Ex No.: 7   **IPC USING SHARED MEMORY**

Date : 26.03.2025

Aim :

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

Code:

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

#define SHMEMSIZE 50

int main()
{
  int shmid;
  key_t key;
  char *shared_mem;

  key = 5677;

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

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

  printf("Shared memory attached at address: %p\n", shared_mem);

  sprintf(shared_mem, "Welcome to shared memory");
  printf("Message written to shared memory: %s\n", shared_mem);

  sleep(10);

  if (shmdt(shared_mem) == -1) {
    perror("shmdt");
    exit(1);
```

```c
    }

    if (shmctl(shmid, IPC_RMID, NULL) == -1) {
        perror("shmctl");
        exit(1);
    }

    return 0;
}
```

reciever.c

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

#define SHMEMSIZE 50

int main()
{
    int shmid;
    key_t key;
    char *shared_mem;

    key = 5677;

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

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

    printf("Shared memory attached at address: %p\n", shared_mem);
    printf("Message read from shared memory: %s\n", shared_mem);

    if (shmdt(shared_mem) == -1) {
        perror("shmdt");
        exit(1);
    }

    return 0;
```

}

Output:

```
Shared memory attached at address: 0x7f8c5a3b6000
Message written to shared memory: Welcome to shared memory
```

```
Shared memory attached at address: 0x7f9d0e1b6000
Message read from shared memory: Welcome to shared memory
```

Result:

Thus the C program to do Inter Process Communication (IPC) using shared memory between sender process and receiver process has been executed successfully.