LAB 3: INTERPROCESS COMMUNICATION (SHARED MEMORY)

SOUCE CODE:

PROGRAM 1:

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

int main()
{
    key_t key=ftok("shmfile",65);
    int shmid=shmget(key ,1024,0666 | IPC_CREAT);

    char* str =(char*)shmat(shmid,(void*)0,0);

    printf("Write data:");
    fgets(str,1024,stdin);
    printf("Data written in memory:%s\n",str);
    return 0 ;
}
```

PROGRAM 2:

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

int main()
{
    // ftok to generate unique key, same as used by the writer program
```

```
    key_t key = ftok("shmfile", 65);

    // shmget returns an identifier in shmid, same as the writer program
    int shmid = shmget(key, 1024, 0666 | IPC_CREAT);

    // shmat to attach to shared memory
    char *str = (char*) shmat(shmid, (void*)0, 0);

    printf("Data read from memory: %s\n", str);

    // detach from shared memory
    shmdt(str);

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

    return 0;
}
```

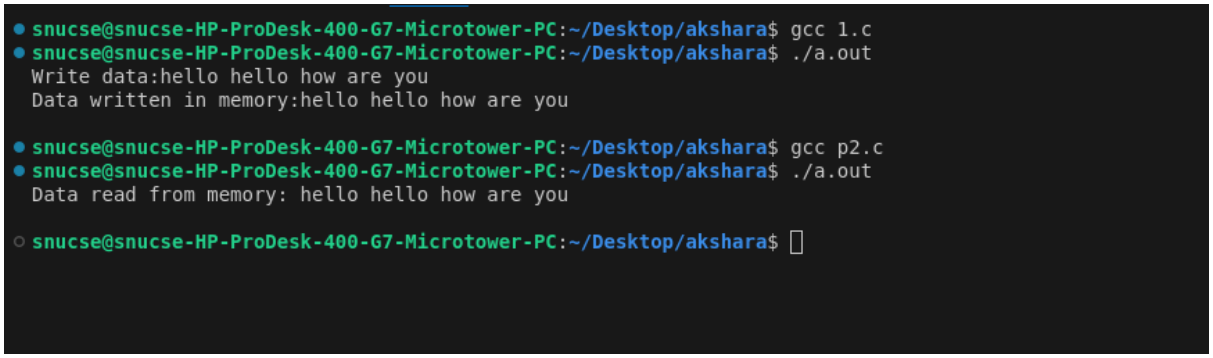
DESCRIPTION:

shmget(): Allocates a shared memory segment. It takes a key, size, and permission flags as arguments and returns an identifier for the shared memory segment.

shmat(): Attaches the shared memory segment to the process's address space. It takes the shared memory identifier, a pointer where the segment should be attached (or NULL for automatic selection), and flags. It returns a pointer to the shared memory segment.

ftok(): Generates a unique key for shared memory or other IPC mechanisms. It takes a pathname and a project identifier as arguments and returns a key based on the provided file and identifier.

OUTPUT:


snucse@snucse-HP-ProDesk-400-G7-Microtower-PC:~/Desktop/akshara$ gcc 1.c
snucse@snucse-HP-ProDesk-400-G7-Microtower-PC:~/Desktop/akshara$ ./a.out
Write data:hello hello how are you
Data written in memory:hello hello how are you
snucse@snucse-HP-ProDesk-400-G7-Microtower-PC:~/Desktop/akshara$ gcc p2.c
snucse@snucse-HP-ProDesk-400-G7-Microtower-PC:~/Desktop/akshara$ ./a.out
Data read from memory: hello hello how are you
snucse@snucse-HP-ProDesk-400-G7-Microtower-PC:~/Desktop/akshara$