

- Indexing Server building and running.

- Navigate to the Index Server folder which called "Index_Server_2".

```
Khalids-MacBook-Air:Napster-style kmursi$ cd Index_Server_2
```

- Type "mvn install" to create local VM and build the project.

```
Khalids-MacBook-Air:Index_Server_2 kmursi$ mvn install
```

- Navigate to the target folder.

```
Khalids-MacBook-Air:Index_Server_2 kmursi$ cd target/
```

- Run the .jar file.

```
Khalids-MacBook-Air:target kmursi$ java -jar Index_Server_2-v1.jar
```

- Now the server is running and waiting for peers; requests.

```
=====
Waiting for peers to register files..
Waiting for peers to search files..
=====
Type the action number as following:
1. To exit.
_
```

- Peer one building and running.

- Navigate to the first peer folder which called "First_Peer_1".

```
Khalids-MacBook-Air:Napster-style kmursi$ cd First_Peer_1
```

- Type "mvn install" to create local VM and build the project.

```
Khalids-MacBook-Air:First_Peer_1 kmursi$ mvn install
```

- Navigate to the target folder.

```
Khalids-MacBook-Air:First_Peer_1 kmursi$ cd target
```

- Run the .jar file.

```
Khalids-MacBook-Air:target kmursi$ java -jar First_Peer_1-v1.jar
```

- Type the server IP address.

```
Enter the Indexing Server IP:
localhost_
```

- Now the first peer is running ,and waiting for user to type instructions and peers to request a file.

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

- Peer two building and running.

- Navigate to the first peer folder which called "Second_Peer_2".

```
Khalids-MacBook-Air:Napster-style kmursi$ cd Second_Peer_2
```

- Type "mvn install" to create local VM and build the project.

```
Khalids-MacBook-Air:Second_Peer_2 kmursi$ mvn install
```

- Navigate to the target folder.

```
Khalids-MacBook-Air:Second_Peer_2 kmursi$ cd target/
```

- Run the .jar file.

```
Khalids-MacBook-Air:target kmursi$ java -jar Second_Peer_2-v1.jar
```

```
Enter the Indexing Server IP:
localhost
```

- Type server IP address.
- Now the second peer is running ,and waiting for user to type instructions and peers to request a file.

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

- Peer three building and running.

- Navigate to the first peer folder which called "Second_Peer_3".

```
Khalids-MacBook-Air:Napster-style kmursi$ cd Third_Peer_3/
```

- Type "mvn install" to create local VM and build the project.

```
Khalids-MacBook-Air:Third_Peer_3 kmursi$ mvn install
```

- Navigate to the target folder.

```
Khalids-MacBook-Air:Third_Peer_3 kmursi$ cd target/
```

- Run the .jar file.

```
Khalids-MacBook-Air:target kmursi$ java -jar Third_Peer_3-v1.jar
```

- Type server IP address.

```
Enter the Indexing Server IP:
localhost
Server is up..!
```

- Now the third peer is running ,and waiting for user to type instructions and peers to request a file.

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

- Register one file.

- To register a file you need to know what files your current peer has. To do that, type '5' and press 'enter'.

```
5
File: 10k.txt
File: 9k.txt
File: f1k.txt
File: f2k.txt
File: f3k.txt
File: f4k.txt
File: f5k.txt
File: f6k.txt
File: f7k.txt
File: f8k.txt
```

- Now you may register one of the listed file. Let us register '10k.txt' for instance. To do that, type '2', then press 'enter'.

```
2
Enter the file name along with the file extension
10k.txt

Connected to the server..

File '10k.txt' index has been added successfully on the server!!
```

In the other side, the server also will show a message when file is registered.

```
Type the action number as following:
1. To exit.
Peer number: localhost 60002 connected.

File 60002-10k.txt index created in the server
```

- Register all the files that the peer has .

- Type '3' and press 'enter'.

```
3
Connected to the server..
File '10k.txt' index has been added successfully on the server!!

Connected to the server..
File '9k.txt' index has been added successfully on the server!!

Connected to the server..
File 'f1k.txt' index has been added successfully on the server!!

Connected to the server..
File 'f2k.txt' index has been added successfully on the server!!

Connected to the server..
File 'f3k.txt' index has been added successfully on the server!!

Connected to the server..
File 'f4k.txt' index has been added successfully on the server!!

Connected to the server..
File 'f5k.txt' index has been added successfully on the server!!
```

- Search for a file on the server.

- Type '1' then press 'enter'. Then, type the file name.

```
1
Enter the file name along with the file extension
9k.txt

Connected to the server..

File:(9k.txt) was found at peer\peers:

Peer ID: 60002, Peer IP: localhost
Peer ID: 60003, Peer IP: localhost
Peer ID: 60004, Peer IP: localhost
```

- Download a file from a peer.

- Type '4' then press 'enter'. After that, type the peer ID, IP address, and file name following this format (*pppp-IP-file.txt*). For Example, **60004-localhost-t1k.txt**.

```
4
Enter the peer id, IP address, and file name using this format (pppp-IP-file.txt):
60004-localhost-t1k.txt
File name:t1k.txt

Connected to peer : localhost through port : 60004

t1k.txt has been downloaded successfully
```

- Now the files has been downloaded. You may verify by typing '5' then press 'enter'.

```
5
File: 10k.txt
File: 9k.txt
File: f1k.txt
File: f2k.txt
File: f3k.txt
File: f4k.txt
File: f5k.txt
File: f6k.txt
File: f7k.txt
File: f8k.txt
File: t1k.txt
```

← the downloaded file (t1k.txt).

- Measure the performance.

- To measure the performance, type '6' then press 'enter'. After that, type the filename that you want to search on the server. Then, type the desired number of requests.

```
6
Enter the file name along with the file extension
f8k.txt
Enter the required number of requests
100000_
```

- Then, you will get the result in 'msec' as following:

```
Peer ID: 60002, Peer IP: localhost
100000 search requests average rate is 2 ms.
```

- Finally, to exit, type '7' then press 'enter'.
- Note:
 - The system does not allow to download a file from the same peer that you are currently suning. In other word, peer can not download from itself. If you did so, it will notify you by a message.
 - To exit from the server, press '1' then 'enter'.
 - Index Server located port '60000' and '60001'.
 - Ports '60002', '60003', and '60004' are reserved for the peers.
 - The mentioned ports must not be reserved on the system that you are going to run the system on.