

CS550 Advanced Operating Systems
Programming Assignment 1
Manual

Java classes:

IndexServer.java

1. IndexServer is a java class that creates Index server, and waits for clients to connect. As client connects, a new thread is started.
2. Index server keeps track of files client registers and clients peer port which is used by other peers to download file

Peer.java

1. Peer class works as a client as well as server. As a client Peer connects to server, registers list of files to server.
2. Peer can search for specific file and can download from available options.
3. While acting as a server Peer waits for other peers to connect.

IdGenerator.java

IdGenerator class generates unique IDs which are used to store peers at server.

build.xml

build.xml is simple ant build file. It compiles java source files and has a clean target to delete class and output.txt file

output.txt

output.txt file has output of all major activities like peer registration, search file request, etc.

files directory

default shared directory for Peer.

Instructions to run program:

You can copy source folder and place it in different directories or different vms.
Make as many copies as you want number of clients.

eg if you want 3 clients make 3 copies put them in respective directory/VM.

A. For running Index Server:

1. Open terminal

2. Go to CS550PA1 directory

eg. `cd CS550PA1`

3. Run command

`'ant clean'`

It will clear any class files, previous output.txt

4. Run command

`'ant'`

This will compile source file.

5. To run server type,

`'java IndexServer <port_number>'`

eg. `java IndexServer 11111`

It will show message "INDEX SERVER IS UP AND RUNNING..."

B. For running Peer:

Follow steps 1 – 4 from server instructions

5. To run Peer type,

`'java Peer -c <server_port_number> -p <peer_port_number>'`

-c port number is used for connecting to Index server

-p port number is used to start new Peer server.

eg. `java Peer -c 11111 -p 4500`

After pressing enter you would see a menu like,

1. Register
2. Search file
3. Exit

Make selection:

this is client interaction menu. At the same time you would see “Peers up, waiting...” message, it means that Peer thread acting as a server is started and is waiting for connection from other peers.

coming back to client side,

a. Register option:

You need to type ‘1’ to connect to server and register files in “files/” directory. After pressing ‘1’,

you would see “Client registred : <ID>” message on IndexServer terminal.

this message means client is connected and its files are registered with IndexServer.

b. Search file option:

To search file, type ‘2’.

After typing 2 and pressing enter, IndexServer will ask you file_name.

Enter file_name.

IndexServer will respond with list of peer number and port number that have the file you are searching.

eg.

```
Enter file name:  
sample.txt
```

and server response eg.

```
File Available at peer number:  
0      port 4500  
1      port 4502  
2      port 4504
```

you will be asked to enter the peer number to download file from.

Suppose you enter '1' then Peer with port number 4502 will be connected and file will be downloaded to your "files/" directory.

If file already exists, it will be overwritten.