

## P3) Chatting and File transfer in LAN

### To Execute

- 1) make

### Features Implemented

- 1) User can create group
- 2) User can search for group
- 3) User can join group
- 4) User can write message in a group
- 5) User can search for files.
- 6) User can download files
- 7) User can leave group.

### Design

The program has a parent thread and three other thread for smooth functioning of chatting and file sharing in LAN

The parent thread is responsible for taking input from user i.e which action should be implemented. Like creating group, searching group, joining group , sending message, searching file, downloading file.

The first thread is responsible for receiving message form a group and printing them on screen. It is also responsible for handling request of file search and responding in a unicast to the ip that has created the request.

```
typedef struct
{
    int type; //0 normal message ,1 file_search_req,4 file_found
    char file_name[files_name_size];
    char req_ip[IP_SIZE];
```

```

char having_ip[IP_SIZE];
char msg[MAX_LEN];
} msg_to_grp;

```

All the message of this thread are received on PORT 6000. A structure have been created (msg\_to\_grp) which is send and received. The variable type is used to distinguish between different types of messages.

The second thread is used for searching a group through broadcasting. It listen on port 6001. If it founds the particular group, it will return the group ip and port to the parent process on PORT 6003.

The third thread is used for file transfer. Once a user has found on which ip the required file is present using the search command, this thread runs a TCP server on port 6005 and helps to download a file.

## ScreenShots

(loopback has been enabled to see proper working)

### 1) Creating a group called CS at ip 238.101.110.192

```

kshiti@kshiti-Lenovo-ideapad-320-15IKB: ~/Documents/study/NP
***
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5. Search a file
6. See all joined groups
7. Download a file
8. Leave a group
1
Enter group nameCS
Enter group ip238.101.110.192
Group created successfullyName CS ip 238.101.110.192 port 6000
*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5. Search a file
6. See all joined groups
7. Download a file
8. Leave a group
1
956     }
957     }
958     // }
959 }
960 void initialize_ginfo()
961 {
962     for (int i = 0; i < 10; i++)

```

### 2) Searching for CS group



Activities Terminal Thu 03:08 lan\_chat.c - Visual Studio Code

kshiti@kshiti-Lenovo-Ideapad-320-15IKB: ~/Documents/study/NP

```
File Edit View Search Terminal Help
7 Download a file
8 Leave a group
1
Enter group nameCS
Enter group ip238.101.110.192
Group created successfullyName CS ip 238.101.110.192 port 6000
*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group

-----
MESSAGE FROM CS
-----
THIS IS HI TO ALL BITSIAN
-----

```

956 }  
957 }  
958 // }  
959 }  
960 void initialsize\_ginfo()  
961 {  
962 for (int i = 0; i < 10; i++)

kshiti@kshiti-Lenovo-Ideapad-320-15IKB: ~/Documents/study/NP/test

```
File Edit View Search Terminal Help
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group
4

ID:0 Name: CS IP: 238.101.110.192 Port:6000
Enter group id to send msg
0
Type the message to be sent
THIS IS HI TO ALL BITSIAN

-----
MESSAGE FROM CS
-----
THIS IS HI TO ALL BITSIAN
-----
msg send successfully
*****
1. Create a Group
2. Search a Group
3. Join a Group

```

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Activities Terminal Thu 03:08 lan\_chat.c - Visual Studio Code

kshiti@kshiti-Lenovo-Ideapad-320-15IKB: ~/Documents/study/NP

```
File Edit View Search Terminal Help
7 Download a file
8 Leave a group
1
Enter group nameCS
Enter group ip238.101.110.192
Group created successfullyName CS ip 238.101.110.192 port 6000
*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group

-----
MESSAGE FROM CS
-----
THIS IS HI TO ALL BITSIAN
-----

```

956 }  
957 }  
958 // }  
959 }  
960 void initialsize\_ginfo()  
961 {  
962 for (int i = 0; i < 10; i++)

kshiti@kshiti-Lenovo-Ideapad-320-15IKB: ~/Documents/study/NP/test

```
File Edit View Search Terminal Help
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group
4

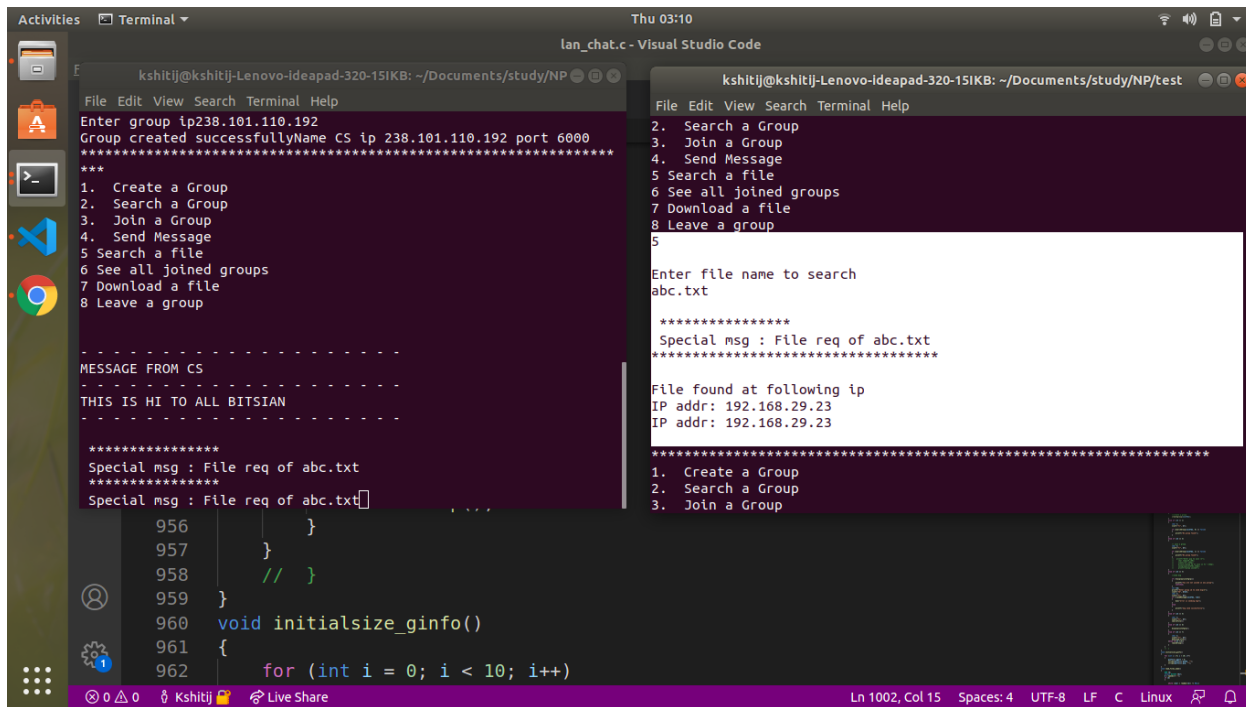
ID:0 Name: CS IP: 238.101.110.192 Port:6000
Enter group id to send msg
0
Type the message to be sent
THIS IS HI TO ALL BITSIAN

-----
MESSAGE FROM CS
-----
THIS IS HI TO ALL BITSIAN
-----
msg send successfully
*****
1. Create a Group
2. Search a Group
3. Join a Group

```

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## Searching for a file



```
Thu 03:10
lan_chat.c - Visual Studio Code

kshiti@kshiti-Lenovo-Ideapad-320-15IKB: ~/Documents/study/NP
File Edit View Search Terminal Help
Enter group ip238.101.110.192
Group created successfullyName CS ip 238.101.110.192 port 6000
*****
***
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group

MESSAGE FROM CS
-----
THIS IS HI TO ALL BITSIAN
-----

*****
Special msg : File req of abc.txt
*****
Special msg : File req of abc.txt

956     }
957     }
958     // }
959 }
960 void initialsize_ginfo()
961 {
962     for (int i = 0; i < 10; i++)

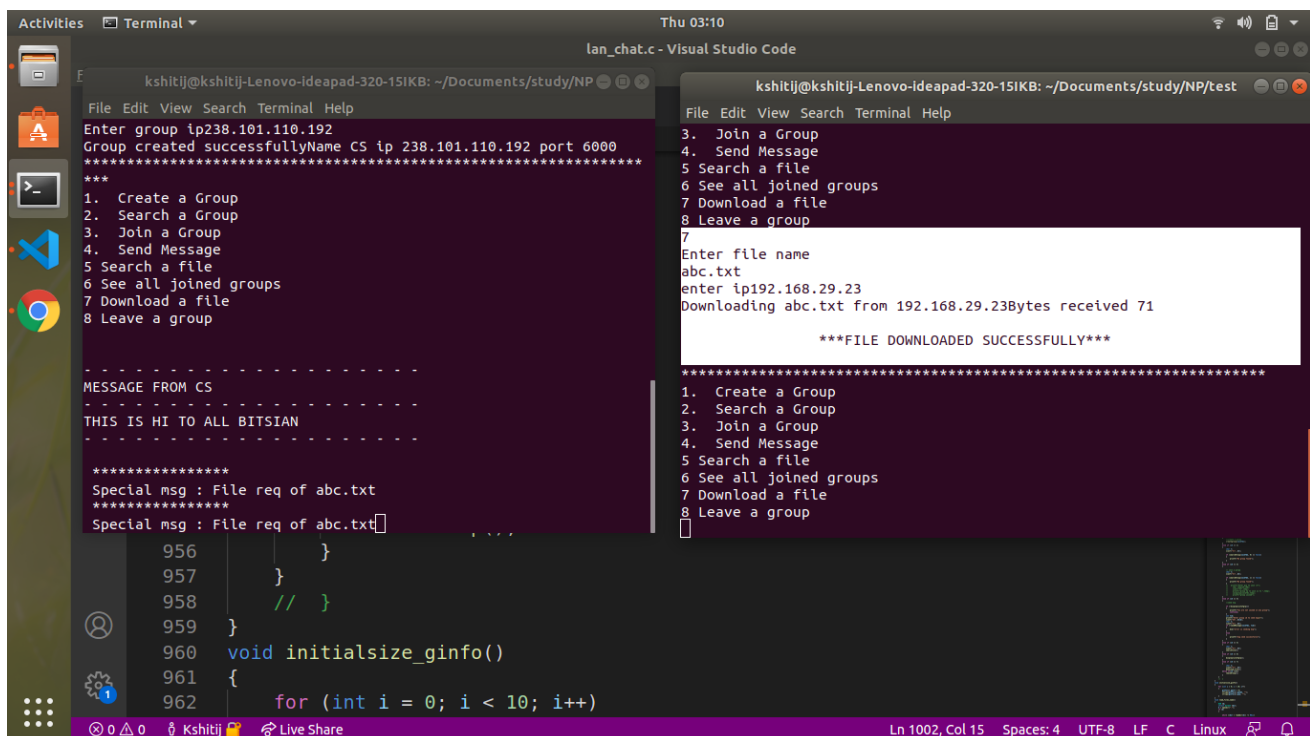
kshiti@kshiti-Lenovo-Ideapad-320-15IKB: ~/Documents/study/NP/test
File Edit View Search Terminal Help
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group
5
Enter file name to search
abc.txt

*****
Special msg : File req of abc.txt
*****

File found at following ip
IP addr: 192.168.29.23
IP addr: 192.168.29.23

*****
1. Create a Group
2. Search a Group
3. Join a Group
```

## Download a file



```
Thu 03:10
lan_chat.c - Visual Studio Code

kshiti@kshiti-Lenovo-Ideapad-320-15IKB: ~/Documents/study/NP
File Edit View Search Terminal Help
Enter group ip238.101.110.192
Group created successfullyName CS ip 238.101.110.192 port 6000
*****
***
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group

MESSAGE FROM CS
-----
THIS IS HI TO ALL BITSIAN
-----

*****
Special msg : File req of abc.txt
*****
Special msg : File req of abc.txt

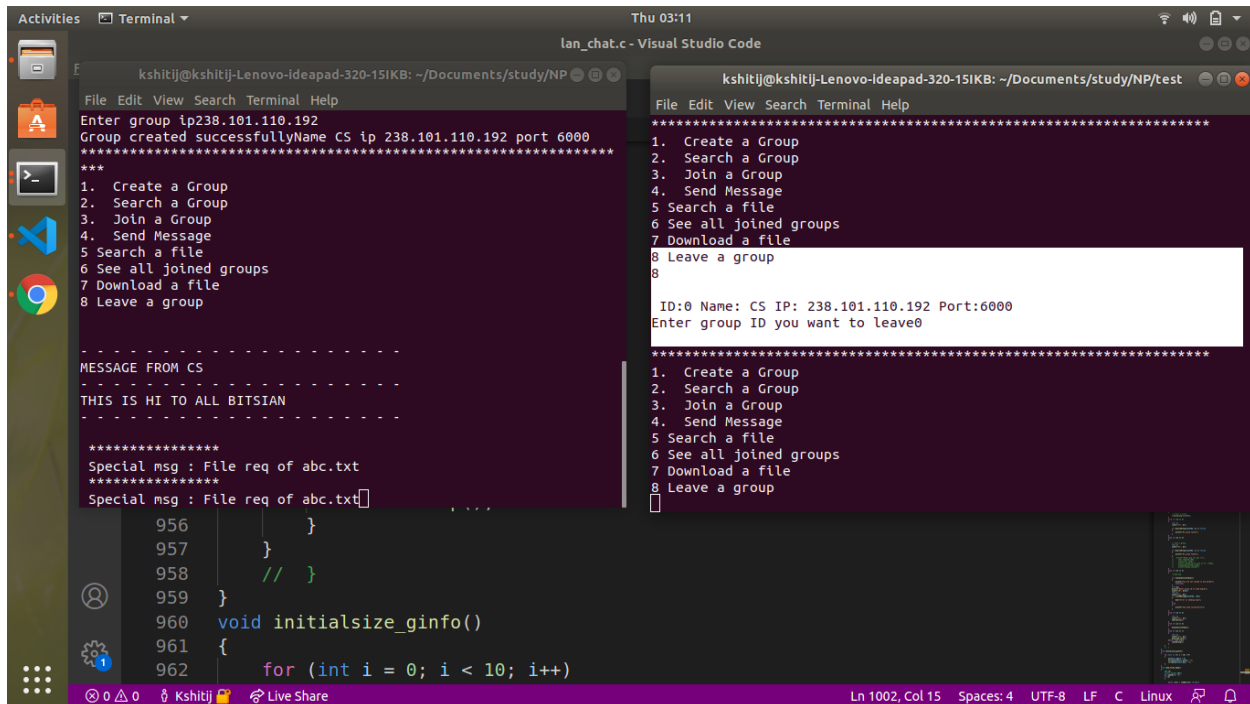
956     }
957     }
958     // }
959 }
960 void initialsize_ginfo()
961 {
962     for (int i = 0; i < 10; i++)

kshiti@kshiti-Lenovo-Ideapad-320-15IKB: ~/Documents/study/NP/test
File Edit View Search Terminal Help
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group
7
Enter file name
abc.txt
enter ip192.168.29.23
Downloading abc.txt from 192.168.29.23Bytes received 71

***FILE DOWNLOADED SUCCESSFULLY***

*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group
```

## Leave a group



```
File Edit View Search Terminal Help
Enter group ip238.101.110.192
Group created successfullyName CS ip 238.101.110.192 port 6000
*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group

-----
MESSAGE FROM CS
-----
THIS IS HI TO ALL BITSIAN
-----

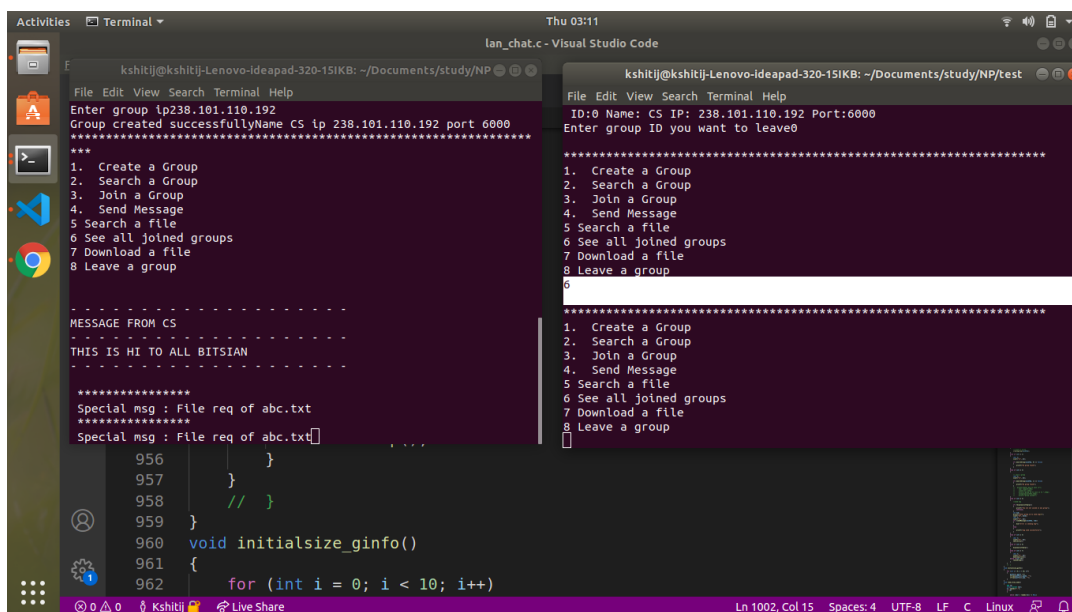
*****
Special msg : File req of abc.txt
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Special msg : File req of abc.txt

956     }
957     }
958     // }
959 }
960 void initialsize_ginfo()
961 {
962     for (int i = 0; i < 10; i++)
```

```
File Edit View Search Terminal Help
*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group
ID:0 Name: CS IP: 238.101.110.192 Port:6000
Enter group ID you want to leave0
*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group
```

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## See all joined groups



```
File Edit View Search Terminal Help
Enter group ip238.101.110.192
Group created successfullyName CS ip 238.101.110.192 port 6000
*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group

-----
MESSAGE FROM CS
-----
THIS IS HI TO ALL BITSIAN
-----

*****
Special msg : File req of abc.txt
*****
Special msg : File req of abc.txt

956     }
957     }
958     // }
959 }
960 void initialsize_ginfo()
961 {
962     for (int i = 0; i < 10; i++)
```

```
File Edit View Search Terminal Help
ID:0 Name: CS IP: 238.101.110.192 Port:6000
Enter group ID you want to leave0
*****
1. Create a Group
2. Search a Group
3. Join a Group
4. Send Message
5 Search a file
6 See all joined groups
7 Download a file
8 Leave a group
6
```

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