

# Manual

This document lists the steps needed to run us the program. Screenshots have been attached for reference.

We have three files that need to be run for the program namely :

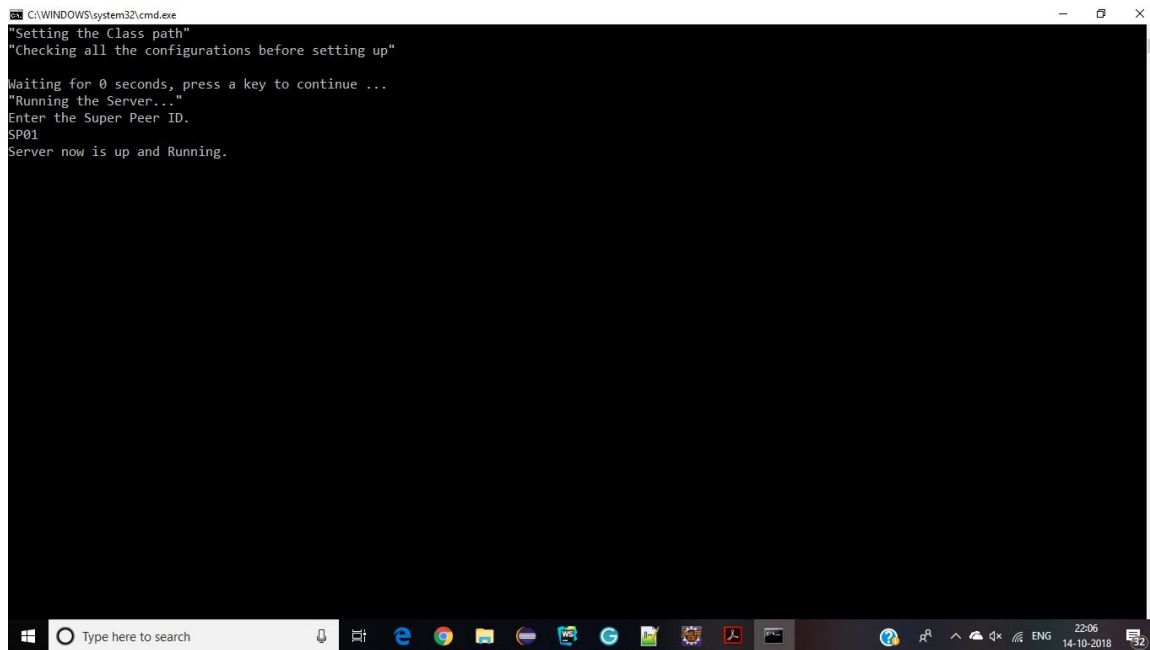
run\_server.bat, run\_peer.test, run\_test.bat.

These bat files will run only when you have the corresponding “.jar” files present (“Gnutella\_P2P.jar” and “javax.ws.rs-api-2.0.jar”)

## Step 1

Open the run\_server.bat file.

We will get a message in the command prompt asking the user to enter the super-peer ID. Once you enter the ID say “SP01” a message will be displayed saying that the server is now up and running. The server will now listen at the port mentioned in the property file.



```
C:\WINDOWS\system32\cmd.exe
"Setting the Class path"
"Checking all the configurations before setting up"

Waiting for 0 seconds, press a key to continue ...
"Running the Server..."
Enter the Super Peer ID.
SP01
Server now is up and Running.
```

Repeat this step for the number of super-peers you want to set-up ( maximum of 10 in our case. For additional super-peers you will have to modify the property file accordingly.)

Please note that the ID for each super-peer should be different.

## Step 2

Once the servers are up and running you can leave them as they are.

Now run the run\_peer.bat. Once it opens, a message asking the user to enter the Peer-ID. This ID is a unique name for the peer at the Index Server. Although we have used names here, alternatively IP addresses can also be used.

The Port No. at which the peer needs to be registered will be read from the property file.

C:\WINDOWS\system32\cmd.exe

```
"Setting the Class path"
"Running the Peer..."

Waiting for 2 seconds, press a key to continue ...
"#####"
"Peer is now Running. Please configure your setting."
"#####"
Enter Peer ID
P01
```

Repeat the step for the number of leaf nodes you want to set up. Please note that the Peer-ID for each should be different.

## Step 3

Once you enter the Peer IDs the command prompt will display as follows for the peer :

C:\WINDOWS\system32\cmd.exe

```
"Setting the Class path"
"Running the Peer..."

Waiting for 2 seconds, press a key to continue ...
"#####"
"Peer is now Running. Please configure your setting."
"#####"
Enter Peer ID
P01
Peer is up and Running.
Registering details of File name ajaxsearch.txt in Indexing Server
Registering details of File name ajaxwatch.txt in Indexing Server
Registering details of File name arrow_first.txt in Indexing Server
Registering details of File name Category~Websites_which_use_Wikipedia_a160.txt in Indexing Server
Registering details of File name commonPrint.txt in Indexing Server
Registering details of File name DIC_22082018.txt in Indexing Server
Registering details of File name DIC_27082018.txt in Indexing Server
Registering details of File name IEFixes.txt in Indexing Server
Registering details of File name Image~12-07-07_2153.jpg.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
Registering details of File name MediaWiki~Common.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
Registering details of File name User~Korg_ff2d.txt in Indexing Server
Registering details of File name User~Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
Do you want to Search a File, Delete File or Exit? (Search/Delete/Exit)
```

```
C:\WINDOWS\system32\cmd.exe
"Setting the Class path"
"Running the Peer..."

Waiting for 2 seconds, press a key to continue ...
"#####"
"Peer is now Running. Please configure your setting."
"#####"
Enter Peer ID
P01
Peer is up and Running.
Registering details of File name ajaxsearch.txt in Indexing Server
Registering details of File name ajaxwatch.txt in Indexing Server
Registering details of File name arrow_first.txt in Indexing Server
Registering details of File name Category~Websites_which_use_Wikipedia_a160.txt in Indexing Server
Registering details of File name commonPrint.txt in Indexing Server
Registering details of File name DIC_22082018.txt in Indexing Server
Registering details of File name DIC_27082018.txt in Indexing Server
Registering details of File name IEFixes.txt in Indexing Server
Registering details of File name Image~12-07-07_2153.jpg.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
Registering details of File name MediaWiki~Common.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
Registering details of File name User~Korg_ff2d.txt in Indexing Server
Registering details of File name User~Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
Do you want to Search a File, Delete File or Exit? (Search/Delete/Exit)
```

## Step 4

The super peer will register all the leaf node files and the server screen will be visible as shown below.

```
C:\WINDOWS\system32\cmd.exe
DIC_22082018.txt => [[DIC_22082018.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
User~Pill_monobook.js_03c0.txt => [[User~Pill_monobook.js_03c0.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
User~EDUCA33E_2e3c.txt => [[User~EDUCA33E_2e3c.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
User~Korg_ff2d.txt => [[User~Korg_ff2d.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]

Process Flow.txt => [[Process Flow.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
#####
#####
THE UPDATED INDEX at 2018/10/14 22:06:25
Image~12-07-07_2153.jpg.txt => [[Image~12-07-07_2153.jpg.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
utf8.txt => [[utf8.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
Category~Websites_which_use_Wikipedia_a160.txt => [[Category~Websites_which_use_Wikipedia_a160.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
ajaxsearch.txt => [[ajaxsearch.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
DIC_27082018.txt => [[DIC_27082018.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
commonPrint.txt => [[commonPrint.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
ajaxwatch.txt => [[ajaxwatch.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
IEFixes.txt => [[IEFixes.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
arrow_first.txt => [[arrow_first.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
MediaWiki~Common.txt => [[MediaWiki~Common.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
lookup.txt => [[lookup.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
DIC_22082018.txt => [[DIC_22082018.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
User~Pill_monobook.js_03c0.txt => [[User~Pill_monobook.js_03c0.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
User~EDUCA33E_2e3c.txt => [[User~EDUCA33E_2e3c.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
User~Korg_ff2d.txt => [[User~Korg_ff2d.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]

Process Flow.txt => [[Process Flow.txt, P01, 4001, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming\PA-2\Eval_Peer1, SP01]]
#####
```

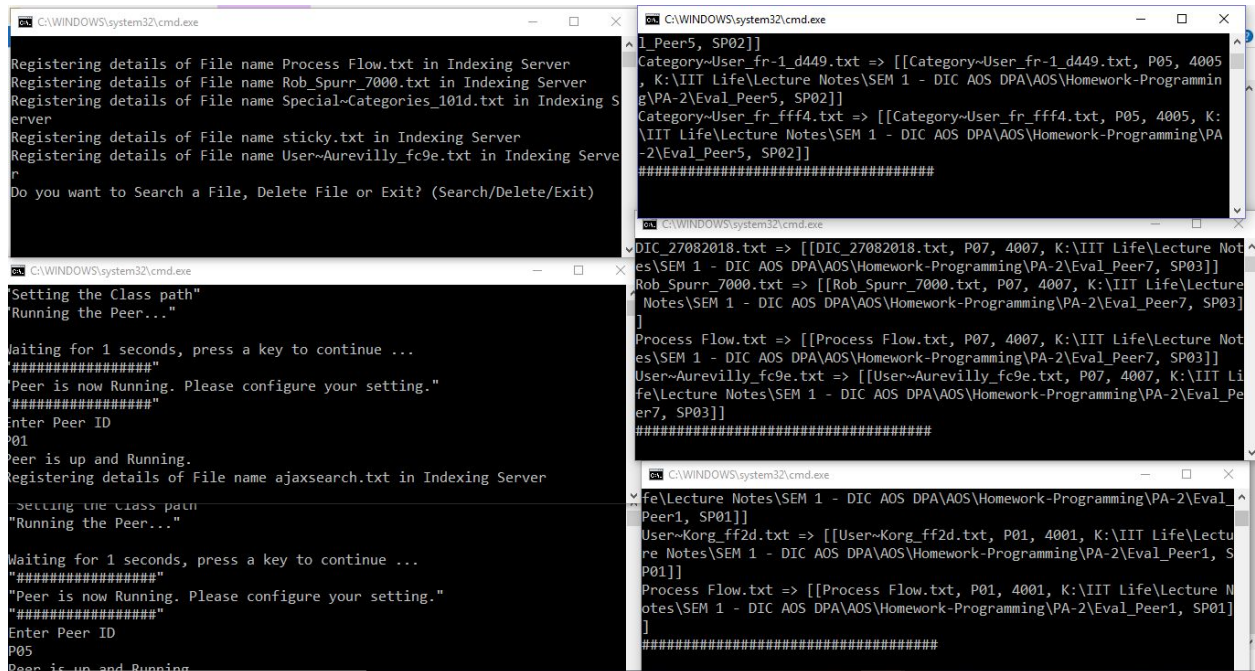
## Step 5

Once the above steps are done you will now be able to see a prompt for the operation you want to perform(search, delete or exit) for all the peers that you have set up.



## Step 6

**Repeat the steps 1 to 5 for all the remaining supe-peers and leaf nodes before proceeding, to the next step. A screenshot has been attached showing 3 registered super-peers and 1 corresponding leaf node for each super-peer.**



The screenshot displays three overlapping Windows command prompt windows. The top-left window shows the registration of files (Process Flow.txt, Rob\_Spurr\_7000.txt, Special~Categories\_101d.txt, sticky.txt, and User~Aurevilly\_fc9e.txt) into an indexing server, followed by a prompt to search, delete, or exit. The top-right window shows the registration of a super-peer (1\_Peer5, SP02) and its corresponding leaf nodes (Category~User\_fr-1\_d449.txt, Category~User\_fr\_fff4.txt, and DIC\_27082018.txt). The bottom window shows the registration of another super-peer (Peer1, SP01) and its leaf nodes (User~Korg\_ff2d.txt and Process Flow.txt). All windows show the path C:\WINDOWS\system32\cmd.exe.

**Note: While performing anything from Step 7 onwards keep all the tabs(servers and corresponding peers) shown above open all the time.**

## Step 7

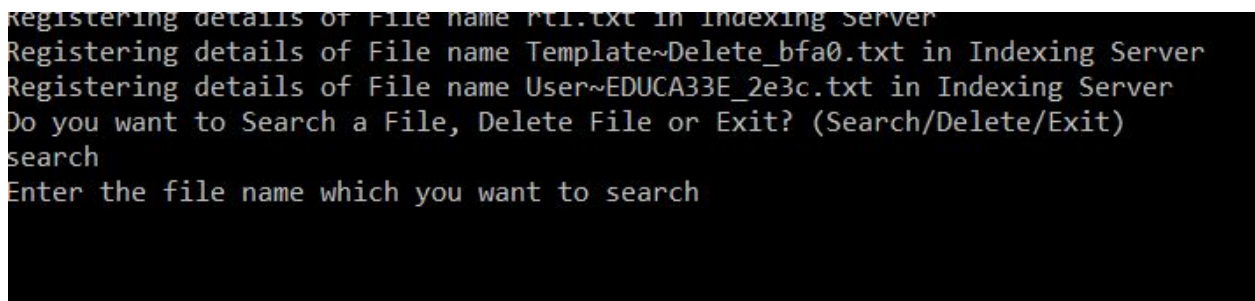
The prompt in any peer will now ask if you want to search or delete a file or exit the program.

### Search File

If you want to search for the file, first type search in the prompt of the leaf node where you want to search. For ex: If you want to search file using leaf node 1 ( Peer ID = P01) type search in the first peer's tab.

The entry is not case sensitive.

After this, the prompt will request for the file name you want to search.



The screenshot shows a command prompt window with the following text: "registering details of File name rtl.txt in Indexing Server", "Registering details of File name Template~Delete\_bfa0.txt in Indexing Server", "Registering details of File name User~EDUCA33E\_2e3c.txt in Indexing Server", "Do you want to Search a File, Delete File or Exit? (Search/Delete/Exit)", "search", and "Enter the file name which you want to search".

We search for the file "rtl.txt" as an example.

The file is located at Leaf Node 5 ( Peer ID = P05) and we are searching the file from Leaf Node1 ( Peer ID = P01) .

If the file is not available :

It will show the message that the file doesn't exist in our server as shown below.

```
Do you want to Search a File, Delete File or Exit? (Search/Delete/Exit)
search
Enter the file name which you want to search
rtl.txt
Now Started Calling the query() from Leaf Node...
Sorry, File which you are searching doesnt exist in our Server.
Do you want to search again ? (Yes/No)
```

If the file is found it will display the message as follows :

```
Enter the file name which you want to search
rtl.txt
Now Started Calling the query() from Leaf Node...
this result is going in finalRes [[rtl.txt, P05, 4005, K:\IIT Life\Lecture Notes\SEM 1 - DIC AOS DPA\AOS\Homework-Programming
\PA-2\Eval_Peer5, SP02]]
#####
Peer providing the file with Peer ID is P05 which is in Super Peer :SP02
#####
Enter Peer ID you wish to take the file from
```

The prompt will now ask you to enter the Peer ID from where you wish to download the file.

Enter the Peer-ID and download the desired File.

The screen will display the message shown below.

```
Peer providing the file with Peer ID is P05 which is in Super Peer :SP02
#####
Enter Peer ID you wish to take the file from
P05
3420
File Downloading Successful.
Display File rtl.txt
Do you want to search again ? (Yes/No)
```

The super-peer screen will show as follows

```
#####  
P25:0 => [P25:0, 19, P25, 4025]  
FOUND NOTHING in this SuperPeer  
WORKING IN ALL TO ALL TOPOLOGY  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Total Number of Neighbours in ALL TOPOLOGY : 9  
Calling Neighbour SP01 query()  
Calling Neighbour SP02 query()  
P25:1 => [P25:1, 19, P25, 4025]  
P25:0 => [P25:0, 19, P25, 4025]  
FOUND NOTHING in this SuperPeer  
WORKING IN ALL TO ALL TOPOLOGY
```

```
Calling Neighbour SP01 query()  
Calling Neighbour SP02 query()  
P25:1 => [P25:1, 19, P25, 4025]  
P25:2 => [P25:2, 19, P25, 4025]  
P25:0 => [P25:0, 19, P25, 4025]  
Output Send to Leaf Node  
WORKING IN ALL TO ALL TOPOLOGY  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Didnt found Super Peer Info in Config file object.  
Total Number of Neighbours in ALL TOPOLOGY : 9  
Calling Neighbour SP01 query()  
Output Send to Leaf Node  
Calling Neighbour SP02 query()
```

## Delete File

To delete a file, we type delete in the prompt received at Step 5 or once you are done searching and downloading a file.

```
Registering details of File name Mediawiki~common.txt in Indexing Server
Registering details of File name Process Flow.txt in Indexing Server
Registering details of File name User~EDUCA33E_2e3c.txt in Indexing Server
Registering details of File name User~Korg_ff2d.txt in Indexing Server
Registering details of File name User~Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
Do you want to Search a File, Delete File or Exit? (Search/Delete/Exit)
delete
```

The prompt will then ask for the filename of the file you want to delete.

The file will be deleted if present and the prompt will show a message showing that the deletion was successful and ask if you want to delete more files.

If the file is not found, a message will be displayed saying "Failed to delete file".

The prompt will return to asking if you want to delete more files.

Once you type "no" into the prompt it will return to the prompt at step 5.

```
Do you want to Search a File, Delete File or Exit? (Search/Delete/Exit)
delete
Enter the file name which you want to delete
rtl.txt
Failed to delete the File
Do you want to delete more files? (Yes/No)
yes
Enter the file name which you want to delete
dskgmwl;krgmw
Failed to delete the File
Do you want to delete more files? (Yes/No)
no
Do you want to Search a File, Delete File or Exit? (Search/Delete/Exit)
```

## Exit

To exit the screen, you just need to type exit and press enter. The screen will close off, thus shutting down the peer.



## Step 8

We need to test the implementation in terms of average response time. To do this we run the run\_test.bat file.

On opening this, a prompt will ask if you want to perform Single Client Evaluation or Multi-Client Evaluation.

Single client evaluation option will measure the average response time of a single peer that sends 200 consecutive requests to the server. Multi-client evaluation will also measure the average response time but for multiple peers (max 5 for our implementation) for 200 consecutive requests.

We have 30 folders ready for this purpose named "Eval\_PeerID" where PeerID is Peer1, Peer2 and so on.

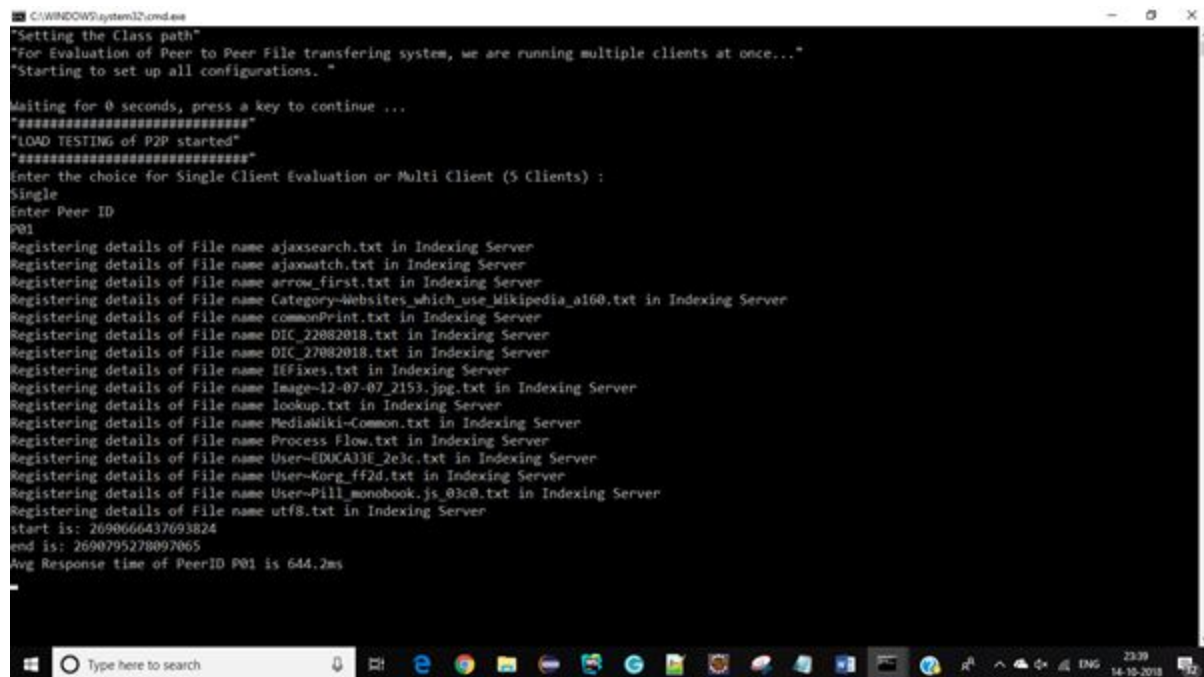
For ex: the folder name for Peer 1 is "Eval\_Peer1"

### Single Client Evaluation for All to All Topology

To perform this evaluation, type single into the prompt and press enter.

The prompt will then ask for the path. You need to enter the path of any of the "Eval\_PeerID" folders into the prompt to perform the evaluation.

Once you enter the path, the bat file will evaluate the same and return the average response time as shown below :



```
C:\WINDOWS\system32\cmd.exe
"Setting the Class path"
"For Evaluation of Peer to Peer File transferring system, we are running multiple clients at once..."
"Starting to set up all configurations. "

Waiting for 0 seconds, press a key to continue ...
"LOAD TESTING of P2P started"
"Enter the choice for Single Client Evaluation or Multi Client (5 Clients) :
Single
Enter Peer ID
P01
Registering details of File name ajaxsearch.txt in Indexing Server
Registering details of File name ajaxwatch.txt in Indexing Server
Registering details of File name arrow_first.txt in Indexing Server
Registering details of File name Category-Websites_which_use_Wikipedia_a160.txt in Indexing Server
Registering details of File name commonPrint.txt in Indexing Server
Registering details of File name DIC_22082018.txt in Indexing Server
Registering details of File name DIC_27082018.txt in Indexing Server
Registering details of File name IIFixes.txt in Indexing Server
Registering details of File name Image-12-07-07_2153.jpg.txt in Indexing Server
Registering details of File name lookup.txt in Indexing Server
Registering details of File name MediaWiki-Common.txt in Indexing Server
Registering details of File name Process.Flow.txt in Indexing Server
Registering details of File name User-EDUKA33E_2e3c.txt in Indexing Server
Registering details of File name User-Korg_ff2d.txt in Indexing Server
Registering details of File name User-Pill_monobook.js_03c0.txt in Indexing Server
Registering details of File name utf8.txt in Indexing Server
start is: 2690666437693824
end is: 2690795278097065
Avg Response time of PeerID P01 is 644.2ms
```

### Multi-Peer Evaluation

Here, you perform the evaluation for 3 clients sending 200 sequential requests each.

You need to type multi in the prompt and press enter.

The prompt will then ask for the paths of all the folders Eval\_Peer1 through Eval\_Peer3.

Once you enter all the paths, as shown above, the bat file will evaluate all folders for average response time and display the results as shown below.