

OPERATING SYSTEM - CS23431 EXP

7

IPC USING SHARED MEMORY

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PROGRAM:

Sender.c:

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#include <unistd.h>
```

```
#include <sys/shm.h>
```

```
#include <string.h>
```

```
int main() {
```

```
    int shmid;
```

```
    shmid = shmget((key_t)2345, 1024, 0666 | IPC_CREAT);
```

```
    if (shmid == -1) {
```

```
        perror("shmget failed");
```

```
        exit(1);
```

```
    }
```

```
    printf("Key of the shared memory segment: %d\n", shmid);
```

```
char *shmaddr = (char *)shmat(shmid, NULL, 0);

if (shmaddr == (char *)-1) {
    perror("shmat failed");
    exit(1);
}

printf("Process is attached at address %p\n", shmaddr);

sprintf(shmaddr, "Hello world!!");
printf("Content written to shared memory: %s\n", shmaddr);

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

return 0;
}
```

Receiver.c:

```
#include <stdio.h>

#include <stdlib.h>

#include <unistd.h>
```

```
#include <string.h>

#include <sys/shm.h>


int main() {

    int shmid;

    char *shmaddr;


    shmid = shmget((key_t)2345, 1024, 0666);


    if (shmid == -1) {

        perror("shmget failed");

        exit(1);

    }


    printf("Key of the shared memory segment: %d\n", shmid);


    shmaddr = (char *)shmat(shmid, NULL, 0);


    if (shmaddr == (char *)-1) {

        perror("shmat failed");

        exit(1);

    }

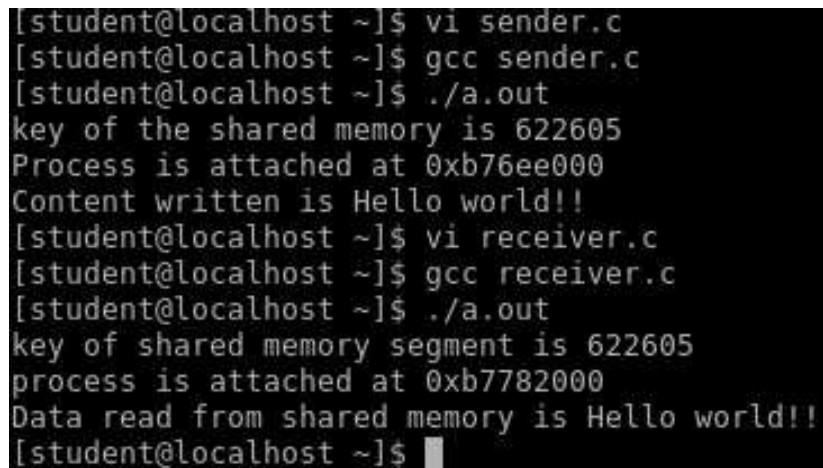

    printf("Process is attached at address %p\n", shmaddr);
```

```
printf("Data read from shared memory: %s\n", shmaddr);

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

return 0;
}
```

OUTPUT:



```
[student@localhost ~]$ vi sender.c
[student@localhost ~]$ gcc sender.c
[student@localhost ~]$ ./a.out
key of the shared memory is 622605
Process is attached at 0xb76ee000
Content written is Hello world!!
[student@localhost ~]$ vi receiver.c
[student@localhost ~]$ gcc receiver.c
[student@localhost ~]$ ./a.out
key of shared memory segment is 622605
process is attached at 0xb7782000
Data read from shared memory is Hello world!!
[student@localhost ~]$
```