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# Programming Project 3

## Gnutella-style peer-to-peer (P2P) file sharing system

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### Test

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## 1 Running the project

1. First unzip the project Folder(Gnutella-peer-peer)
2. Using Terminal Navigate to the project folder
3. Type mvn install -file server.xml to build the project

```
[grathina@disci Gnutella-peer-peer]$ mvn install -file server.xml
[INFO] Scanning for projects...
[INFO]
[INFO] -----
[INFO] Building Gntella_Server 1
[INFO] -----
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ Gntella_Server ---
```

4. Redirect to the target folder once the build is done
5. Type "Java -jar peer1.jar" to run the project

```
[grathina@disci Gnutella-peer-peer]$ cd target/
[grathina@disci target]$ java -jar peer1.jar
The parent folder is /home/grathina/Gnutella-peer-peer/target
The Resource folder is /home/grathina/Gnutella-peer-peer/src/main/java
The master folder is /home/grathina/Gnutella-peer-peer
1. To apply Star topology
2. To apply Mesh topology:
```

6. Repeat this on all the terminals to start all the peers

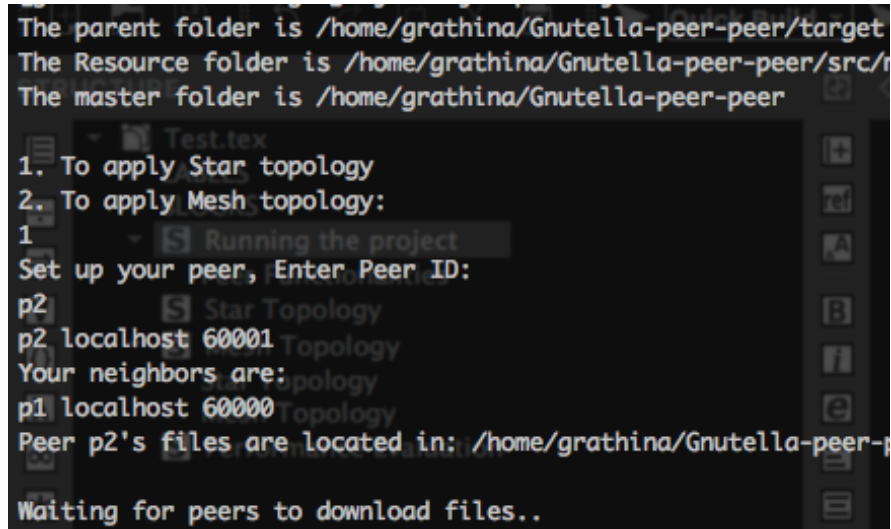
## 1.1 Peer Functionalities

Below are the functionality of the peers

```
*****
Type the action number as following:
1. Search a file over the topology.
2. List my files of the current directory.
3. Register a file on your local machine.
4. Register all files of the working directory.
5. Download file from a peer.
6. Calculate the performance of search requests.
7. To exit.
*****
```

## 2 Star Topology

- Press 1 for start topology
- Setup peer - enter the peer id ex.p1,p2,p3 to setup the peer
- Repeat in all terminal to start all the peers



```
The parent folder is /home/grathina/Gnutella-peer-peer/target
The Resource folder is /home/grathina/Gnutella-peer-peer/src/
The master folder is /home/grathina/Gnutella-peer-peer

1. To apply Star topology
2. To apply Mesh topology:
1
Set up your peer, Enter Peer ID:
p2
p2 localhost 60001
Your neighbors are:
p1 localhost 60000
Peer p2's files are located in: /home/grathina/Gnutella-peer-p
Waiting for peers to download files..
```

- Type 3 To register a file or Type 4 To register all the file from the directory

```

3
Enter the file name along with the file extension
Peer_F14.txt
File Peer_F14.txt has been registered successfully !
*****
Type the action number as following:
1. Search a file over the topology.
2. List my files of the current directory.
3. Register a file on your local machine.
4. Register all files of the working directory.
5. Download file from a peer.
6. Calculate the performance of search requests.
7. To exit.
*****
4
File Peer_F18.txt has been registered successfully !
File Peer_F20.txt has been registered successfully !
File Peer_F12.txt has been registered successfully !

```

- Type 1 to search for the file

```

1
Enter the file name along with the file extension
Peer_F2.txt
Search message is created for file Peer_F2.txt
Broadcast message is sent to localhost-60000!

```

```

** Peer localhost connected..
File Peer_F2.txt found in peer File found in :p1. Time:1525385304277

```

- Type 5 To download the file

```
5
Enter the peer id, and file name using this format (p1-file.txt):
p1-Peer_F2.txt
File name:Peer_F2.txt

Connected to peer : localhost through port : 60000
Peer_F2.txt has been downloaded successfully
```

- Check files Validity test/

```
Checking local files validity !
Checking local files validity !
```

### 3 Mesh Topology

- peer setup

```

The parent folder is /home/grathina/Gnutella-peer-peer/target
The Resource folder is /home/grathina/Gnutella-peer-peer/src/main/java
The master folder is /home/grathina/Gnutella-peer-peer/src/main/java
1. To apply Star topology
2. To apply Mesh topology:
2 File_Handler
Set up your peer, Enter Peer ID:date
p1 localhost 60000
Your neighbors are:
p2 localhost 60001
p4 localhost 60003
p10 localhost 60009
Peer p1's files are located in: /home/grathina/Gnutella-peer-peer/src/main/java/p1/
Waiting for peers to download files..

```

- 1 To search for file in peer's

```

1 //config file
Enter the file name along with the file extension
Peer_F6.txt //port number
Search message is created for file Peer_F6.txt
Broadcast message is sent to localhost-60000!

```

- search result

```

** Peer localhost connected..

File Peer_F6.txt found in peer File found in :p1. Time:1525386957863
Checking local files validity !

```

- 5 To download a file

```

5
Enter the peer id, and file name using this format (p1-file.txt):
p1-Peer_F6.txt
File name:Peer_F6.txt
Connected to peer : localhost through port : 60000

Peer_F6.txt has been downloaded successfully

```

## 4 Performance Evaluation

The performance evaluation is done by running all the peers and check the search speed

```

grathina@discl:/Gnutella-peer-peer/target (ssh)
** Peer localhost connected..
** Peer localhost connected..Documents
** Peer localhost connected..
Message p11525386501811 has been dropped !
File Peer_F58.txt found in peer File found in :p6. Time
:1525386501985
Message p11525386501811 has been dropped !

grathina@discl:/Gnutella-peer-peer/target (ssh)
7. To exit.
*****
public static String folder = resourcesFolder.toString();
** Peer localhost connected..
public static String peerIP;
File Peer_F58.txt not found on your machine !
Broadcast message is sent to localhost-60000!
Checking local files validity !
public static List<Neighbor> neighborList = new ArrayList();
public static List<Neighbor> peersList = new ArrayList();

grathina@discl:/Gnutella-peer-peer/target (ssh)
Checking local files validity !
** Peer localhost connected..
File Peer_F58.txt not found on your machine !
Broadcast message is sent to localhost-60000!
Checking local files validity !

grathina@discl:/Gnutella-peer-peer/target (ssh)
Checking local files validity !
** Peer localhost connected..
File Peer_F58.txt not found on your machine !
Broadcast message is sent to localhost-60000!
Checking local files validity !

grathina@discl:/Gnutella-peer-peer/target (ssh)
File Peer_F52.txt has been registered successfully !
File Peer_F58.txt has been registered successfully !
File Peer_F51.txt has been registered successfully !
File Peer_F57.txt has been registered successfully !
File Peer_F54.txt has been registered successfully !

```

Figure 1: Performance Evaluation

Performance test for star topology and 2D-Mesh topology

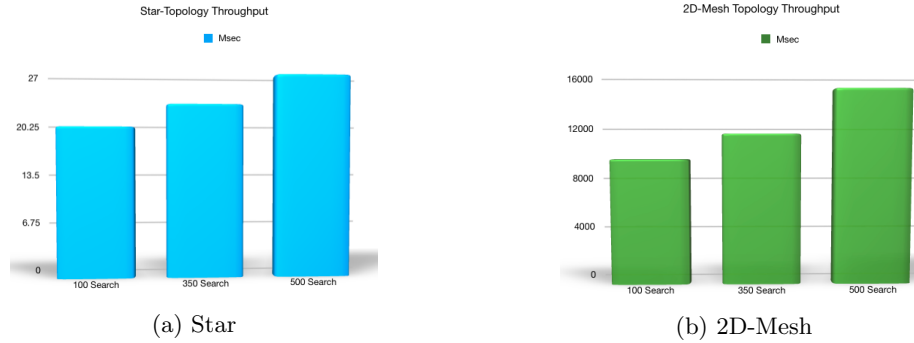


Figure 2: Performance of star and 2D-Mesh