Ex. No.: 7

Date: 26|X|25

IPC USING SHARED MEMORY

Aim:

To write a C program to do Inter Process Communication (IPC) using shared memory between sender process and receiver process.

Algorithm:

sender

1. Set the size of the shared memory segment
2. Allocate the shared memory segment using shmget
3. Attach the shared memory segment using shmat
4. Write a string to the shared memory segment using sprintf
5. Set delay using sleep
6. Detach shared memory segment using shmdt

receiver

1. Set the size of the shared memory segment
2. Allocate the shared memory segment using shmget
3. Attach the shared memory segment using shmat
4. Print the shared memory contents sent by the sender process.
5. Detach shared memory segment using shmdt

Program Code:

sender.c

```
# include <stdio.h>
# include <sys/ipc.h>
# include <sys/shm.h>
# include <unistd.h>
int main ()
{    int n=1024
     key_t key = ftok ("shmfile", 65);
     int shmid = shmget (key, size, 0666|IPC_CREAT);
     char *shared_memry = (char * )shmat (shmid,
                                     NULL, 0);
sprintf(shared-memory, "Hello from the sender
                                process!");

printf (" Sender : Message written to shared memory
                 %s\n", shared-memory);

sleep(5);
shmdt (shared - memory);
return 0
}
```

receiver.c

```
# include <stdio.h>
# include <sys/ipc.h>
# include <sys/shm.h>
int main()
{
    int sz = 1024;
    key_t key = ftok (" shmfile", 65);
    int shmid = shmget (key, size, 0666 | IPC_creat);
    char* shared_memory = (char*) shmat (shmid,
                                   NULL, 0);
    printf (" Receiver: Message read from shared
                 memory: %s\n", shared_memory);
    shmdt (shared_memory);
    shmctl (shmid, IPC_RMID, NULL)
    return 0
}
```

Sample Output

Terminal 1

```
[root@localhost student]# gcc sender.c -o sender
[root@localhost student]# ./sender
```

Terminal 2

```
[root@localhost student]# gcc receiver.c -o receiver
[root@localhost student]# ./receiver
Message Received: Welcome to Shared Memory
[root@localhost student]#
```

OUTPUT

Sender : Message written to shared memory :
Hello from the sender process!

Reciever : Message read from shared memory :
Hello from the sender process!

Result:

Hence the code for IPC using shared memory has been executed successfully.