Ex: 4
Date: 13.09.2020

CHAT USING TCP

Develop a simple chat using TC P socket. To a chat server, multiple stations chat simultaneously.
Sample Input Output
Client

```
Client :------
Server:--------
Client :------
Server:--------
Client :------
Server:--------
----
----
```

Server

```
Server: -------
Client1:--------
Client2:---------
Server:-----------
Client2:---------
Server:----------
Client 3:---------
Client1:-------
Client 3:--------
---------
--------
```

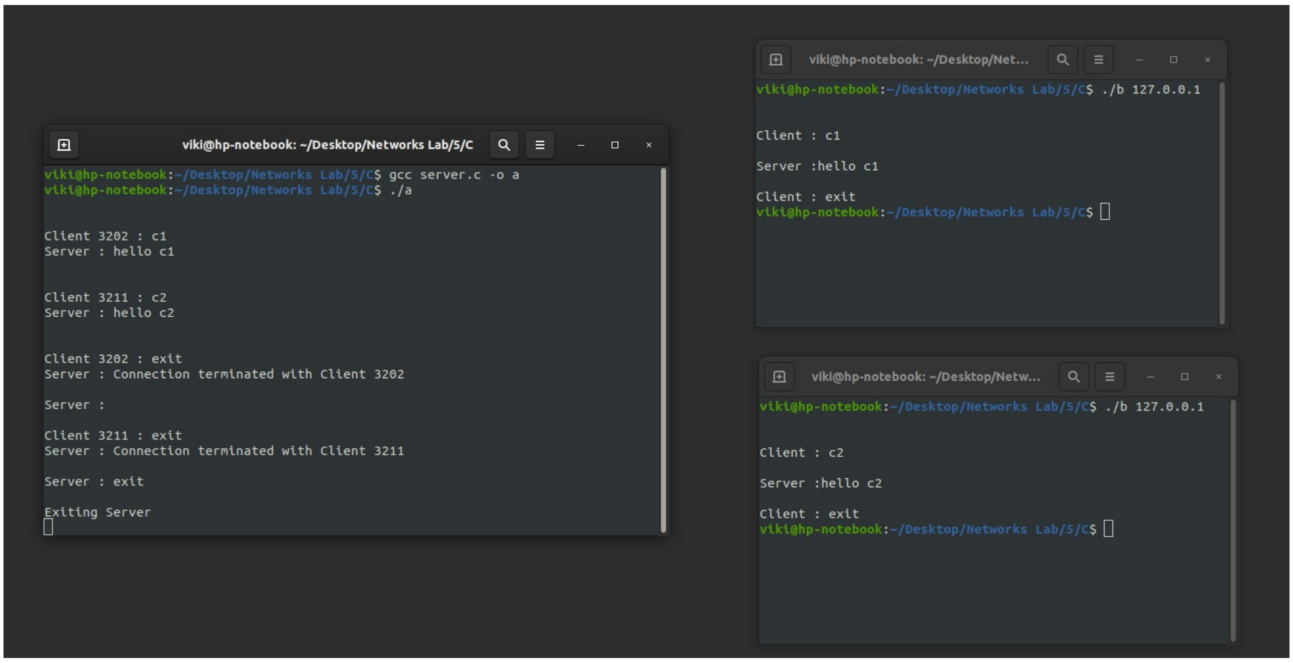
Server code:

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

int main(int argc,char **argv)
{
	int len;
	int sockfd,newfd,n;
	struct sockaddr_in servaddr,cliaddr;
	char buff[1024];
	char str[1000];

	sockfd=socket(AF_INET,SOCK_STREAM,0);
	if(sockfd<0)
	{
		perror("cannot create socket");
		exit(1);
	}
	bzero(&servaddr,sizeof(servaddr));

		servaddr.sin_family=AF_INET;
		servaddr.sin_addr.s_addr=INADDR_ANY;
		servaddr.sin_port=htons(7228);

		if(bind(sockfd,(struct sockaddr*)&servaddr,sizeof(servaddr))<0)
		{
			perror("Bind error");
			exit(1);
		}
		if(listen(sockfd,5)<0)
		{
			perror("listen error");
			exit(1);
		}
		len=sizeof(cliaddr);
		while(1)
		{
			newfd=accept(sockfd,(struct sockaddr*)&cliaddr,&len);
			pid_t childprocess;
			if((childprocess=fork())==0)
			{
				while((n=read(newfd,buff,sizeof(buff))>0))
				{
					printf("\n\nClient %d : %s",getpid(),buff);
					if(strcmp(buff,"exit")==0)
					{
					printf("\nServer : Connection terminated with Client %d\n",getpid());
					}

					bzero(buff,1024);
					printf("\nServer : ");
					scanf(" %[^\n]",buff);

					n=write(newfd,buff,sizeof(buff));
					if(strcmp(buff,"exit")==0)
					{
						printf("\nExiting Server\n");
						exit(1);
					}
				}
				close(sockfd);
				close(newfd);
				return 0;
			}
		}
}
```

Client code:

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

int main(int argc,char **argv)
{

        int len;
        int sockfd,n;
        struct sockaddr_in servaddr,cliaddr;
        char buff[1024];
        char str[1000];

        sockfd=socket(AF_INET,SOCK_STREAM,0);
        if(sockfd<0)
        {
                perror("cannot create socket");
                exit(1);
        }
        bzero(&servaddr,sizeof(servaddr));

        servaddr.sin_family=AF_INET;
        servaddr.sin_addr.s_addr=inet_addr(argv[1]);
        servaddr.sin_port=htons(7228);

        if(connect(sockfd,(struct sockaddr*)&servaddr,sizeof(servaddr))<0)
        {
                perror("Connection error");
                exit(1);
        }

        while(1)
        {
                printf("\n\nClient : ");
                scanf(" %[^\n]",buff);
                n=write(sockfd,buff,sizeof(buff));
                if(strcmp(buff,"exit")==0)
                        break;
                bzero(buff,1024);
                n=read(sockfd,buff,sizeof(buff));
                if(strcmp(buff,"exit")==0)
                        break;
                printf("\nServer :%s",buff);
        }

        close(sockfd);
        return 0;
}
```

Sample I/O:



```
viki@hp-notebook:~/Desktop/Networks Lab/5/C$ gcc server.c -o a
viki@hp-notebook:~/Desktop/Networks Lab/5/C$ ./a


Client 3202 : c1
Server : hello c1


Client 3211 : c2
Server : hello c2


Client 3202 : exit
Server : Connection terminated with Client 3202

Server :

Client 3211 : exit
Server : Connection terminated with Client 3211

Server : exit

Exiting Server
```

```
viki@hp-notebook:~/Desktop/Networks Lab/5/C$ ./b 127.0.0.1


Client : c1

Server :hello c1

Client : exit
viki@hp-notebook:~/Desktop/Networks Lab/5/C$
```

```
viki@hp-notebook:~/Desktop/Networks Lab/5/C$ ./b 127.0.0.1


Client : c2

Server :hello c2

Client : exit
viki@hp-notebook:~/Desktop/Networks Lab/5/C$
```