

Outputs Document

For simplicity, we are going to deploy 3 peers and test the implemented functionalities

Scenario 1 : Creating 3 peers and testing the Central Indexing server methods

```
prashant@prashant-VirtualBox: ~/Documents/PeerToPeerFileSharingSystem-master/scripts
prashant@prashant-VirtualBox:~/Documents/PeerToPeerFileSharingSystem-master/scripts$ ./run.sh
Note: Logging/DirectoryMatcher.java uses unchecked or unsafe operations.
Note: Recompile with 'Xlint:unchecked' for details.
tee: output/output.txt: No such file or directory
Enter number of peers you want to test for between 3 to 10.
3
File created: P0-1KB
File created: P0-2KB
File created: P0-3KB
File created: P0-4KB
File created: P0-5KB
File created: P0-6KB
File created: P0-7KB
File created: P0-8KB
File created: P0-9KB
File created: P0-10KB
File created: P1-1KB
File created: P1-2KB
File created: P1-3KB
File created: P1-4KB
File created: P1-5KB
File created: P1-6KB
File created: P1-7KB
File created: P1-8KB
File created: P1-9KB
File created: P1-10KB
File created: P2-1KB
File created: P2-2KB
File created: P2-3KB
File created: P2-4KB
File created: P2-5KB
File created: P2-6KB
File created: P2-7KB
File created: P2-8KB
File created: P2-9KB
File created: P2-10KB
File already exists.
File already exists.
File already exists.
File already exists.
File already exists.
File created: P0-1KB
File created: P0-2KB
File created: P0-3KB
File created: P0-4KB
File created: P0-5KB
```

```
prashant@prashant-VirtualBox: ~/Documents/PeerToPeerFileSharingSystem-master/scripts
Enter what kind of test do you want to run?
1. Central Indexing Server methods verification.
2. Peer Server test.
3. Client sequential calls test.
4. Client parallel calls test.
1
Successfully Created the Central Indexing Server.
Reading the shared directory: ./shared/0
Sharing : P0-6KB
Sharing : P0-9KB
Sharing : P0-1KB
Sharing : P0-3KB
Sharing : P0-10KB
Sharing : P0-2KB
Sharing : P0-5KB
Sharing : P0-7KB
Sharing : P0-8KB
Sharing : P0-4KB
registry method invoked
File got register | FileName: P0-6KB
File got register | FileName: P0-9KB
File got register | FileName: P0-1KB
File got register | FileName: P0-3KB
File got register | FileName: P0-10KB
File got register | FileName: P0-2KB
File got register | FileName: P0-5KB
File got register | FileName: P0-7KB
File got register | FileName: P0-8KB
File got register | FileName: P0-4KB
Reading the shared directory: ./shared/1
Sharing : P1-6KB
Sharing : P1-9KB
Sharing : P0-1KB
Sharing : P1-1KB
Sharing : P0-3KB
Sharing : P1-3KB
Sharing : P1-8KB
Sharing : P0-2KB
Sharing : P1-2KB
Sharing : P1-7KB
Sharing : P0-5KB
Sharing : P1-5KB
Sharing : P1-4KB
Sharing : P0-4KB
Sharing : P1-10KB
```

```
prashant@prashant-VirtualBox: ~/Documents/PeerToPeerFileSharingSystem-master/scripts
registry method invoked
File got register | FileName: P1-6KB
File got register | FileName: P1-9KB
File got register | FileName: P0-1KB
File got register | FileName: P1-1KB
File got register | FileName: P0-3KB
File got register | FileName: P1-3KB
File got register | FileName: P1-8KB
File got register | FileName: P0-2KB
File got register | FileName: P1-2KB
File got register | FileName: P1-7KB
File got register | FileName: P0-5KB
File got register | FileName: P1-5KB
File got register | FileName: P1-4KB
File got register | FileName: P0-4KB
File got register | FileName: P1-10KB
Reading the shared directory: ./shared/2
Sharing : P2-4KB
Sharing : P2-10KB
Sharing : P2-5KB
Sharing : P2-7KB
Sharing : P2-2KB
Sharing : P2-9KB
Sharing : P2-8KB
Sharing : P2-3KB
Sharing : P2-1KB
Sharing : P2-6KB
registry method invoked
File got register | FileName: P2-4KB
File got register | FileName: P2-10KB
File got register | FileName: P2-5KB
File got register | FileName: P2-7KB
File got register | FileName: P2-2KB
File got register | FileName: P2-9KB
File got register | FileName: P2-8KB
File got register | FileName: P2-3KB
File got register | FileName: P2-1KB
File got register | FileName: P2-6KB
```

```
DeRegistry Started for PeerId: rmi://localhost:3000/peerServer-9219
File got deregister | FileName: P0-6KB
File got deregister | FileName: P0-9KB
File got deregister | FileName: P0-1KB
File got deregister | FileName: P0-3KB
File got deregister | FileName: P0-10KB
File got deregister | FileName: P0-2KB
File got deregister | FileName: P0-5KB
File got deregister | FileName: P0-7KB
File got deregister | FileName: P0-8KB
File got deregister | FileName: P0-4KB
DeRegistry Started for PeerId: rmi://localhost:3000/peerServer-3248
File got deregister | FileName: P1-6KB
File got deregister | FileName: P1-9KB
File got deregister | FileName: P0-1KB
File got deregister | FileName: P1-1KB
File got deregister | FileName: P0-3KB
File got deregister | FileName: P1-3KB
File got deregister | FileName: P1-8KB
File got deregister | FileName: P0-2KB
File got deregister | FileName: P1-2KB
File got deregister | FileName: P1-7KB
File got deregister | FileName: P0-5KB
File got deregister | FileName: P1-5KB
File got deregister | FileName: P1-4KB
File got deregister | FileName: P0-4KB
File got deregister | FileName: P1-10KB
DeRegistry Started for PeerId: rmi://localhost:3000/peerServer-9884
File got deregister | FileName: P2-4KB
File got deregister | FileName: P2-10KB
File got deregister | FileName: P2-5KB
File got deregister | FileName: P2-7KB
File got deregister | FileName: P2-2KB
File got deregister | FileName: P2-9KB
File got deregister | FileName: P2-8KB
File got deregister | FileName: P2-3KB
File got deregister | FileName: P2-1KB
File got deregister | FileName: P2-6KB
```

As you may see here, the files for each of the peers are automatically created and the registry method at the central server gets invoked, also we get a message that some files already exist which is done intentionally as we will need such files to test our server methods. When we select the 1st test to run, the methods implemented at the central index are tested

Scenario 2: Creating 3 peers and testing the peer methods

```
Enter the fileName you want to download
P0-1KB
Select Peer from which you want to download file.
Directory logging thread is getting started for peer id: rmi://localhost:3000/peerServer-8940
1. rmi://localhost:3000/peerServer-8884
2. rmi://localhost:3000/peerServer-3428
2
Retrieving file P0-1KB from peer rmi://localhost:3000/peerServer-3428'. You'll be notified when it finishes.
File retrieval started from peerId: rmi://localhost:3000/peerServer-3428 | Time:1645411470043
com.models.Peer rmi://localhost:3000/peerServer-8940 is asking to get the file info of P0-1KB
Creating a New File | Directory: ./shared/2 | FileName : P0-1KB
Change detected in the shared directory. | Shared Directory : ./shared/2
Reading the shared directory: ./shared/2
```

Here we see that the peer queries a file “P0-1KB” from the central server which happens to be present at more than one peer server, hence the user is asked to select the option from which server they want to fetch the file and then finally the peer gets connected to the 2nd server (peer) and fetches the file from it.

```
registry method invoked
File got register | FileName: P2-4KB
File got register | FileName: P2-10KB
File got register | FileName: P0-1KB
File got register | FileName: P2-5KB
File got register | FileName: P2-7KB
File got register | FileName: P2-2KB
File got register | FileName: P2-9KB
File got register | FileName: P2-8KB
File got register | FileName: P2-3KB
File got register | FileName: P2-1KB
File got register | FileName: P2-6KB
ENTRY_CREATE-P0-1KB
Change detected in the shared directory. | Shared Directory : ./shared/2
Reading the shared directory: ./shared/2
registry method invoked
File got register | FileName: P2-4KB
File got register | FileName: P2-10KB
File got register | FileName: P0-1KB
File got register | FileName: P2-5KB
File got register | FileName: P2-7KB
File got register | FileName: P2-2KB
File got register | FileName: P2-9KB
File got register | FileName: P2-8KB
File got register | FileName: P2-3KB
File got register | FileName: P2-1KB
File got register | FileName: P2-6KB
ENTRY_MODIFY-P0-1KB
File retrieval done from peerId: rmi://localhost:3000/peerServer-3428 | Time:1645411470129
Success: File download has been completed. | FileName:P0-1KB
```

As soon as the file is retrieved by the client, the registry method is invoked as the directory watcher remains active and updates the change in directory to the server and our index gets updated since the peer at which change happens was already registered with the server.

Scenario 3: Creating 3 peers and testing calculating the average time when peers make sequential requests

```
Exiting Peer 7656
***** Starting to Get Results *****
Peer 0: retrieval start = 1645411681883, retrieval end = 1645411685154
Peer 1: retrieval start = 1645411686281, retrieval end = 1645411688108
Peer 2: retrieval start = 1645411689546, retrieval end = 1645411691155
Total retrieval time for all peers = 6707.0 Number of request made: 52500
Average retrieval time for one peer = 0.12775238095238095
***** Ending to Get Results *****
***** Starting to Get Results *****
Peer 0: searching start = 1645411685155, searching end = 1645411686265
Peer 1: searching start = 1645411688108, searching end = 1645411689542
Peer 2: searching start = 1645411691155, searching end = 1645411693161
Total search time for all peers = 4550.0 Number of request made: 52500
Average search time for one peer = 0.08666666666666667
***** Ending to Get Results *****
Test is ending
```

Scenario 4: Creating 3 peers and testing calculating the average time when peers make parallel requests (i.e. multithreaded)

```
***** Starting to Get Results *****
Peer 0: retrieval start = 1645411770574, retrieval end = 1645411776356
Peer 1: retrieval start = 1645411770600, retrieval end = 1645411776413
Peer 2: retrieval start = 1645411770599, retrieval end = 1645411776468
Total retrieval time for all peers = 17464.0 Number of request made: 15000
Average retrieval time for one peer = 1.1642666666666666
***** Ending to Get Results *****
***** Starting to Get Results *****
Peer 0: searching start = 1645411776356, searching end = 1645411781527
Peer 1: searching start = 1645411776413, searching end = 1645411780964
Peer 2: searching start = 1645411776468, searching end = 1645411781871
Total search time for all peers = 15125.0 Number of request made: 15000
Average search time for one peer = 1.0083333333333333
***** Ending to Get Results *****
Test is ending
```

- For ease, we have not included screenshots of prompts in every test scenario's output screenshots after the first test scenario