:~$ ./client
Client: Message from shared memory: Hello from Server!
swikar@LAPTOP-3VLQDHIH:~$
```