

Distributed Systems

Lab 1 - Socket Programming

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Server.c

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

void error(char *msg)
{
    perror(msg);
    exit(1);
}

int main(int argc, char *argv[])
{
    int sockfd, newsockfd, portno, clilen;
    char buffer[256];
    struct sockaddr_in serv_addr, cli_addr;
```

```
int n;

if (argc < 2)
{
    fprintf(stderr, "ERROR, no port provided\n");
    exit(1);
}

sockfd = socket(AF_INET, SOCK_STREAM, 0);

if (sockfd < 0)
{
    error("ERROR opening socket");
}

bzero((char *) &serv_addr, sizeof(serv_addr));
portno = atoi(argv[1]);

serv_addr.sin_family = AF_INET;
serv_addr.sin_addr.s_addr = INADDR_ANY;
serv_addr.sin_port = htons(portno);

if (bind(sockfd, (struct sockaddr *) &serv_addr, sizeof(serv_addr)) < 0)
{
    error("ERROR on binding");
}

listen(sockfd, 5);
clilen = sizeof(cli_addr);
newsockfd = accept(sockfd, (struct sockaddr *) &cli_addr, &clilen);
```

```
if (newsockfd < 0)
{
    error("ERROR on accept");
}

bzero(buffer,256);
n = read(newsockfd,buffer,255);

if (n < 0)
{
    error("ERROR reading from socket");
}

printf("Here is the message: %s\n",buffer);
n = write(newsockfd,"I got your message",18);

if (n < 0)
{
    error("ERROR writing to socket");
}

return 0;
}
```

Client.c

```
#include <stdio.h>

#include <sys/types.h>

#include <sys/socket.h>

#include <netinet/in.h>

#include <netdb.h>

#include <unistd.h>

#include <stdlib.h>

#include <strings.h>

#include <string.h>
```

```
void error(char *msg)
```

```
{
    perror(msg);
    exit(0);
}
```

```
int main(int argc, char *argv[])
```

```
{
    int sockfd, portno, n;
    struct sockaddr_in serv_addr;
    struct hostent *server;

    char buffer[256];
```

```
if (argc < 3)
{
    fprintf(stderr,"usage %s hostname port\n", argv[0]);
    exit(0);
}

portno = atoi(argv[2]);
sockfd = socket(AF_INET, SOCK_STREAM, 0);

if (sockfd<0)
{
    error("Error opening socket");
}

server=gethostbyname(argv[1]);

if (server==NULL)
{
    fprintf(stderr,"error no such host\n");
    exit(0);
}

bzero((char *)&serv_addr,sizeof(serv_addr));
serv_addr.sin_family=AF_INET;

bcopy((char *)server->h_addr,(char *) & serv_addr.sin_addr,server-
>h_length);
```

```
serv_addr.sin_port = htons(portno);

if (connect(sockfd,&serv_addr,sizeof(serv_addr)) < 0)
{
    error("ERROR connecting");
}

printf("Please enter the message: ");
bzero(buffer,256);
fgets(buffer,255,stdin);
n = write(sockfd,buffer,strlen(buffer));

if (n < 0)
{
    error("ERROR writing to socket");
}

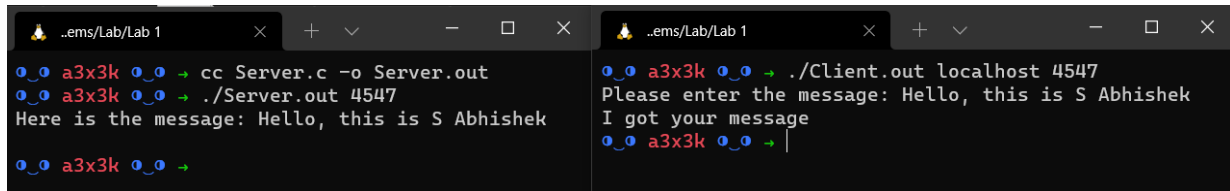
bzero(buffer,256);
n = read(sockfd,buffer,255);

if (n < 0)
{
    error("ERROR reading from socket");
}
```

```
printf("%s\n",buffer);

return 0;

}
```



```
..ems/Lab/Lab 1  x  +  v  -  □  x
o_o a3x3k o_o → cc Server.c -o Server.out
o_o a3x3k o_o → ./Server.out 4547
Here is the message: Hello, this is S Abhishek
o_o a3x3k o_o →

..ems/Lab/Lab 1  x  +  v  -  □  x
o_o a3x3k o_o → ./Client.out localhost 4547
Please enter the message: Hello, this is S Abhishek
I got your message
o_o a3x3k o_o → |
```

Thankyou!!