

Peer to Peer File Sharing

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Design Document

1 GitHub Link

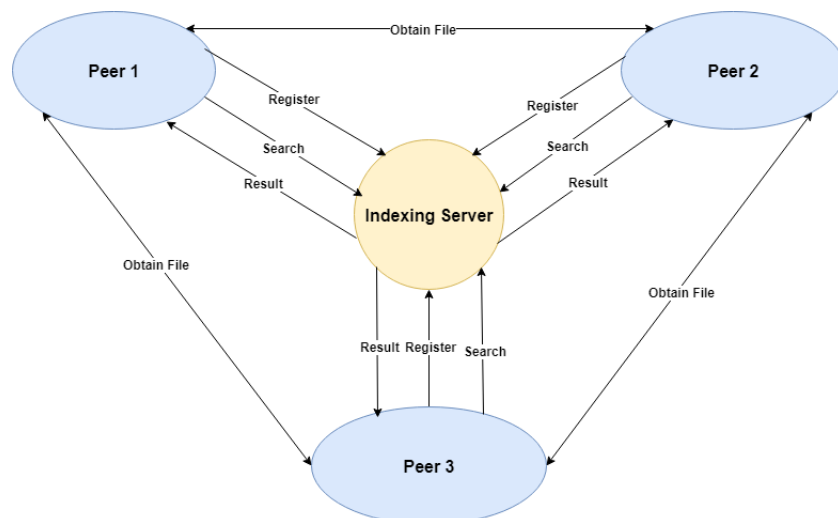
Click [here](#) to go to the gitHub repository of the project.

2 Overview

This project is basically about creating a napster style peer to peer file sharing system which will have the following functionality:

- It will allow multiple peers to register themselves to the central indexing server.
- The peers will also register the files they have.
- In case a peer needs a file, then it will search by passing the file name and the indexing server would lookup for that file.
- Then it would provide the list of peers having the requested file to the requestor.
- And then the requestor would invoke the obtain function to download the file from that peer.

3 Work Flow



4 Architecture

4.1 Indexing Server

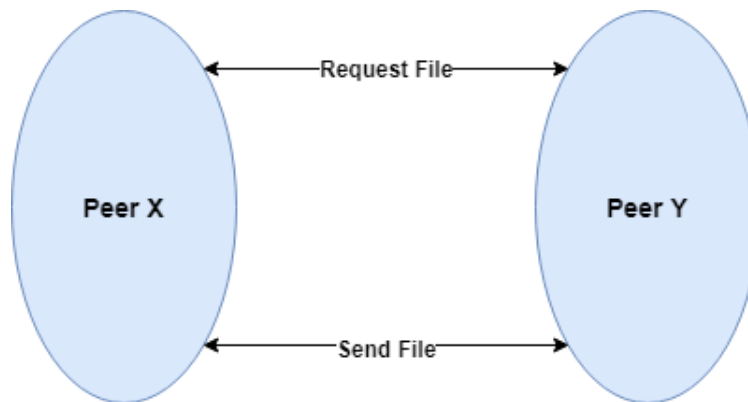
The index server is the center of the system. Every request will pass through the server. It provides two main functionality:

- **registration(ModelPeer)**
 - It helps peers register on the indexing server along with the files associated with it.
- **searching(fileName)**
 - It help the peers to search for a file. It provides the peer with list of peers who have the file available with them.

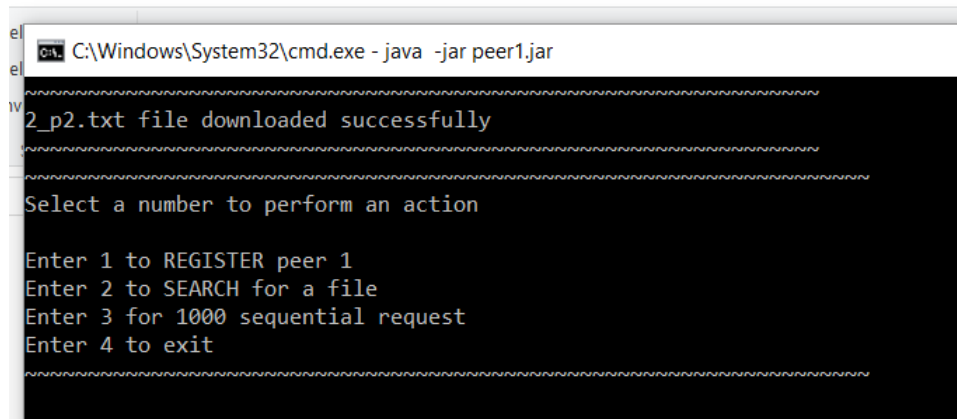
4.2 Peers

Each peer has three main functionality which are listening to other peers, search for a file and transfer files to other peers. The interfaces provided by the peers are as follows.

- **searching(fileName)**
 - It sends a request to the server for searching the file. When server replies with a list of peers having the file it connects with the peers and download the file using the obtain function described below.
- **obtain(filename, ModePeer)**
 - Download the file from the peer having it.



4.3 Functionality of Peers



```
C:\Windows\System32\cmd.exe - java -jar peer1.jar

2_p2.txt file downloaded successfully

Select a number to perform an action

Enter 1 to REGISTER peer 1
Enter 2 to SEARCH for a file
Enter 3 for 1000 sequential request
Enter 4 to exit
```

- A peer can register itself at the indexing server by choosing the option 1.
- A peer can search for a file.
- A peer can download a file if it is available at any other peer.
- A peer can do multiple sequential and concurrent requests at the server.

5 Future Enhancements

- A GUI would really help in executing the program well.
- Dynamic allocation of the ports would be good in terms of avoiding overlaps.