**ASSIGNMENT NO. 8**

**SHARED MEMORY**

**SERVER PROCESS:**

#include<sys/shm.h>

#include<sys/stat.h>

#include<unistd.h>

#include<sys/types.h>

#include<stdio.h>

#include<stdlib.h>

typedef struct sharedMemory

{

int status;

char data[10][100];

int n;

}sharedMemory;

int main()

{

int shmID, i, j;

key\_t key;

char ch;

sharedMemory \*shm\_Ptr;

key=ftok(".",'A');

printf("\nGenerated Key Value: %d", key);

shmID=shmget(key,sizeof(sharedMemory),IPC\_CREAT|0666);

if(shmID<0)

{

printf("\nShared Memory is not created!!\n");

exit(-1);

}

else

{

printf("\nShared Memory is created\n");

printf("\nShared memory ID: %d",shmID);

shm\_Ptr=(sharedMemory\*)shmat(shmID, NULL, 0);

if(shm\_Ptr>=0)

printf("\nShared Memory is Attached!!\n");

else

{

printf("\nShared memory is not attached");

exit(-1);

}

shm\_Ptr->status=-1; //Data not filled in shared memory

printf("\nData is not filled in Shared Memory!!\n");

printf("\nEnter the Number of Data Fields required: ");

scanf("%d", &(shm\_Ptr->n));

printf("\nEnter Data:\n");

for(j=0;j<(shm\_Ptr->n);j++)

{

printf("\nField %d: ",j+1);

i=0;

ch=getchar();

while(ch!='#')

{

shm\_Ptr->data[j][i++]=ch;

ch=getchar();

}

shm\_Ptr->data[j][i]='\0';

}

printf("Entered Data:\n\n");

for(j=0; j<(shm\_Ptr->n);j++)

{

printf("\nField %d: %s ",j+1, shm\_Ptr->data[j]);

}

shm\_Ptr->status=0; //Data filled in Shared Memory

while(shm\_Ptr->status!=1) //till the data is not read by client from shared memory

{

printf("\nClient is Reading Data From Shared Memory\n");

sleep(2);

}

shmdt(shm\_Ptr);

shmctl(shmID,IPC\_RMID,0);

printf("\n\nTerminated!!");

return 0;

}

}

**CLIENT PROCESS:**

#include<sys/shm.h>

#include<sys/stat.h>

#include<unistd.h>

#include<sys/types.h>

#include<stdio.h>

#include<stdlib.h>

typedef struct sharedMemory

{

int status;

char data[10][100];

int n;

}sharedMemory;

int main()

{

int shmID, i, j;

key\_t key;

char ch;

sharedMemory \*shm\_Ptr;

key=ftok(".",'A');

printf("\nGenerated Key Value: %d", key);

shmID=shmget(key,sizeof(sharedMemory),IPC\_CREAT|0666);

if(shmID<0)

{

printf("\nShared Memory is not created!!\n");

exit(-1);

}

else

{

printf("\nShared Memory is created\n");

printf("\nShared memory ID: %d",shmID);

shm\_Ptr=(sharedMemory\*)shmat(shmID, NULL, 0);

if(shm\_Ptr>=0)

printf("\nShared Memory is Attached!!\n");

else

{

printf("\nShared memory is not attached");

exit(-1);

}

while(shm\_Ptr->status==-1) //data not filled on shared memory3

{

printf("\nData is not filled by server");

sleep(2);

}

printf("\n\nClient is Reading the Data from Shared Memory!!]\n");

for(j=0; j<(shm\_Ptr->n);j++)

{

printf("\nField %d: %s ",j+1, shm\_Ptr->data[j]);

}

shm\_Ptr->status=1; //data read by client

shmdt(shm\_Ptr);

printf("\n\nTerminated");

return 0;

}

}

**OUTPUT**

**SERVER TERMINAL:**

[it@localhost ~]$ gcc Server1.c

[it@localhost ~]$ ./a.out

Generated Key Value: 1090854899

Shared Memory is created

Shared memory ID: 950287

Shared Memory is Attached!!

Data is not filled in Shared Memory!!

Enter the Number of Data Fields required: 3

Enter Data:

Field 1: hii..

#

Field 2: hello..

#

Field 3: bye..

#

Entered Data:

Field 1:

hii..

Field 2:

hello..

Field 3:

bye..

Client is Reading Data From Shared Memory

Terminated!![it@localhost ~]$

**CLIENT TERMINAL:**

[it@localhost ~]$ gcc Client1.c

[it@localhost ~]$ ./a.out

Generated Key Value: 1090854899

Shared Memory is created

Shared memory ID: 950287

Shared Memory is Attached!!

Data is not filled by server

Data is not filled by server

Data is not filled by server

Data is not filled by server

Data is not filled by server

Data is not filled by server

Data is not filled by server

Data is not filled by server

Client is Reading the Data from Shared Memory!!]

Field 1:

hii..

Field 2:

hello..

Field 3:

bye..

Terminated[it@localhost ~]$