Lab :- 04

Aim: write a program to implement chat system between two computers.

program:- chat.c (using switch-case)

```
#include <stdlib.h>
#include <stdio.h>
#ifdef _WIN32
#include <windows.h>
#else
#include <unistd.h>
#endif
#include "rs232.h"

int main()
{
    int cport_nr=0, bdrate=9600, input=0; i, n;
    char mode[]={'8', 'N', '1', 0}, str[512];
    unsigned char buf[4096];
    if (RS232_OpenComport(cport_nr, bdrate, mode))
    {
        printf("can not open comport");
        return(0);
    }

    while(1)
    {
```

```
printf (" Enter 0 : to Receive Message \n");
printf (" Enter 1 : to send Message \n");
scanf ("%d", &input);
switch (input)
{
    case 0 :
      n = RS232-PollComport (cport_nr, buf,
                             4096);
      if (n > 0)
      {
          buf[n] = 0;
          for (i=0; i<n; i++)
          {
              if (buf[i] < 32)
                  buf[i] = '.';
          }
      }
      printf (" Received Message: %s ",
                          (char *) buf);
    }  break;
    case 1 :
      printf (" Enter a Message to send: ");
      scanf ("%s", &str);
      RS232-cputs (cport_nr, str);
      break;
    default :
      printf (" Enter a appropriate input \n");
      break;
```

```
    }
}

return 0;
}
```

Program 2: chat using thread

```
#include <stdlib.h>
#include <stdio.h>
#include <pthread.h>
#ifdef _WIN32
#include <windows.h>
#else
#include <unistd.h>
#endif
#include <semaphore.h>
#include "rs232.h"

sem_t x;
int i=0, n, cport_nr = 0, bdrate = 9600;
char mode[] = {'8', 'N', '1', 0};
char str[1000];
unsigned char buf[4096];

void * transmitter()
{
```

```
while(1)
{
    sem_wait(&x);
    printf("User1 : ");
    char ch; i=0;
    while((ch=getchar()) != '*')
    {
        str[i] = ch;
        i++;
    }
    RS232_cputs(cport_nr, str);
    sem_post(&x);
    usleep(2000);
  }
}
void * receiver()
{
  while(1)
  {
    sem_wait(&x);
    n = RS232_PollComport(cport_nr, buf, 4096);
    if(n>0)
    {
      buf[n] = 0;
      for(int i=0; i<n; i++)
      {
        if(buf[i] < 32)
        {
          if(buf[i] == 10)
```

```
            buf[i] = '\n';
            else
            {
                buf[i] = '.';
            }
        }
    }

    printf("User2 : %.s\n", (char *) buf);
    bzero(buf, 4096);
}
    usleep(2000);
}
    return 0;
}

int main()
{
    pthread send, rec;
    sem_init(&x, 0, 1);
    RS232_OpenComport(cport_nr, bdrate, mode);
    pthread_create(&rec, NULL, receiver, NULL);
    pthread_create(&send, NULL, transmitter, NULL);
    pthread_join(rec, NULL);
    pthread_join(send, NULL);

    return 0;
}
```

Lab : 05

Aim : write a program to implement stop and wait protocol.

Program : stopandwait.C

```
#include<stdlib.h>
#include<stdio.h>
#ifdef -WIN32
#include<windows.h>
#else
#include<unistd.h>
#include<pthread.h>
#endif
#include "rs232.h"

int send = 1;
void * transmitter()
{
    int i=0, cport-nr= 0, bdrate = 9600;
    char mode[] = {'8', 'N', '1', 0}, temp[8]
                                    str[512];
    while(1)
    {
        scanf("\n%s", str);
        int l=0;
        for(i; i<512; i++)
        {
```

```
if ( str[i] == '\0' )
        break;

}
int  n = i+1;
int j=0;

while (send )
{
    send = 0;
    int xor_no = 0;
    int k=0;
    for (j; j<n; j++ )
    {
        temp[k] = str[j];
        xor_no ^= str[j];
        k++;
        if (k==7) { break; }
    }
    printf ("%d ss\n", xor_no);
    temp[k] = xor_no;
    printf ("%s\n", temp );
    send = 0;
    while (send == 0) {
        printf ("%d-- ", send );
        RS232_cputs ( cport_nr, temp );
        usleep (200000 );
    }
}
```

```
        usleep (1000000);
    }
}
void * receiver1()
{
    int i, n, cport_nr = 0, bdrate = 9600;
    unsigned char buf[4096];
    char mode[] = {'8', 'N', '1', 0};

    if (RS232_OpenComport (cport_nr, bdrate,
     mode))
    {
        printf (" can not open comport \n");
        exit(0);
    }
    while (1)
    {
        n = RS232_PollComport (cport_nr, buf,
                               4095);
        if (n > 0)
        {
          buf[n] = 0;
          for (i=0; i<n; i++)
          {
            if (buf[i] < 32)
            {
                buf[i] = '.';
            }
          }
```

```
if ( buf[0] == '~' )
{
    send = 1;
}
else
{
    int i = 0, t = 0;
    for (i; i<n; i++)
    {
        t = t ^ buf[i];
    }
    if (t == 0)
    {
        Rs232_cputs (cport_nr, "~");
    }
    else
    {
        printf (" wrong data");
    }
}
printf("received %i bytes : %s\n", n,
                                (char *) buf );
}
usleep (1000000);
}

int main()
```

```
{
    pthread_t trans, receive;
    pthread_create (&trans, NULL,
                    transmitter, NULL);
    pthread_create (&receive, NULL,
                    receiver, NULL);
    pthread_join (trans, NULL);
    pthread_join (receive, NULL);

    return 0;
}
```