

## Project Screenshots

- Java Development Kit (JDK) and JRE (Java Runtime Environment) is installed on the System
- Ant Tool is used to run the Build Script
- **CentralIdxServer folder contains -**

The Source file of the CentralIdxServer – “CentralIdxServer.java”

Compiled files - “CentralIdxServer.class”, “PortListener.class” and “begin.class”

“build.xml” which is an “ant”-BuildScript to compile and build the CentralIdxServer.

- **Peer1, Peer2 and Peer3 folders contain –**

The Source file “PeerServer.java”

Compiled files – “PeerServer.class” and “PortListenerSend.class”

“indxip.txt” – contains the IP Address of the CentralIdxServer

Testfiles- Simple text files to test the system

“build.xml” to compile and build the peers

### Steps taken-

1. Open Multiple-tabs and navigate into CentralIdxServer folder on the First tab
2. On the Command prompt Run the build-script using the ant command.   \$ ant
3. The Build-script is executed and it cleans and compiles the files of the CentralIdxServer present in the CentralIdxServer directory. After successful build, a message is displayed on the terminal as shown in the screenshot:

Build Successful   Total Time: 1 second

```
sdhyani@disci CentralIndxServer]$ ls
bin.class  build.xml  CentralIndxServer.class  CentralIndxServer.java  PortListener.class
sdhyani@disci CentralIndxServer]$
sdhyani@disci CentralIndxServer]$
sdhyani@disci CentralIndxServer]$ ant
buildfile: /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/CentralIndxServer/build.xml
[echo] =====
[echo] |                Shubham Dhyani : P2P System:                |
[echo] | -----|
[echo] | [=====:CentralIndxServer - BUILD SCRIPT:=====]|
[echo] |-----|
[echo] =====
clean:
compile:
[javac] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/CentralIndxServer
[echo]
[echo] End Of Build Script !!!
[echo] =====
BUILD SUCCESSFUL
Total time: 1 second
sdhyani@disci CentralIndxServer]$
```

4. Run the CentralIndxServer by the command, A message is displayed saying the “<Central Index Server is Up and Running>” This runs the CentralIndxServer and it starts listening to other Peers on the Port:

\$ java CentralIndxServer

The following message is displayed-

```
[echo] =====
[echo] |                Shubham Dhyani : P2P System:                |
[echo] | -----|
[echo] | [=====:CentralIndxServer - BUILD SCRIPT:=====]|
[echo] |-----|
[echo] =====
clean:
compile:
[javac] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/CentralIndxServer
[echo]
[echo] End Of Build Script !!!
[echo] =====
BUILD SUCCESSFUL
Total time: 1 second
sdhyani@disci CentralIndxServer]$ java CentralIndxServer
||=====||
||                PEER-TO-PEER FILE SHARING SYSTEM                ||
||=====||
<CENTRAL INDEX SERVER IS UP AND RUNNING....>
=====
```

5. Below three screenshots shows the peer1, peer2 and peer3
6. Run the build-script using the ant command on each peer
7. The Build-script is executed and it cleans and compiles the files of the peers present in the Peer\_1, Peer\_2 and Peer\_3 directory.  
\$ ant
8. Run Peer1, Peer2 and Peer3 using the command  
\$ java PeerServer

```
[sdhyani@disci Peer_1]$ ls
10.txt  2.txt  4.txt  6.txt  8.txt  build.xml  my.txt  PeerServer.java  testfile.txt
1.txt   3.txt  5.txt  7.txt  9.txt  indkip.txt PeerServer.class PortListenerSend.class
[sdhyani@disci Peer_1]$ vi indkip.txt
[sdhyani@disci Peer_1]$ vi indkip.txt
[sdhyani@disci Peer_1]$ vi indkip.txt
[sdhyani@disci Peer_1]$ ant
Buildfile: /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_1/build.xml

[echo] =====
[echo] |                               Shubham Dhyani:P2P File Sharing System:                               |
[echo] | -----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----| |
[echo] | [=====PEER_1 : BUILD Code: =====] |
[echo] | -----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----| |
[echo] =====

clean:

compile:
[javac] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_1
[echo]
[echo] End Of Build Script !!!
[echo] =====

BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@disci Peer_1]$
```

```
sdhyani@disci:~/Shubham/Napster-P2P-File-Sharing-System/Peer_1
1.txt  3.txt  5.txt  7.txt  9.txt  indkip.txt  PeerServer.class  PortListenerSend.class
[sdhyani@disci Peer_1]$ vi indkip.txt
[sdhyani@disci Peer_1]$ vi indkip.txt
[sdhyani@disci Peer_1]$ vi indkip.txt
[sdhyani@disci Peer_1]$ ant
Buildfile: /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_1/build.xml

[echo] =====
[echo] |                               Shubham Dhyani:P2P File Sharing System:                               |
[echo] | -----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----| |
[echo] | [=====PEER_1 : BUILD Code: =====] |
[echo] | -----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----| |
[echo] =====

clean:

compile:
[javac] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_1
[echo]
[echo] End Of Build Script !!!
[echo] =====

BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@disci Peer_1]$ java PeerServer
IndexServer IP is:129.110.148.133

||=====|| | | | | | | | | | | | | |
||                               PEER-TO-PEER FILE SHARING SYSTEM                               ||
|| -----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----| ||
||                               MENU:                                                       ||
|| -----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----| ||
||=====||

Enter The Option :
=====
1. Registering the File
2. Searching On CentralIndxServer
3. Downloading From Peer Server
4. Exit
```

9. The Peer is run, and a MENU is displayed on the screen with the following options for the Peer to select:

Enter the Option:

1. Registering the File
2. Searching on CentralIndxServer
3. Downloading from Peer Server
4. Exit

10. Following shows the Peer\_2 startup

```
sdhyani@disci:~/Shubham/Napster-P2P-File-Sharing-System/Peer_2
sdhyani@disci.hpc.ttu.edu's password:
Last failed login: Sat Nov 10 23:16:02 CST 2018 from 129.118.248.125 on ssh:nott
y
There was 1 failed login attempt since the last successful login.
Last login: Sat Nov 10 23:06:26 2018 from 129.118.248.125
[sdhyani@disci ~]$
[sdhyani@disci ~]$ ls
AOS-demo-project Shubham
[sdhyani@disci ~]$ cd Shubham
[sdhyani@disci Shubham]$ cd Napster-P2P-File-Sharing-System
[sdhyani@disci Napster-P2P-File-Sharing-System]$ ls
CentralIndexServer Peer_1 Peer_2 Peer_3 Performance_Evaluation
[sdhyani@disci Napster-P2P-File-Sharing-System]$ cd Peer_2
[sdhyani@disci Peer_2]$ ls
11.txt 14.txt 17.txt 20.txt indkip.txt PortListenerSend.class
12.txt 15.txt 18.txt abc.txt PeerServer.class
13.txt 16.txt 19.txt build.xml PeerServer.java
[sdhyani@disci Peer_2]$ vi indkip.txt
[sdhyani@disci Peer_2]$ vi indkip.txt
[sdhyani@disci Peer_2]$ ant
Buildfile: /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_2/build.xml

[echo] -----
[echo] | Shubham Dhyani : P2P system: |
[echo] | -----PEER_2 : BUILD SCRIPT:----- |
[echo] | -----
[echo] -----

clean:

compile:
[javac] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_2
[echo]
[echo] End Of Build Script !!!
[echo] -----

BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@disci Peer_2]$
```

```
sdhyani@disci:~/Shubham/Napster-P2P-File-Sharing-System/Peer_2
12.txt 15.txt 18.txt abc.txt PeerServer.class
13.txt 16.txt 19.txt build.xml PeerServer.java
[sdhyani@disci Peer_2]$ vi indkip.txt
[sdhyani@disci Peer_2]$ vi indkip.txt
[sdhyani@disci Peer_2]$ ant
Buildfile: /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_2/build.xml

[echo] -----
[echo] | Shubham Dhyani : P2P system: |
[echo] | -----PEER_2 : BUILD SCRIPT:----- |
[echo] | -----
[echo] -----

clean:

compile:
[javac] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_2
[echo]
[echo] End Of Build Script !!!
[echo] -----

BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@disci Peer_2]$ java PeerServer
IndexServer IP is:129.118.148.133

||-----||
|| PEER-TO-PEER FILE SHARING SYSTEM ||
||-----||
|| MENU: ||
||-----||

Enter The Option :
1. Registering the File
2. Searching On CentralIndexServer
3. Downloading From Peer Server
4. Exit
```

11. Following shows the Peer\_3 startup

```
[sdhyani@discl Peer_3]$ vi indxp.txt
[sdhyani@discl Peer_3]$ java PeerServer.java
[sdhyani@discl Peer_3]$ ant
Buildfile: /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_3/build.xml

[echo] =====
[echo] | Shubham Dhyani : P2P System: |
[echo] | ----- |
[echo] | [=====PEER 3 : BUILD SCRIPT=====] |
[echo] | ----- |
[echo] | =====
[echo] =====

clean:

compile:
[java] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_3
[echo]
[echo] End Of Build Script !!!
[echo] =====

BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@discl Peer_3]$
```

```
sdhyani@discl:~/Shubham/Napster-P2P-File-Sharing-System/Peer_3
[sdhyani@discl Peer_3]$ ls
21.txt 22.txt 23.txt 24.txt 25.txt 26.txt 27.txt 28.txt 29.txt 30.txt build.xml indxp.txt PeerServer.class PortListenerSend.class
[sdhyani@discl Peer_3]$ vi indxp.txt
[sdhyani@discl Peer_3]$ java PeerServer.java
[sdhyani@discl Peer_3]$ ant
Buildfile: /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_3/build.xml

[echo] =====
[echo] | Shubham Dhyani : P2P System: |
[echo] | ----- |
[echo] | [=====PEER 3 : BUILD SCRIPT=====] |
[echo] | ----- |
[echo] | =====
[echo] =====

clean:

compile:
[java] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/Peer_3
[echo]
[echo] End Of Build Script !!!
[echo] =====

BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@discl Peer_3]$ java PeerServer
IndexServer IP is:129.118.104.148
||=====||
|| PEER-TO-PEER FILE SHARING SYSTEM ||
|| ----- ||
|| MENU: ||
||=====||

Enter The Option :
1. Registering the File
2. Searching On CentralIndxServer
3. Downloading From Peer Server
4. Exit
```

## 12. Registration Screenshots –

If for example the Peer\_2 wants to Register the file, it can choose option 1.

Enter the String in Format: 4Digit id and File Names separated by Space

Then the Peer\_1 is Connected to Register on CentralIndxServer on port 2001

Below screenshot shows the text file 11.txt is being registered to the Central Indexing Server.

```
[sdhyani@disci Peer_2]$ ls
11.txt 13.txt 15.txt 17.txt 19.txt abc.txt indkip.txt
12.txt 14.txt 16.txt 18.txt 20.txt build.xml PeerServer.class PortListenerSend.class
[sdhyani@disci Peer_2]$ vi indkip.txt
[sdhyani@disci Peer_2]$ java PeerServer
IndexServer IP is:129.118.104.148

||=====||
||          PEER-TO-PEER FILE SHARING SYSTEM          ||
||=====||
||                      MENU:                      ||
||=====||

Enter The Option :
=====
1. Registering the File
2. Searching On CentralIndxServer
3. Downloading From Peer Server
4. Exit
1
Enter the String in Format: 4Digit id and File Names separated by Space
1001 11.txt
Connected to Register on CentralIndxServer on port 2001
Registered Successfully!!
```

13. Below screenshot shows the message displayed of successful registration of 11.txt on the Central Indexing Server.

```
[echo] =====
[echo] |          Shubham Dhyani : P2P System:          |
[echo] |-----|
[echo] | [=====:CentralIndxServer - BUILD SCRIPT;=====] |
[echo] |-----|
[echo] =====

clean:

compile:
[javac] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/CentralIndxServer
[echo]
[echo] End Of Build Script !!!
[echo] =====

BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@disci CentralIndxServer]$ java CentralIndxServer
||=====||
||          PEER-TO-PEER FILE SHARING SYSTEM          ||
||=====||

<CENTRAL INDEX SERVER IS UP AND RUNNING....>
=====

Connection Received From disci.hpcc.ttu.edu For Registration
1001 11.txt
<====Registered====>
```

14. The Peer can also register multiple files

15. Next is the screenshot for the search performed by Peer\_3 for the text file 11.txt  
The result tells us about the PeerID at which the file is present

```
sdhyani@disci:~/Shubham/Napster-P2P-File-Sharing-System/Peer_3
BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@disci Peer_3]$ java PeerServer
IndexServer IP is:129.118.104.148

=====
||
|| PEER-TO-PEER FILE SHARING SYSTEM ||
||=====||
|| MENU: ||
||=====||
=====

Enter The Option :
=====
1. Registering the File
2. Searching On CentralIndexServer
3. Downloading From Peer Server
4. Exit
2
Enter the File Name to Search
11.txt

Connected to Search on CentralIndexServer on port 2002
File:'11.txt' found at peers:1001(disci.hpc.ttu.edu)
```

The Central Indexing Server also displays the message of the search operation performed by Peer\_3 as shown below -

```
sdhyani@disci:~/Shubham/Napster-P2P-File-Sharing-System/CentralIndexServer
[echo] |-----|
[echo] =====
clean:
compile:
[javac] Compiling 1 source file to /home/sdhyani/Shubham/Napster-P2P-File-Sharing-System/CentralIndexServer
[echo]
[echo] End Of Build Script !!!
[echo]
=====

BUILD SUCCESSFUL
Total time: 0 seconds
[sdhyani@disci CentralIndexServer]$ java CentralIndexServer

=====
||
|| PEER-TO-PEER FILE SHARING SYSTEM ||
||=====||
=====

<CENTRAL INDEX SERVER IS UP AND RUNNING....>
=====

Connection Received From disci.hpc.ttu.edu For Registration
1001 11.txt
<====Registered====>

Connection Received From disci.hpc.ttu.edu For Search
1001(disci.hpc.ttu.edu)
<=====Searched=====>
```

**16. Downloading a file** – Screenshot below shows one peer downloading a file from another. Here Peer\_2 requests the CIS for downloading the file 25.txt. File 25.txt was already registered to the CIS by Peer\_3. The CIS establishes the connection directly between Peer\_2 and Peer\_3. Screenshots below shows the process and the results.

```
sdhyani@disci:~/Shubham/Napster-P2P-File-Sharing-System/Peer_2
Enter The Option :
=====
1. Registering the File
2. Searching On CentralIndxServer
3. Downloading From Peer Server
4. Exit
3
Enter Peer id:
1001
Enter peer IP Address to download file:
129.118.104.148
Enter the File Name to be Downloaded:
15.txt
FILE not Found at the Following PEER !!
Please enter a valid PEER ID!
Enter Peer id:
3001
Enter peer IP Address to download file:
129.118.104.148
Enter the File Name to be Downloaded:
25.txt
Connected to peerid : 3001
25.txt: Downloaded
```

```
Enter The Option :
=====
1. Registering the File
2. Searching On CentralIndxServer
3. Downloading From Peer Server
4. Exit
3
Enter Peer id:
1001
Enter peer IP Address to download file:
129.118.104.148
Enter the File Name to be Downloaded:
15.txt
FILE not Found at the Following PEER !!
Please enter a valid PEER ID!
Enter Peer id:
Connection Received From disci.hpc.utu.edu For Download
```

**THANK YOU**

**SHUBHAM DHYANI**