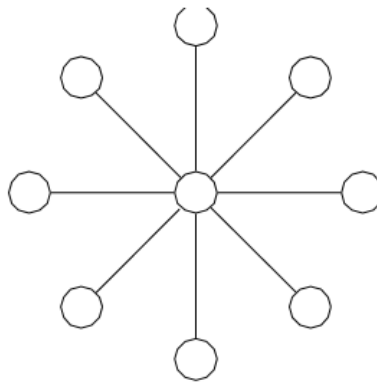


# SCREENSHOTS FOR THE PROGRAMMING PROJECT ON GNUTELLA PEER TO PEER PROGRAMMING

STAR TOPOLOGY



Star Topology

1. Configuration details of all the peers in the network after reading from the config file.

```
narnimah@treebeard: ~/Gnutella_Nw
narnimah@treebeard:~/Gnutella_Nw$ javac -d /home/TTU/narnimah/Gnutella_Nw ThreadOfHelloServer.java Hello.java HelloInterface.java HelloClient.java ReadConfig.java
narnimah@treebeard:~/Gnutella_Nw$ java ThreadOfHelloServer
Peer ID :1
Port Number :1099
Directory Path :/home/TTU/narnimah/Sample_files
Neighbouring node is2
Neighbouring node is3
Neighbouring node is4
Neighbouring node is5
Neighbouring node is6
Neighbouring node is7
Neighbouring node is8
Neighbouring node is9
Peer ID :2
Port Number :4002
Directory Path :/home/TTU/narnimah/HOM_WORK
Neighbouring node is1
Peer ID :3
Port Number :4003
Directory Path :/home/TTU/narnimah/spring_16_fees
Neighbouring node is1
Peer ID :4
Port Number :4004
Directory Path :/home/TTU/narnimah/src
Neighbouring node is1
Peer ID :5
Port Number :4005
Directory Path :/home/TTU/narnimah/SMA
Neighbouring node is1
Peer ID :6
Port Number :4006
Directory Path :/home/TTU/narnimah/test_1
Neighbouring node is1
Peer ID :7
Port Number :4007
Directory Path :/home/TTU/narnimah/test_2
Neighbouring node is1
Peer ID :8
Port Number :4008
Directory Path :/home/TTU/narnimah/test_3
Neighbouring node is1
```

## 2. Sending the search query message to each peer and its neighbours

```
narnimah@treebeard: ~/Gnutella_Nw
Neighbouring node is1
Peer ID :8
Port Number :4008
Directory Path :/home/TTU/narnimah/test_3
Neighbouring node is1
Peer ID :9
Port Number :4009
Directory Path :/home/TTU/narnimah/test_4
Neighbouring node is1
Peer ID :10
Port Number :4010
Directory Path :/home/TTU/narnimah/test_5
Neighbouring node is1
Total number of nodes in the network are 10
Ready to send query message
Sending query message to neighbouring nodes of Peer :1
Sending query message to neighbouring nodes of Peer :2
Sending query message to neighbouring nodes of Peer :3
Sending query message to neighbouring nodes of Peer :4
Sending query message to neighbouring nodes of Peer :5
Sending query message to neighbouring nodes of Peer :6
Sending query message to neighbouring nodes of Peer :7
Sending query message to neighbouring nodes of Peer :8
Sending query message to neighbouring nodes of Peer :9
Sending query message to neighbouring nodes of Peer :10
Do you want to search for a file- Yes or No
yes
```







## 3. Displaying all the details of the peer containing the file in the hit query message format.

```
narnimah@treebeard: ~/Gnutella_Nw
Sending query message to neighbouring nodes of Peer :7
Sending query message to neighbouring nodes of Peer :8
Sending query message to neighbouring nodes of Peer :9
Sending query message to neighbouring nodes of Peer :10
Do you want to search for a file- Yes or No
yes
File to be searched is test_cases.docx
seq is 1
Time to Live7
the files match
Time to Live6
Peer ID containing the file is3
Port number of the peer4003
the files match
Time to Live5
Peer ID containing the file is5
Port number of the peer4005
Count of the number of files matched2
Following are the hit query messages
Hit query message are
PeerID 3      Port Number 4003      FileName test_cases.docx      Message ID is1+1      Time to Live6
Hit query message are
PeerID 5      Port Number 4005      FileName test_cases.docx      Message ID is1+1      Time to Live5
Peer ID's having the given file are3
Peer ID's having the given file are5
Enter the peer ID you want to connect and download the file from
3
Source Path /home/TTU/narnimah/spring_16_fees/test_cases.docx
Destination Path /home/TTU/narnimah/Sample_files
File downloaded successfully
Do you want to continue searching Yes or No
```

## 4. Before downloading the file 'test\_cases.docx' on the specified path

/home/TTU/narnimah/Sample_files				
Name	Size	Changed	Rights	Owner
..		4/17/2016 4:32:12 PM	rw-x-----	narnimah
aos_outputs.doc	851 KB	3/16/2016 3:24:59 AM	rw-r--r--	narnimah
New Microsoft Word Document (2).docx	12 KB	3/16/2016 2:04:51 AM	rw-r--r--	narnimah
new-1.docx	20 KB	3/16/2016 1:27:14 AM	rw-r--r--	narnimah
Outputs_p2p.doc	26 KB	3/16/2016 2:05:19 AM	rw-r--r--	narnimah

5.After download the file 'test\_cases.docx' on the specified path

/home/TTU/narnimah/Sample_files				
Name	Size	Changed	Rights	Owner
		4/17/2016 1:33:10 PM	rw-x-----	narnimah
 aos_outputs.doc	851 KB	3/16/2016 3:24:59 AM	rw-r--r--	narnimah
 New Microsoft Word Document (2).docx	12 KB	3/16/2016 2:04:51 AM	rw-r--r--	narnimah
 new-1.docx	20 KB	3/16/2016 1:27:14 AM	rw-r--r--	narnimah
 Outputs_p2p.doc	26 KB	3/16/2016 2:05:19 AM	rw-r--r--	narnimah
 test_cases.docx	41 KB	4/17/2016 1:38:00 PM	rw-r--r--	narnimah

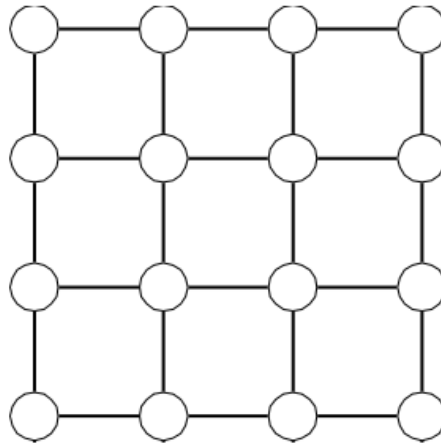
6.Sending a search query again, displays the hit query message but count of sequence number is increased now.

```
narnimah@treebeard: ~/Gnutella_Nw
Peer ID's having the given file are3
Peer ID's having the given file are5
Enter the peer ID you want to connect and download the file from
3
Source Path /home/TTU/narnimah/spring_16_fees/test_cases.docx
Destination Path /home/TTU/narnimah/Sample_files
File downloaded successfully
Do you want to continue searching Yes or No
yes
File to be searched is test_cases.docx
seq is 2
Time to Live7
the files match
Time to Live6
Peer ID containing the file is3
Port number of the peer4003
the files match
Time to Live5
Peer ID containing the file is5
Port number of the peer4005
Count of the number of files matched2
Following are the hit query messages
Hit query message are
PeerID 3      Port Number 4003      FileName test_cases.docx      Message ID is1+2      Time to Live6
Hit query message are
PeerID 5      Port Number 4005      FileName test_cases.docx      Message ID is1+2      Time to Live5
Peer ID's having the given file are3
Peer ID's having the given file are5
Enter the peer ID you want to connect and download the file from
5
Source Path /home/TTU/narnimah/SMA/test_cases.docx
Destination Path /home/TTU/narnimah/Sample_files
File downloaded successfully
Computing the avg response time
```

7. Computing the average response per client search query request by repeating the measurement 100 times and get the average

```
narnimah@treebeard: ~/Grutella_Nw
Source Path /home/TTU/narnimah/SMA//test_cases.docx
Destination Path /home/TTU/narnimah/Sample_files
trackingCount97
responseTime is1284ms
avgResponseTime is1ms
File to be searched is test_cases.docx
seq is 2
Time to Live7
the files match
Time to Live6
Peer ID containing the file is3
Port number of the peer4003
the files match
Time to Live5
Peer ID containing the file is5
Port number of the peer4005
Count of the number of files matched2
Source Path /home/TTU/narnimah/SMA//test_cases.docx
Destination Path /home/TTU/narnimah/Sample_files
Source Path /home/TTU/narnimah/SMA//test_cases.docx
Destination Path /home/TTU/narnimah/Sample_files
trackingCount98
responseTime is1291ms
avgResponseTime is1ms
File to be searched is test_cases.docx
seq is 2
Time to Live7
the files match
Time to Live6
Peer ID containing the file is3
Port number of the peer4003
the files match
Time to Live5
Peer ID containing the file is5
Port number of the peer4005
Count of the number of files matched2
Source Path /home/TTU/narnimah/SMA//test_cases.docx
Destination Path /home/TTU/narnimah/Sample_files
Source Path /home/TTU/narnimah/SMA//test_cases.docx
Destination Path /home/TTU/narnimah/Sample_files
trackingCount99
responseTime is1296ms
avgResponseTime is1ms
```

MESH TOPOLOGY



2D-mesh Topology

## 1. Configuration details of all the peers in the network after reading from the config file.

```
narnimah@treebeard: ~/Gnutella_Nw
login as: narnimah
narnimah@129.118.182.48's password:

Welcome to treebeard.cs.ttu.edu.
If you have any problems, please email support.coe@ttu.edu
and include any relevant information such as:

-Name of operating system and version that you are using
-Particular software programs and versions you are using
-The full DNS name of the machine you are accessing
-The location you are trying to connect from (on- or off-campus)
-Specific error messages

Last login: Sun Apr 17 18:22:14 2016 from 75-111-225-124.lbbkcmk04.res.dyn.suddenlink.net
narnimah@treebeard:~$ cd /home/TTU/narnimah/Gnutella_Nw
narnimah@treebeard:~/Gnutella_Nw$ javac -d /home/TTU/narnimah/Gnutella_Nw ThreadOfHelloServer.java Hello.java HelloInterface.java HelloClient.java ReadConfig
.java InitialisingPeerDetails.java GetPropertyValues.java FileImpl.java FileDetails.java AverageResponseTime.java
narnimah@treebeard:~/Gnutella_Nw$ java ThreadOfHelloServer
Peer ID :1
Port Number :1099
Directory Path :/home/TTU/narnimah/Sample_files
Neighbouring node is2
Neighbouring node is5
Peer ID :2
Port Number :4002
Directory Path :/home/TTU/narnimah/HOM_WORK
Neighbouring node is1
Neighbouring node is3
Neighbouring node is6
Peer ID :3
Port Number :4003
Directory Path :/home/TTU/narnimah/spring_16_fees
Neighbouring node is2
Neighbouring node is4
Neighbouring node is7
Peer ID :4
Port Number :4004
Directory Path :/home/TTU/narnimah/src
Neighbouring node is3
Neighbouring node is8
```

## 2. Configuration details of all the peers in the network after reading from the config file.3.

```
narnimah@treebeard: ~/Gnutella_Nw
Peer ID :5
Port Number :4005
Directory Path :/home/TTU/narnimah/SMA
Neighbouring node is1
Neighbouring node is6
Neighbouring node is9
Peer ID :6
Port Number :4006
Directory Path :/home/TTU/narnimah/test_1
Neighbouring node is2
Neighbouring node is5
Neighbouring node is7
Neighbouring node is10
Peer ID :7
Port Number :4007
Directory Path :/home/TTU/narnimah/test_2
Neighbouring node is3
Neighbouring node is6
Neighbouring node is8
Neighbouring node is11
Peer ID :8
Port Number :4008
Directory Path :/home/TTU/narnimah/test_3
Neighbouring node is4
Neighbouring node is7
Neighbouring node is12
Peer ID :9
Port Number :4009
Directory Path :/home/TTU/narnimah/test_4
Neighbouring node is5
Neighbouring node is10
Peer ID :10
Port Number :4010
Directory Path :/home/TTU/narnimah/test_5
Neighbouring node is6
Neighbouring node is9
Neighbouring node is11
Peer ID :11
Port Number :4011
Directory Path :/home/TTU/narnimah/test_6
Neighbouring node is7
Neighbouring node is10
Neighbouring node is12
Peer ID :12
```

### 3. Sending the search query message to each peer and its neighbours

```
narnimah@treebeard: ~/Gnutella_Nw
Peer ID :8
Port Number :4008
Directory Path :/home/TTU/narnimah/test_3
Neighbouring node is4
Neighbouring node is7
Neighbouring node is12
Peer ID :9
Port Number :4009
Directory Path :/home/TTU/narnimah/test_4
Neighbouring node is5
Neighbouring node is10
Peer ID :10
Port Number :4010
Directory Path :/home/TTU/narnimah/test_5
Neighbouring node is6
Neighbouring node is9
Neighbouring node is11
Peer ID :11
Port Number :4011
Directory Path :/home/TTU/narnimah/test_6
Neighbouring node is7
Neighbouring node is10
Neighbouring node is12
Peer ID :12
Port Number :4012
Directory Path :/home/TTU/narnimah/test_7
Neighbouring node is8
Neighbouring node is11
Total number of nodes in the network are 12
Ready to send query message
Sending query message to neighbouring nodes of Peer :1
Sending query message to neighbouring nodes of Peer :2
Sending query message to neighbouring nodes of Peer :3
Sending query message to neighbouring nodes of Peer :4
Sending query message to neighbouring nodes of Peer :5
Sending query message to neighbouring nodes of Peer :6
Sending query message to neighbouring nodes of Peer :7
Sending query message to neighbouring nodes of Peer :8
Sending query message to neighbouring nodes of Peer :9
Sending query message to neighbouring nodes of Peer :10
Sending query message to neighbouring nodes of Peer :11
Sending query message to neighbouring nodes of Peer :12
Do you want to search for a file- Yes or No
```

### 4. Displaying all the details of the peer containing the file in the hit query message format.

```
narnimah@treebeard: ~/Gnutella_Nw
Port number of the peer4008
the files match
Time to Live-3
Peer ID containing the file is9
Port number of the peer4009
the files match
Time to Live-4
Peer ID containing the file is11
Port number of the peer4011
the files match
Time to Live-5
Peer ID containing the file is12
Port number of the peer4012
Count of the number of files matched7
Following are the hit query messages
Hit query message are
PeerID 2      Port Number 4002      FileName photo.png      Message ID is1+1      Time to Live1
Hit query message are
PeerID 6      Port Number 4006      FileName photo.png      Message ID is1+1      Time to Live0
Hit query message are
PeerID 7      Port Number 4007      FileName photo.png      Message ID is1+1      Time to Live-1
Hit query message are
PeerID 8      Port Number 4008      FileName photo.png      Message ID is1+1      Time to Live-2
Hit query message are
PeerID 9      Port Number 4009      FileName photo.png      Message ID is1+1      Time to Live-3
Hit query message are
PeerID 11     Port Number 4011      FileName photo.png      Message ID is1+1      Time to Live-4
Hit query message are
PeerID 12     Port Number 4012      FileName photo.png      Message ID is1+1      Time to Live-5
Peer ID's having the given file are2
Peer ID's having the given file are6
Peer ID's having the given file are7
Peer ID's having the given file are8
Peer ID's having the given file are9
Peer ID's having the given file are11
Peer ID's having the given file are12
Enter the peer ID you want to connect and download the file from
8
Source Path /home/TTU/narnimah/test_3/photo.png
Destination Path /home/TTU/narnimah/Sample_files
File downloaded successfully
Do you want to continue searching Yes or No
```

5. Before downloading the file 'photo.png' on the specified path

/home/TTU/narnimah/Sample_files				
Name	Size	Changed	Rights	Owner
..		4/17/2016 7:19:02 PM	rw-x-----	narnimah
aos_outputs.doc	851 KB	3/16/2016 3:24:59 AM	rw-r--r--	narnimah
New Microsoft Word Document (2).docx	12 KB	3/16/2016 2:04:51 AM	rw-r--r--	narnimah
new-1.docx	20 KB	3/16/2016 1:27:14 AM	rw-r--r--	narnimah
Outputs_p2p.doc	26 KB	3/16/2016 2:05:19 AM	rw-r--r--	narnimah

6. After downloading the file 'photo.png' on the specified path

/home/TTU/narnimah/Sample_files				
Name	Size	Changed	Rights	Owner
..		4/17/2016 7:19:02 PM	rw-x-----	narnimah
aos_outputs.doc	851 KB	3/16/2016 3:24:59 AM	rw-r--r--	narnimah
New Microsoft Word Document (2).docx	12 KB	3/16/2016 2:04:51 AM	rw-r--r--	narnimah
new-1.docx	20 KB	3/16/2016 1:27:14 AM	rw-r--r--	narnimah
Outputs_p2p.doc	26 KB	3/16/2016 2:05:19 AM	rw-r--r--	narnimah
photo.png	773 KB	4/17/2016 7:24:05 PM	rw-r--r--	narnimah

7. Sending a search query again, displays the hit query message but count of sequence number is increased now.

```
narnimah@treebeard: ~/Gnutella_Nw
Time to Live-1
Peer ID containg the file is7
Port number of the peer4007
the files match
Time to Live-2
Peer ID containg the file is8
Port number of the peer4008
the files match
Time to Live-3
Peer ID containg the file is9
Port number of the peer4009
the files match
Time to Live-4
Peer ID containg the file is11
Port number of the peer4011
the files match
Time to Live-5
Peer ID containg the file is12
Port number of the peer4012
Count of the number of files matched7
Following are the hit query messages
Hit query message are
PeerID 2      Port Number 4002      FileName photo.png      Message ID is1+2      Time to Live1
Hit query message are
PeerID 6      Port Number 4006      FileName photo.png      Message ID is1+2      Time to Live0
Hit query message are
PeerID 7      Port Number 4007      FileName photo.png      Message ID is1+2      Time to Live-1
Hit query message are
PeerID 8      Port Number 4008      FileName photo.png      Message ID is1+2      Time to Live-2
Hit query message are
PeerID 9      Port Number 4009      FileName photo.png      Message ID is1+2      Time to Live-3
Hit query message are
PeerID 11     Port Number 4011      FileName photo.png      Message ID is1+2      Time to Live-4
Hit query message are
PeerID 12     Port Number 4012      FileName photo.png      Message ID is1+2      Time to Live-5
Peer ID's having the given file are2
Peer ID's having the given file are6
Peer ID's having the given file are7
Peer ID's having the given file are8
Peer ID's having the given file are9
Peer ID's having the given file are11
Peer ID's having the given file are12
```

8. Computing the average response per client search query request by repeating the measurement 100 times and get the average

```
Source Path /home/TTU/narnimah/peer_07/photo.png
Destination Path /home/TTU/narnimah/Sample_files
trackingCount99
responseTime is24765ms
avgResponseTime is24ms
narnimah@treebeard:~/Gnutella_Nw$
```



9.If you do not wish to perform send a search query at the start

```
narnimah@treebeard: ~/Gnutella_Nw
Port Number :4008
Directory Path :/home/TTU/narnimah/test_3
Neighbouring node is4
Neighbouring node is7
Neighbouring node is12
Peer ID :9
Port Number :4009
Directory Path :/home/TTU/narnimah/test_4
Neighbouring node is5
Neighbouring node is10
Peer ID :10
Port Number :4010
Directory Path :/home/TTU/narnimah/test_5
Neighbouring node is6
Neighbouring node is9
Neighbouring node is11
Peer ID :11
Port Number :4011
Directory Path :/home/TTU/narnimah/test_6
Neighbouring node is7
Neighbouring node is10
Neighbouring node is12
Peer ID :12
Port Number :4012
Directory Path :/home/TTU/narnimah/test_7
Neighbouring node is8
Neighbouring node is11
Total number of nodes in the network are 12
Ready to send query message
Sending query message to neighbouring nodes of Peer :1
Sending query message to neighbouring nodes of Peer :2
Sending query message to neighbouring nodes of Peer :3
Sending query message to neighbouring nodes of Peer :4
Sending query message to neighbouring nodes of Peer :5
Sending query message to neighbouring nodes of Peer :6
Sending query message to neighbouring nodes of Peer :7
Sending query message to neighbouring nodes of Peer :8
Sending query message to neighbouring nodes of Peer :9
Sending query message to neighbouring nodes of Peer :10
Sending query message to neighbouring nodes of Peer :11
Sending query message to neighbouring nodes of Peer :12
Do you want to search for a file- Yes or No
no
Thank you :█
```