**REGISTRATION NUMBER: 18BIT0048**
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**LAB SLOT: L29+L30**
**ITE3001 LAB ASSESSMENT 3**
**QUESTION : 8 – Get MAC address and port number from server's database file by sending IP address of client:-**

**CODE: client side:-**

```
#include <string.h>
#include <sys/socket.h>
#include <sys/ioctl.h>
#include <netinet/in.h>
#include <net/if.h>
#include <arpa/inet.h>
#include <stdio.h>
#include <stdlib.h>
#define PORT 5000
//18BIT0048
void main()
{
int sersocket, s;
struct sockaddr_in servaddr;
int clisocket;
int size;
char buffer[100];
clisocket=socket(AF_INET,SOCK_STREAM,0);
if(clisocket>0)printf("CLIENT SOCKET CREATED \n");
servaddr.sin_family=PF_INET;
servaddr.sin_port=htons(PORT);
servaddr.sin_addr.s_addr=inet_addr("127.0.0.1");
connect(clisocket,(struct sockaddr*)&servaddr,sizeof(servaddr));

    unsigned char ip_address[15];
    int fd;
    struct ifreq ifr;
      ifr.ifr_addr.sa_family = AF_INET;
     memcpy(ifr.ifr_name, "eth0", IFNAMSIZ-1);

    ioctl(clisocket, SIOCGIFADDR, &ifr);
    strcpy(ip_address,inet_ntoa(((struct sockaddr_in *)&ifr.ifr_addr)-
>sin_addr));


   printf("\n\n------------CLIENT SIDE CHAT------------\n\n");
    printf("System IP Address is: %s\n Data sent\n",ip_address);

send(clisocket,ip_address,sizeof(ip_address),0);


char avail[10];
char mac[30],port[30];
recv(clisocket,avail,sizeof(avail),0);
if(strcmp(avail,"yes")==0)//data found in server's database file
{
printf("Requested data for the IP ADDRESS %s is available in the server's
database file...\n",ip_address);

recv(clisocket,mac,sizeof(mac),0);
```

```
recv(clisocket,port,sizeof(port),0);
printf("MAC address: %s\n",mac);
printf("PORT number: %s\n",mac);

}
else //data not found in server's database file
{
printf("Requested data for the IP ADDRESS %s is not available in the server's
database file...\n",ip_address);

}



close (clisocket);
}
```

## CODE: server side

```
#include <string.h>
#include <sys/socket.h>
#include <sys/ioctl.h>
#include <netinet/in.h>
#include <net/if.h>
#include <arpa/inet.h>
#include <stdio.h>
#include <stdlib.h>
#define PORT 5000
//18BIT0048
void main()
{
FILE *fp;
fp=fopen("mac_ip.txt", "r+");
char ip[5][30]={"\0"};
char mac[5][90]={"\0"};
char port[5][30]={"\0"};
char chunk[128];
int j,i,t=0,ctrl=0;
printf("contents of mac_ip.txt file database: \n");


/*
the FILE mac_ip.txt is a text file where every first line contains an IP
address,
every second line contains a MAC address of that corresponding IP address,
and every third line contains the port address of that corresponding IP address.

in the following while loop, we read the database, store it, and display the
IP,MAC addresses and port number data to the server user.
*/


while(fgets(chunk, sizeof(chunk), fp) != NULL)
{
for(j=0;j<strlen(chunk);j++)
if(chunk[j]=='\n'){chunk[j]='\0';chunk[j+1]=' ';}
//printf("%s ",chunk);
switch(t%3)
```

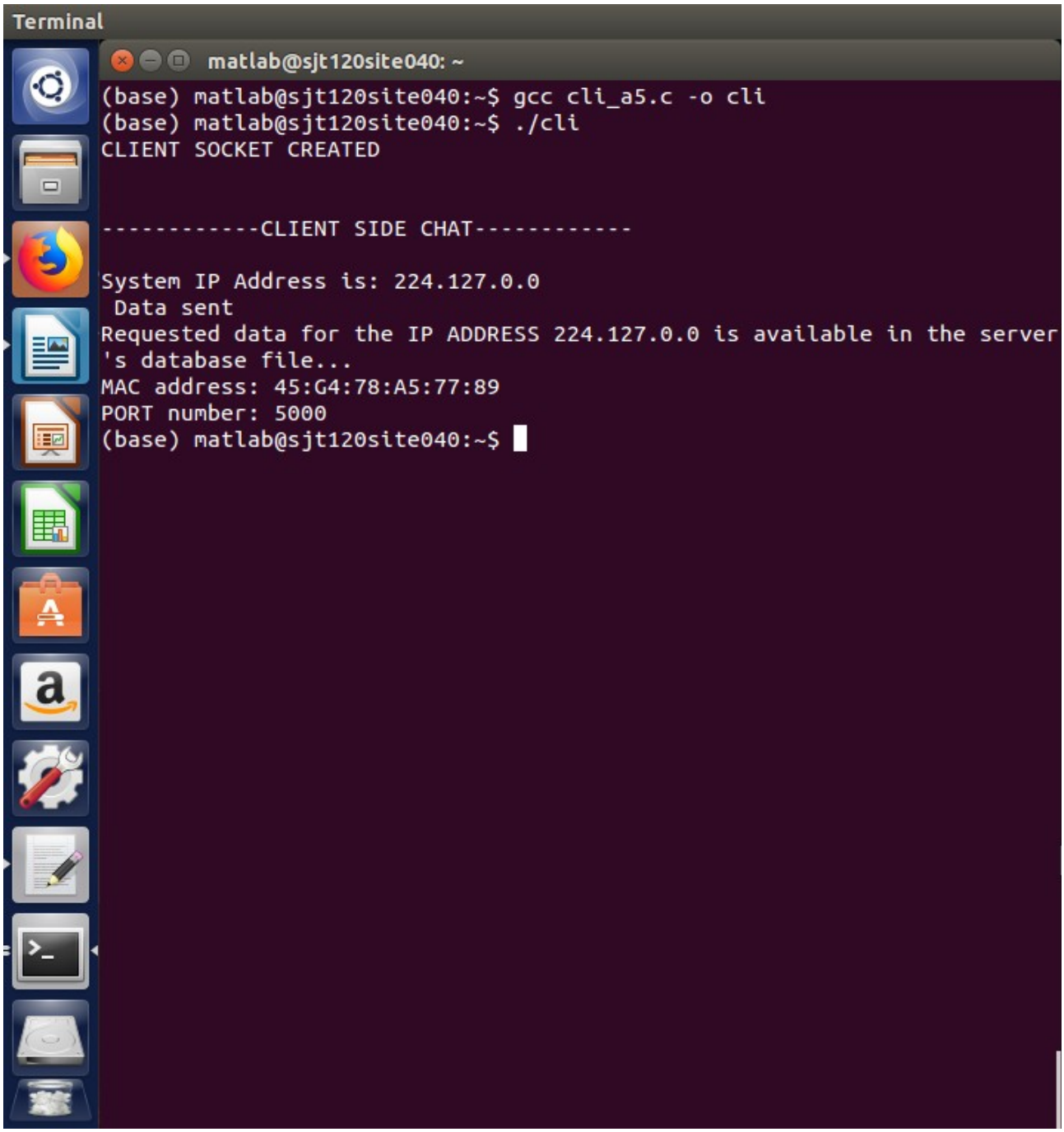
```
{
case 0: strcpy(ip[ctrl],chunk);
      printf("\nIP address:\t%s\n",ip[ctrl]);
      break;
case 1: strcpy(mac[ctrl],chunk);
      printf("MAC address:\t%s\n",mac[ctrl]);break;
case 2: strcpy(port[ctrl],chunk);
      printf("port address: \t%s\n",port[ctrl]);

            ctrl++;break;
}
t++;
}


struct sockaddr_in servaddr;
struct sockaddr_in newaddr;
int newsocket;
int size; char buffer[100];
int sersocket=socket(PF_INET,SOCK_STREAM,0);
if(sersocket>0)printf("SERVER SOCKET CREATED\n");
servaddr.sin_family=PF_INET;
servaddr.sin_port=htons(PORT);
servaddr.sin_addr.s_addr=htonl(INADDR_ANY);
int s=bind(sersocket,(struct sockaddr *) & servaddr,sizeof(servaddr));
if(s==0) printf("bind success \n");
listen(sersocket,1);
size=sizeof(newaddr);
printf("SERVER READY!!! \n");

newsocket=accept(sersocket,(struct sockaddr *)&newaddr,&size);
 printf("\n\n------------SERVER SIDE CHAT-----------\n\n");

char ip_address[15];
recv(newsocket,ip_address,sizeof(ip_address),0);
printf("\n\nIP ADDRESS %s requested from client\n",ip_address);
char avail[10]="no";//this is a string used to signify to client if requested IP
address is available or not.

for(i=0;i<ctrl;i++)
{
if(strcmp(ip_address,ip[i])==0)
{
printf("Data found, details: MAC ADDRESS: %s and PORT ADDRESS: %s\nData
sent\n",mac[i],port[i]);
strcpy(avail,"yes");
send(newsocket,avail,sizeof(avail),0);
send(newsocket,mac[i],sizeof(mac[i]),0);
send(newsocket,port[i],sizeof(port[i]),0);
break;
}
}

if(strcmp(avail,"no")==0)
{
printf("Requested data unavailable in database\nError alert sent\n");
send(newsocket,avail,sizeof(avail),0);
}
```

```
close(newsocket);
}
```

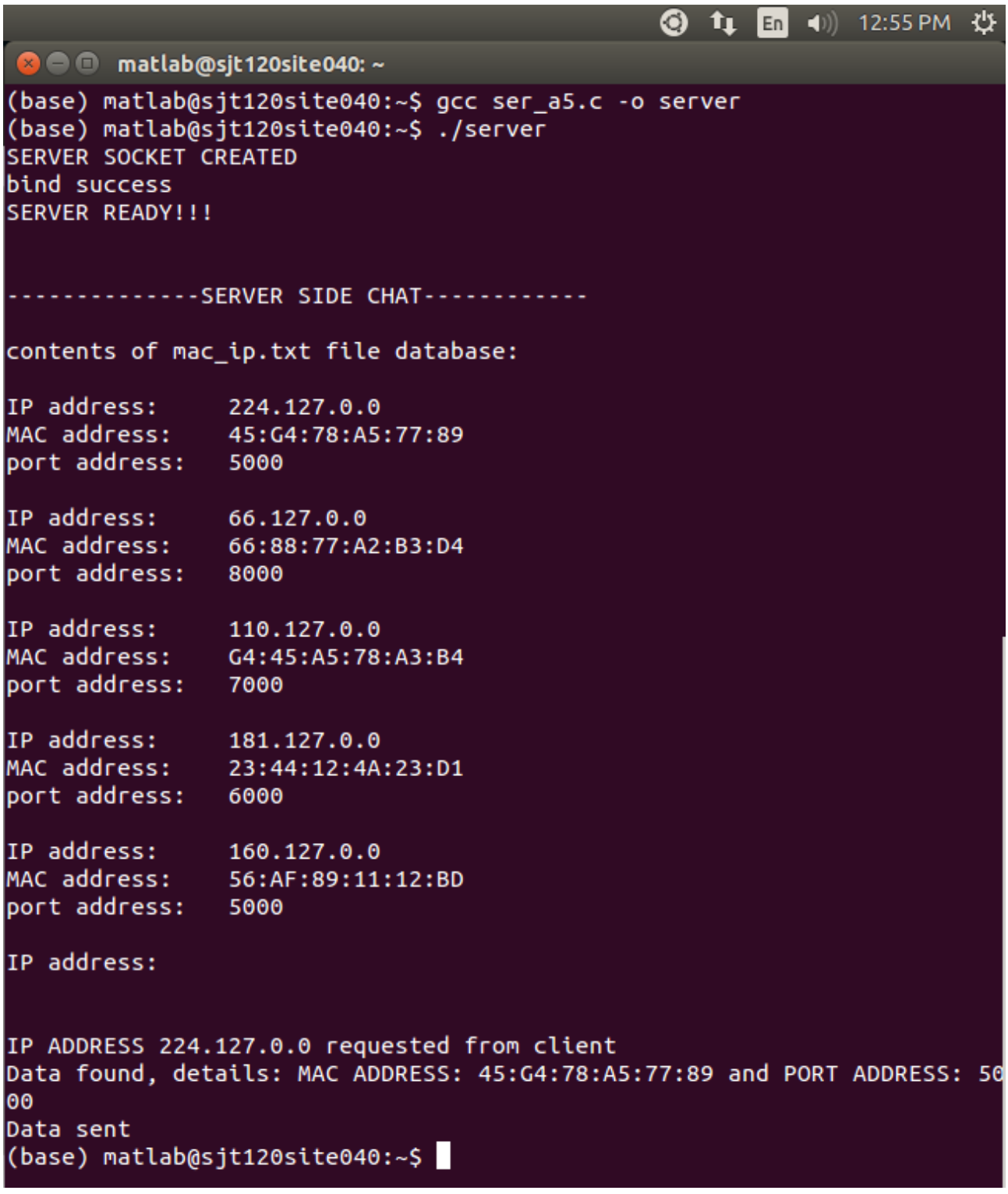
**CONTENTS OF mac_ip.txt file :**

47.127.0.0
45:G4:78:A5:77:89
5000
66.127.0.0
66:88:77:A2:B3:D4
8000
110.127.0.0
G4:45:A5:78:A3:B4
7000
181.127.0.0
23:44:12:4A:23:D1
6000
160.127.0.0
56:AF:89:11:12:BD
5000

**OUTPUT SCREENSHOT : CLIENT SIDE:**




**OUTPUT SCREENSHOT: SERVER SIDE:**


12:55 PM
matlab@sjt120site040: ~
(base) matlab@sjt120site040:~$ gcc ser_a5.c -o server
(base) matlab@sjt120site040:~$ ./server
SERVER SOCKET CREATED
bind success
SERVER READY!!!
--------------SERVER SIDE CHAT------------
contents of mac_ip.txt file database:
IP address: 224.127.0.0
MAC address: 45:G4:78:A5:77:89
port address: 5000
IP address: 66.127.0.0
MAC address: 66:88:77:A2:B3:D4
port address: 8000
IP address: 110.127.0.0
MAC address: G4:45:A5:78:A3:B4
port address: 7000
IP address: 181.127.0.0
MAC address: 23:44:12:4A:23:D1
port address: 6000
IP address: 160.127.0.0
MAC address: 56:AF:89:11:12:BD
port address: 5000
IP address:
IP ADDRESS 224.127.0.0 requested from client
Data found, details: MAC ADDRESS: 45:G4:78:A5:77:89 and PORT ADDRESS: 50
00
Data sent
(base) matlab@sjt120site040:~$