

Experiment 1

Objective 2

To implement a chat of client and server communication using TCP.

Code

server.c

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netinet/in.h>

int main()
{
    int listenfd,connfd,len,n;
    char buff[200];

    struct sockaddr_in servaddr,cliaddr;
    len=sizeof(servaddr);
    servaddr.sin_family=AF_INET;

    servaddr.sin_addr.s_addr=htons( INADDR_ANY);

    servaddr.sin_port=htons(0);
    listenfd=socket(AF_INET,SOCK_STREAM,0);
    bind(listenfd, (struct sockaddr *)&servaddr,len);
    getsockname(listenfd,(struct sockaddr *)&servaddr ,&len);
    printf("Port for client: %ld\n",(long)ntohs(servaddr.sin_port));

    printf("\nEnter Ctrl+C to terminate the chat...\n");
    do
    {
        listen(listenfd,5);
        connfd=accept(listenfd,(struct sockaddr *)&cliaddr ,&len);
        n=read(connfd , buff ,sizeof(buff));

        buff[n]=0;

        printf("\nClient: %s\n" , buff);

        //Server writes
        printf("\nYou: ");
        scanf("%s" , buff);
        write(connfd, buff ,sizeof(buff));

    }while(1);
```

```
        return 0;
    }
```

client.c

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netinet/in.h>

int main()
{
    int sockfd,len,n;
    long port;
    char buff[200];
    struct sockaddr_in cliaddr;
    len=sizeof(cliaddr);

    printf("Enter the port number you got from Server side:");
    scanf("%ld",&port);

    cliaddr.sin_family=AF_INET;
    cliaddr.sin_addr.s_addr=inet_addr("127.0.0.1");
    cliaddr.sin_port=htons(port);

    printf("\nEnter Ctrl+C to terminate the chat...\n");
    do
    {
        sockfd=socket(AF_INET,SOCK_STREAM,0);
        connect(sockfd,(struct sockaddr *)&cliaddr,len);
        printf("\nYou: ");
        scanf("%s", buff);
        write(sockfd, buff ,sizeof(buff));
        n=read(sockfd,buff ,sizeof(buff));

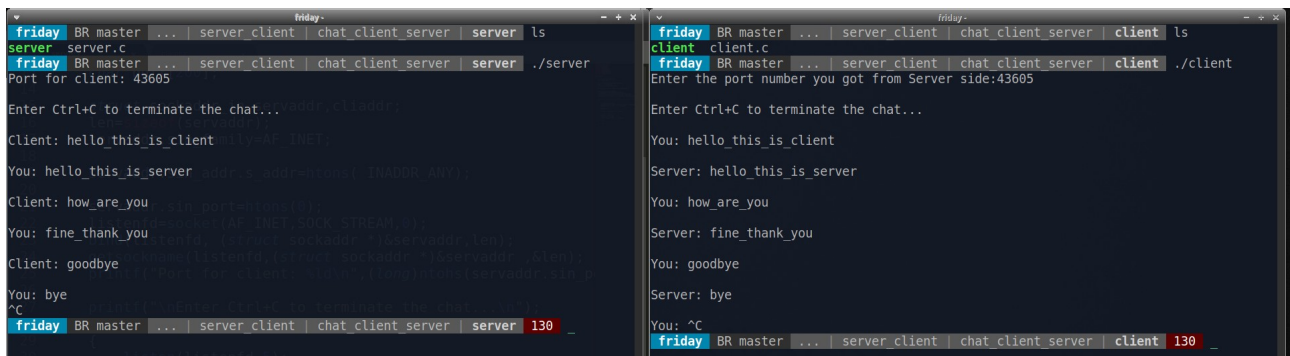
        buff[n]=0;

        printf("\nServer: %s\n", buff);

    }while(1);

    return 0;
}
```

Output



```
friday BR master ... server_client chat_client_server server ls
server server.c
friday BR master ... server_client chat_client_server server ./server
Port for client: 43605
Enter Ctrl+C to terminate the chat... ^C
Client: hello_this_is_client
You: hello_this_is_server
Client: how_are_you
You: fine_thank_you
Client: goodbye
You: bye
^C
friday BR master ... server_client chat_client_server server 130 _
```

```
friday BR master ... server_client chat_client_server client ls
client client.c
friday BR master ... server_client chat_client_server client ./client
Enter the port number you got from Server side:43605
Enter Ctrl+C to terminate the chat...
You: hello_this_is_client
Server: hello_this_is_server
You: how_are_you
Server: fine_thank_you
You: goodbye
Server: bye
You: ^C
friday BR master ... server_client chat_client_server client 130 _
```

Objective 3

To implement date and time display during the chat of client and server using TCP socket.

server.c

```
#include <time.h>
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netinet/in.h>

int main()
{
    time_t t;
    int listenfd,connfd,len,n;
    char buff[200];

    struct sockaddr_in servaddr,cliaddr;
    len=sizeof(servaddr);
    servaddr.sin_family=AF_INET;

    servaddr.sin_addr.s_addr=htons( INADDR_ANY);

    servaddr.sin_port=htons(0);
    listenfd=socket(AF_INET,SOCK_STREAM,0);
    bind(listenfd, (struct sockaddr *)&servaddr,len);
    getsockname(listenfd,(struct sockaddr *)&servaddr ,&len);
    printf("Port for client: %ld\n",(long)ntohs(servaddr.sin_port));
```

```

printf("\nEnter Ctrl+C to terminate the chat...\n");
do
{
    listen(listenfd,5);
    connfd=accept(listenfd,(struct sockaddr *)&cliaddr ,&len);
    n=read(connfd , buff ,sizeof(buff));

    buff[n]=0;

    time(&t);
    printf("\n%sClient: %s\n" , ctime(&t), buff);

    //Server writes
    printf("\nYou: ");
    scanf("%s" , buff);
    write(connfd, buff ,sizeof(buff));

}while(1);

return 0;
}

```

client.c

```

#include <time.h>
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netinet/in.h>

int main()
{
    time_t t;
    int sockfd,len,n;
    long port;
    char buff[200];

    struct sockaddr_in cliaddr;
    len=sizeof(cliaddr);

    printf("Enter the port number you got from Server side:");
    scanf("%ld" ,&port);

    cliaddr.sin_family=AF_INET;
    cliaddr.sin_addr.s_addr=inet_addr("127.0.0.1");
    cliaddr.sin_port=htons(port);

```

```

printf("\nEnter Ctrl+C to terminate the chat...\n");
do
{
    sockfd=socket(AF_INET,SOCK_STREAM,0);
    connect(sockfd,(struct sockaddr *)&cliaddr,len);
    printf("\nYou: ");
    scanf("%s", buff);
    write(sockfd, buff ,sizeof(buff));
    n=read(sockfd,buff ,sizeof(buff));

    buff[n]=0;
    time(&t);
    printf("\n%sServer: %s\n" , ctime(&t), buff);

}while(1);

return 0;
}

```

Output

```

friday ~ cd Desktop/Computer-Networks/server_client/chat_client_server_with_time/s
server/
friday BR master ... | server_client | chat_client_server_with_time | server | ls
server server.c
friday BR master ... | server_client | chat_client_server_with_time | server | ./se
rver
Port for client: 39007
Enter Ctrl+C to terminate the chat...
Thu Oct 22 09:55:05 2020
Client: this_is_client
You: hello,client_this_is_server
Thu Oct 22 09:55:44 2020
Client: how_are_you
You: i_am_fine_thanks
Thu Oct 22 09:55:59 2020
Client: bye
You: bye
^C
friday ... | server_client | chat_client_server_with_time | server | 130 _

friday ~ cd Desktop/Computer-Networks/server_client/chat_client_server_with_time/c
lient/
friday BR master ... | server_client | chat_client_server_with_time | client | ls
client client.c
friday BR master ... | server_client | chat_client_server_with_time | client | ./cl
ient
Enter the port number you got from Server side:39007
Enter Ctrl+C to terminate the chat...
You: this_is_client
Thu Oct 22 09:55:20 2020
Server: hello,client_this_is_server
You: how_are_you
Thu Oct 22 09:55:55 2020
Server: i_am_fine_thanks
You: bye
Thu Oct 22 09:56:02 2020
Server: bye
You: ^C
friday ... | server_client | chat_client_server_with_time | client | 130 _

```

END

By-
 Subham Sagar Paira(www.subhamsagarpaira.com)
 1841017020
 CSIT A