

OS Assignment 7B

Shared Memory

SERVER code -

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

#define SHM_SIZE 1024 // Size of the shared memory

int main() {
    key_t key = ftok("shmfile", 65); // Generate unique key
    int shmid = shmget(key, SHM_SIZE, 0666|IPC_CREAT); // Create shared memory

    // Attach to the shared memory
    char *shared_memory = (char*) shmat(shmid, NULL, 0);

    // Write a message to the shared memory
    printf("Write a message to shared memory: ");
    fgets(shared_memory, SHM_SIZE, stdin); // Get input from user

    printf("Message written to shared memory: %s", shared_memory);

    // Detach from shared memory
    shmdt(shared_memory);

    return 0;
}
```

CLIENT code -

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

#define SHM_SIZE 1024 // Size of the shared memory

int main() {
    key_t key = ftok("shmfile", 65); // Generate unique key
    int shmid = shmget(key, SHM_SIZE, 0666); // Get the shared memory ID

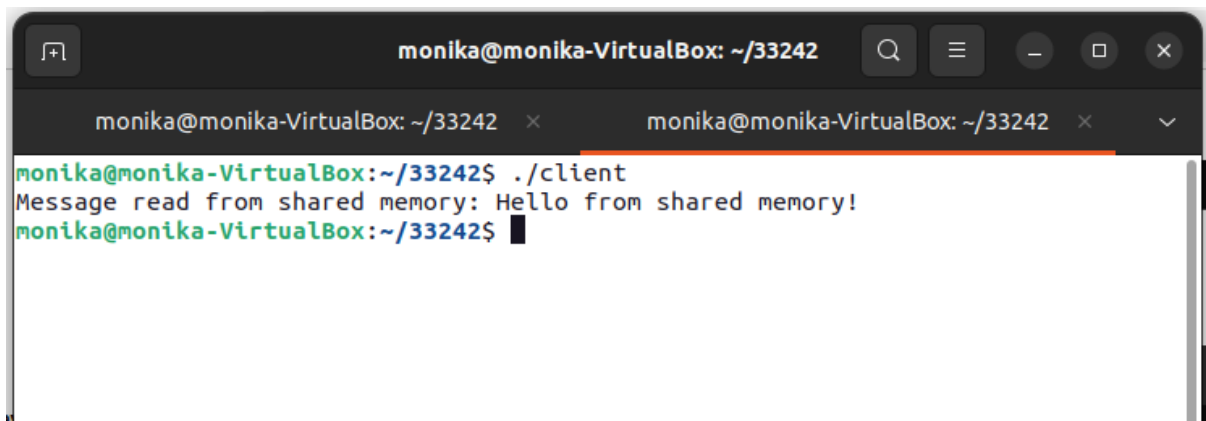
    // Attach to the shared memory
    char *shared_memory = (char*) shmat(shmid, NULL, 0);
```

```
// Read the message from the shared memory
printf("Message read from shared memory: %s", shared_memory);

// Detach from shared memory
shmdt(shared_memory);

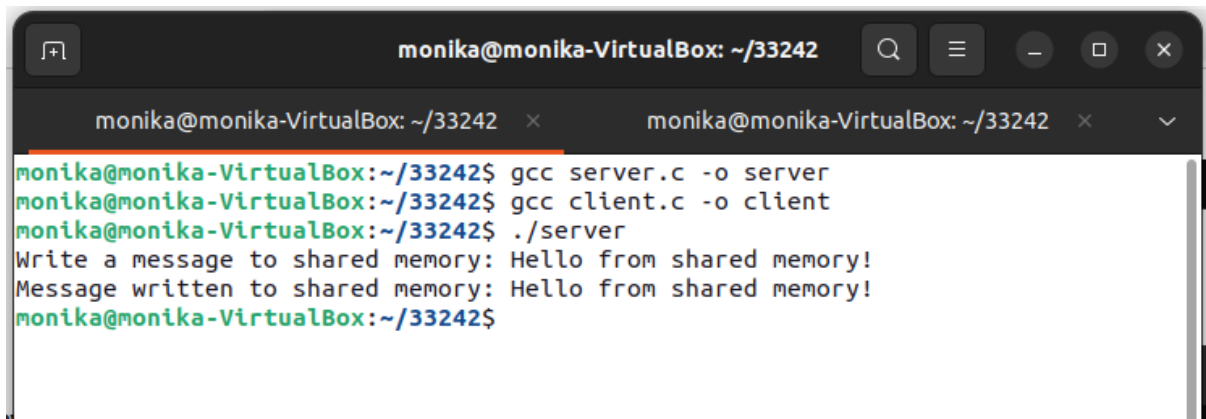
// Destroy the shared memory (cleanup)
shmctl(shmid, IPC_RMID, NULL);

return 0;
}
```



A terminal window titled "monika@monika-VirtualBox: ~/33242" with two tabs. The active tab shows the command `./client` being executed, which outputs "Message read from shared memory: Hello from shared memory!".

```
monika@monika-VirtualBox: ~/33242
monika@monika-VirtualBox: ~/33242$ ./client
Message read from shared memory: Hello from shared memory!
monika@monika-VirtualBox: ~/33242$
```



A terminal window titled "monika@monika-VirtualBox: ~/33242" with two tabs. The active tab shows the compilation of `server.c` and `client.c` using `gcc`, followed by the execution of `./server`. The output shows "Write a message to shared memory: Hello from shared memory!" and "Message written to shared memory: Hello from shared memory!".

```
monika@monika-VirtualBox: ~/33242$ gcc server.c -o server
monika@monika-VirtualBox: ~/33242$ gcc client.c -o client
monika@monika-VirtualBox: ~/33242$ ./server
Write a message to shared memory: Hello from shared memory!
Message written to shared memory: Hello from shared memory!
monika@monika-VirtualBox: ~/33242$
```