OS LAB 6

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Lab OS

Q1

//sender

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

int main()
{
        int a=0;
        int msgid = msgget((key_t)1234,0666|IPC_CREAT);
        if(msgid==-1)
        {
                fprintf(stderr,"msgget failed!!\n");
                exit(EXIT_FAILURE);
        }
        printf("Enter a number: ");
        scanf("%d",&a);

        if(msgsnd(msgid, &a, sizeof(int),0)==-1)
        {
                printf("msgsnd failed!!!\n");
                exit(EXIT_FAILURE);
        }
        exit(EXIT_SUCCESS);
}
```

//rcv

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

```c
#include <string.h>
#include <errno.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/ipc.h>
#include <sys/msg.h>

int main()
{
	int a=0;
	int msgid = msgget((key_t)1234,0666|IPC_CREAT);
	if(msgid==-1)
	{
		fprintf(stderr,"msgget failed!!\n");
		exit(EXIT_FAILURE);
	}

	if(msgrcv(msgid, &a, sizeof(int),0,0)==-1)
	{
		printf("msgsnd failed!!!\n");
		exit(EXIT_FAILURE);
	}
	else
	{
		printf("Recieved Number: %d\n",a);
		int p = a;
		int r=0,s=0;
		while(p!=0)
		{
			r=p%10;
			s=s*10+r;
			p=p/10;
		}
		if(s==a)
			printf("Palindrome Number!!\n");
		else
			printf("NOT Palindrome Number\n");
	}
	exit(EXIT_SUCCESS);
}
```

```
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ gcc prog1_Sender.c -o prog1_Sender
.out
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ ./prog1_Sender.out
Enter a number: 343
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ ./prog1_Sender.out
Enter a number: 456
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ []
```

```
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ gcc prog1_Reciever.c -o prog1_Reci
ever.out
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ ./prog1_Reciever.out
Recieved Number: 343
Palindrome Number!!
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ ./prog1_Reciever.out
Recieved Number: 456
NOT Palindrome Number
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ []
```

Q2

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

struct shared_use
{
    char c;
    char next_char;
};

int main()
{
```

```c
        int running = 1;
        pid_t pid;
        void *shared_memory = (void *)0;
        int shmid;
        struct shared_use *st;
        srand((unsigned int)getpid());
        shmid = shmget((key_t)1234,sizeof(struct shared_use),0666|IPC_CREAT);
        if(shmid==-1)
        {
            fprintf(stderr,"shmget failed\n");
            exit(EXIT_FAILURE);
        }
        shared_memory = shmat(shmid,(void *)0,0);
        if(shared_memory == (void *)-1)
        {
            fprintf(stderr, "shmat failed\n");
            exit(EXIT_FAILURE);
        }
        st = (struct shared_use *)shared_memory;
        char ch;
        printf("Enter a character: \n");
        scanf("%c",&ch);
        st->c=ch;
        printf("You entered: %c\n",st->c);

        pid = fork();
        if(pid == -1)
        {
            fprintf(stderr, "%d\n",errno);
            exit(1);
        }
        else if(pid == 0)
        {
            printf("Current char: %c\n",st->c);
            st->c++;
        }
        else
        {
            printf("Waiting for Child process to increment the character\n");
            sleep(2);
            printf("Updated char: %c\n",st->c);
        }
        if(shmdt(shared_memory)==-1)
        {
            fprintf(stderr, "shmdt failed\n");
            exit(EXIT_FAILURE);
        }
}
```

```
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ gcc prog2.c -o prog2.out
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$ ./prog2.out
Enter a character:
a
You entered: a
Waiting for Child process to increment the character
Current char: a
Updated char: b
student@c39:~/Documents/180905048_Sahil/OS_Lab/lab6$
```

//END///