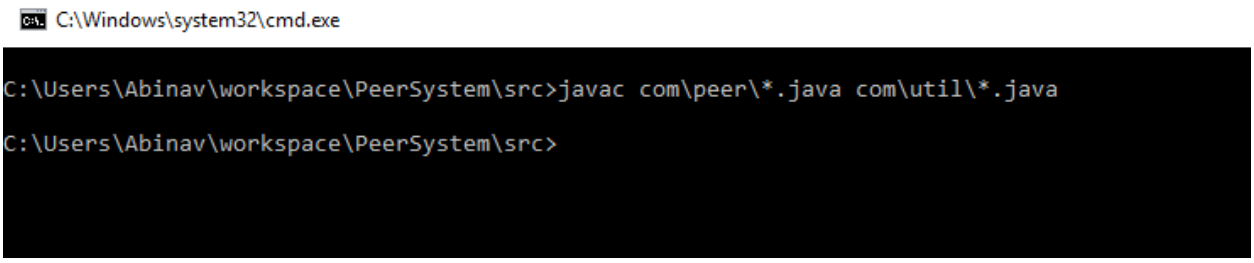
Project 1
Unity ID's: apothug & ipatel

Assumptions made while developing the project:

- We are maintaining a Map in server with the Client IP address as key and Client upload port number as value. Due to this, if you try to run multiple clients from the same system, you may encounter unexpected results. Example, when executing List operation, all the rfc will be displayed with the same IP address and Port numbers as the value of the IP address (key) is already in the map.
- Names of the RFC files are of the format: rfc<rfc number>.txt (as they are downloaded). Example: rfc1902.txt
- Instead of hostname of the Client, we are taking the IP address of the client.

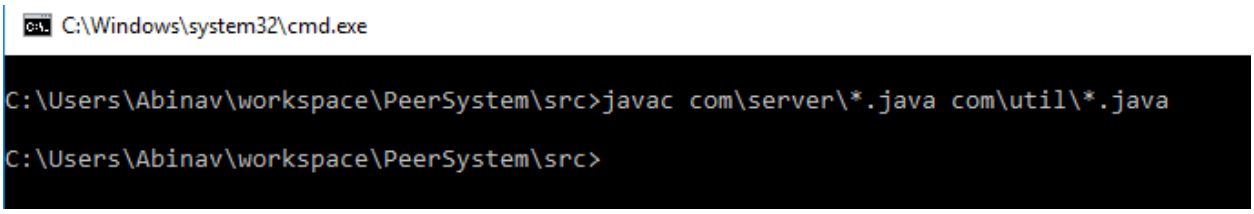
Steps to compile Peer:

- Javac com\peer*.java com\util*.java (In Windows)
- Javac com/peer/*.java com/util/*.java (In Ubuntu)



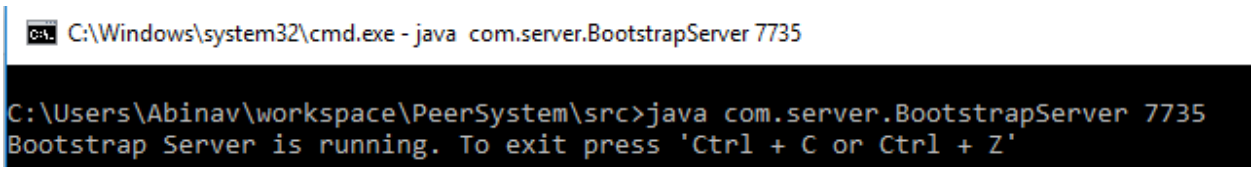
Steps to compile Server (Bootstrap Server):

- javac com\server*.java com\util*.java (In Windows)
- javac com/server/*.java com/util/*.java (In Ubuntu)



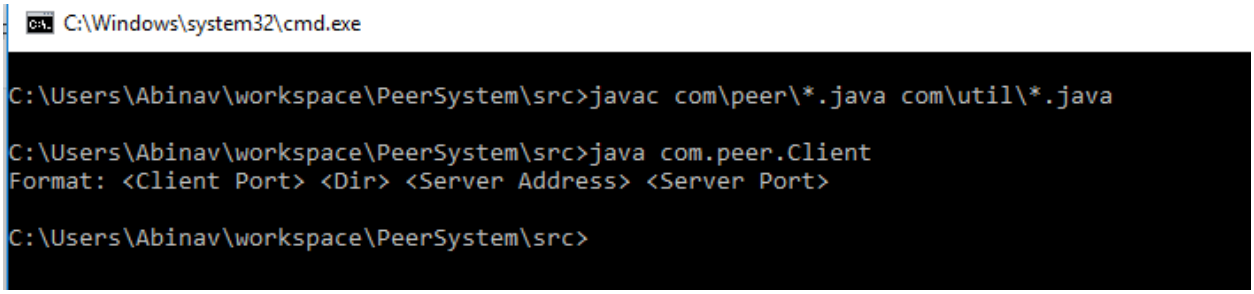
Steps to run the Server:

- **java com.server.BootstrapServer <port number>**

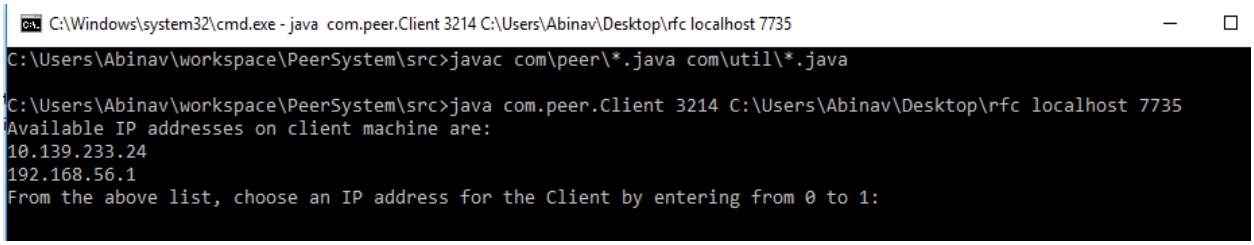


Steps to run the Peer:

- **java com.peer.Client <parameters>**
- If the parameters are not specified and if we just used the command “java com.peer.Client”, we get the below output asking the user to enter the following parameters:
    - **Client port:** Port on which this client will listen to (upload port)
    - **Dir:** Directory where the rfc’s are located.
    - **Server Address:** Bootstrap server IP address
    - **Server Port:** Bootstrap server port number.



- **java com.peer.Client 3214 C:\Users\Abinav\Desktop\rfc localhost 7735** – (running the Peer with the required parameters)



- Select the IP address for the client. If a computer has a VM installed in it, an IP address is assigned for the VM as well. When we are trying to get the IP address of Localhost in Java, we are getting the IP address of the VM but not the actual localhost IP address, hence we are listing down all the available IP address in system so that the User can select the appropriate IP address for the client.
- Once an appropriate IP address is selected, below is the execution status of the program:

```
C:\Users\Abinav\workspace\PeerSystem\src>javac com\peer\*.java com\util\*.java

C:\Users\Abinav\workspace\PeerSystem\src>java com.peer.Client 3214 C:\Users\Abinav\Desktop\rfc localhost 7735
Available IP addresses on client machine are:
10.139.233.24
192.168.56.1
From the above list, choose an IP address for the Client by entering from 0 to 1:
0
Selected Client IP address is: 10.139.233.24
Communicating with server...
P2P-CI/1.0 200 OK

4504 SIP Telephony Device Requirements 10.139.233.24 3214


Done!
******MENU******
1. Give the RFC Number to download the file
2. Fetch the RFC list from server
3. Leave the system
Enter an option:
```

- Now the Peer is up and running, it has added all the RFC files it has to the Server's RFC list data structure and add the Peer information to the Server's peer list data structure.

Functionality Description:

- To Fetch the RFC list from Server – Enter **2**: The output would be like:

```
******MENU******
1. Give the RFC Number to download the file
2. Fetch the RFC list from server
3. Leave the system
Enter an option:
2

Response from the Server:
P2P-CI/1.0 200 OK

1902 SMI for SNMPv2 10.10.3.173 1234
4504 SIP Telephony Device Requirements 10.10.3.173 1234
1523 A text/enriched MIME Content-type 10.10.3.173 1234
2514 ATM TCs and OBJECT-IDENTITIES 10.10.3.173 1234
```

- To Download a File from Peer – Enter **1:** The output would be like:

```
******MENU******
1. Give the RFC Number to download the file
2. Fetch the RFC list from server
3. Leave the system
Enter an option:
1
Enter the RFC Number of the file
1902

Selected file is available with following peers:
P2P-CI/1.0 200 OK

1902 SMI for SNMPv2 10.10.3.173 1234
From which source do you want to download the RFC?
```

If the selected file is available with more than one peer, it would show a list with the file name and the IP address and port number of the Peers. Select any one of the source by entering a number. In this case, enter 1.

Need to show the response once the file is downloaded.

- To Exit from the Peer System – Enter **3:** The output would be like:

```
******MENU******
1. Give the RFC Number to download the file
2. Fetch the RFC list from server
3. Leave the system
Enter an option:
3
Closing down...
Communicating with server...
P2P-CI/1.0 200 OK

Removed RFC's from Server's List!
```

Once the Peer is disconnected, all its rfc's will be removed from the Server's RFC list data structure and this peer would be removed from the Server's Peer list data structure.