

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 ~]$ █
```