CSC 573 Project 1

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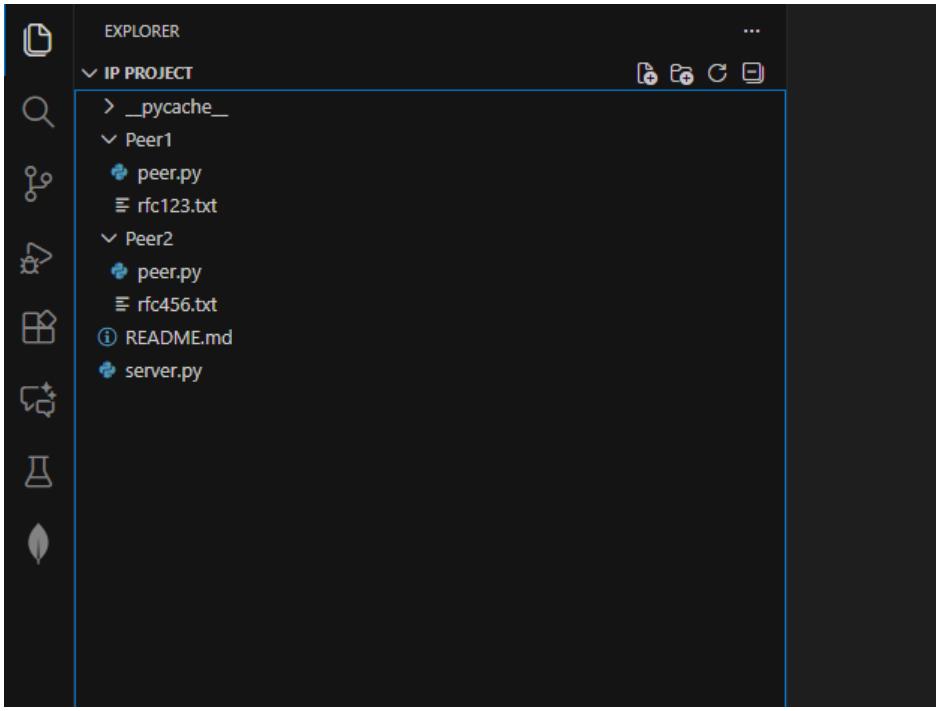
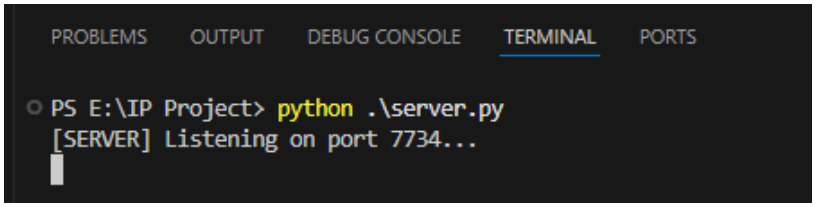
This is my file structure



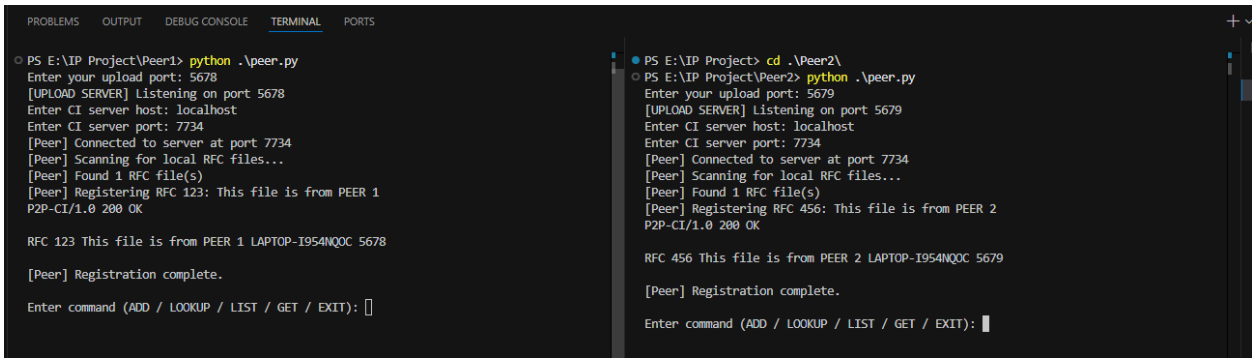
This project follows the required P2P-CI architecture, with one central Indexing Server and multiple independent Peers, each running their own upload server and maintaining their own RFC files.

Now lets run server.py file



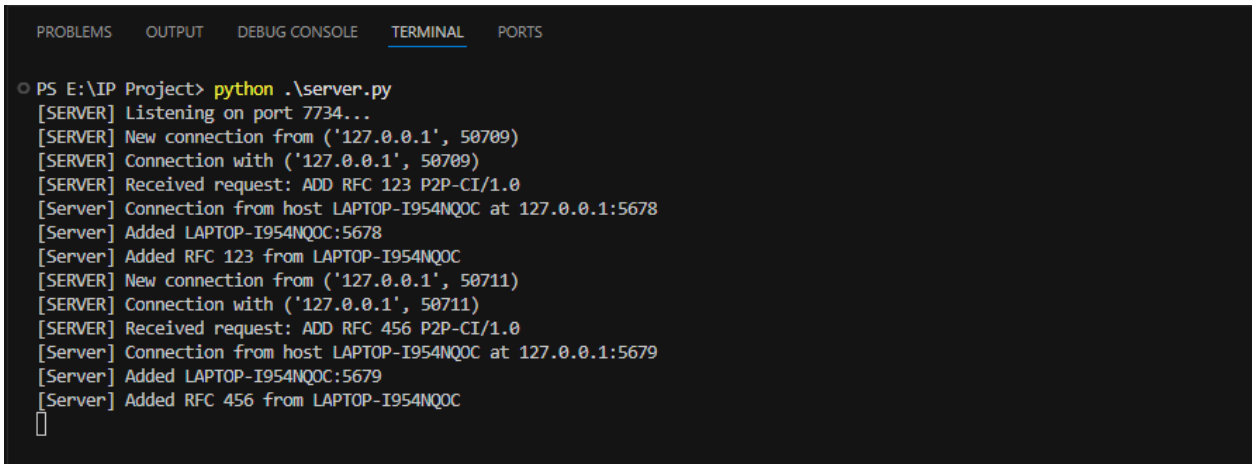
It is listening for active connections

Now lets connect both the peer connections in different terminals



As you can see I've used 1st port on 5678 and another one at 5679
Both of them automatically ADDs their respective rfc files upon connecting with the desired headers

This is how my server looks at the moment. Everything is clear here



Lets try Commands.

1) LIST

List shows all the rfcs files which were added earlier

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): LIST
Version: P2P-CI/1.0
P2P-CI/1.0 200 OK
RFC 123 This file is from PEER 1 LAPTOP-I954NQOC 5678
RFC 456 This file is from PEER 2 LAPTOP-I954NQOC 5679

Enter command (ADD / LOOKUP / LIST / GET / EXIT):
```

We also get 200 OK.

2) LOOKUP

Lookup shows the specific rfc file here

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): LOOKUP
RFC number: 123
Title: Title
Version: P2P-CI/1.0
P2P-CI/1.0 200 OK
RFC 123 This file is from PEER 1 LAPTOP-I954NQOC 5678

Enter command (ADD / LOOKUP / LIST / GET / EXIT):
```

Again 200 OK.

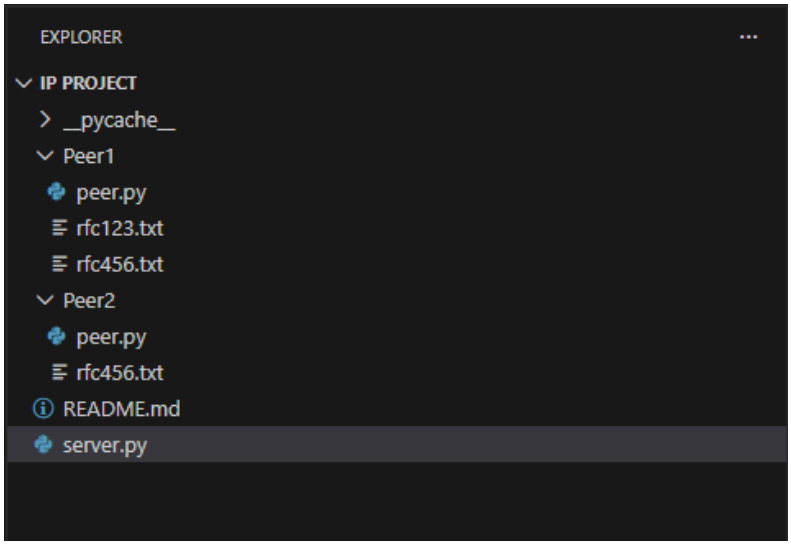
3) GET

Get gets the file along with all the headers again which are required.

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): GET
RFC number: 456
Peer host: LAPTOP-I954NQOC
Peer upload port: 5679
Version: P2P-CI/1.0
P2P-CI/1.0 200 OK
Date: Mon Dec  1 21:54:16 2025
OS: Windows
Last-Modified: Mon Dec  1 20:00:11 2025
Content-Length: 24
Content-Type: text/text
[PEER] Downloaded RFC 456 from LAPTOP-I954NQOC

Enter command (ADD / LOOKUP / LIST / GET / EXIT):
```

As you can see the file from Peer2 has come to Peer1



This is also gives me 200 OK

Now lets explore the status codes

STATUS CODES

1) **400 Bad Request**

   Entering random gibberish

   i) LIST

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): LIST
Version: PQP
P2P-CI/1.0 400 Bad Request
```

   ii) LOOKUP

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): LOOKUP
RFC number: 456
Title: Title
Version: PQP
P2P-CI/1.0 400 Bad Request
```

   iii) GET

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): GET
RFC number: 456
Peer host: LAPTOP-I954NQOC
Peer upload port: 5679
Version: PQP
P2P-CI/1.0 400 Bad Request
```

2) **404 Not Found**
Wrong Version

i) LOOKUP

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): LOOKUP
RFC number: 789
Title: Title
Version: P2P-CI/1.0
P2P-CI/1.0 404 Not Found
[Peer] Error: RFC not found
```

ii) GET

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): GET
RFC number: 789
Peer host: LAPTOP-I954NQOC
Peer upload port: 5679
Version: P2P-CI/1.0
P2P-CI/1.0 404 Not Found
[Peer] Error: RFC not found on peer
```

3) **505 P2P-CI Version Not Supported**
Wrong version

i) LIST

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): LIST
Version: P2P-CI/2.0
P2P-CI/1.0 505 P2P-CI Version Not Supported
```

ii) LOOKUP

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): LOOKUP
RFC number: 456
Title: Title
Version: P2P-CI/2.0
P2P-CI/1.0 505 P2P-CI Version Not Supported
```

iii) GET

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): GET
RFC number: 456
Peer host: LAPTOP-I954NQOC
Peer upload port: 5679
Version: P2P-CI/2.0
P2P-CI/1.0 505 P2P-CI Version Not Supported
```

Meanwhile Server has all the logs of what the clients are doing

```
[SERVER] New connection from ('127.0.0.1', 50709)
[SERVER] Connection with ('127.0.0.1', 50709)
[SERVER] Received request: ADD RFC 123 P2P-CI/1.0
[Server] Connection from host LAPTOP-I954NQOC at 127.0.0.1:5678
[Server] Added LAPTOP-I954NQOC:5678
[Server] Added RFC 123 from LAPTOP-I954NQOC
[SERVER] New connection from ('127.0.0.1', 50711)
[SERVER] Connection with ('127.0.0.1', 50711)
[SERVER] Received request: ADD RFC 456 P2P-CI/1.0
[Server] Connection from host LAPTOP-I954NQOC at 127.0.0.1:5679
[Server] Added LAPTOP-I954NQOC:5679
[Server] Added RFC 456 from LAPTOP-I954NQOC
[SERVER] Received request: LIST ALL P2P-CI/1.0
[SERVER] Received request: LOOKUP RFC 123 P2P-CI/1.0
[SERVER] Closing connection with ('127.0.0.1', 50709)
[Server] Peer LAPTOP-I954NQOC:5678 disconnected
[Server] Removed all records for LAPTOP-I954NQOC:5678
[SERVER] New connection from ('127.0.0.1', 57247)
[SERVER] Connection with ('127.0.0.1', 57247)
[SERVER] Received request: ADD RFC 123 P2P-CI/1.0
[Server] Connection from host LAPTOP-I954NQOC at 127.0.0.1:5678
[Server] Added LAPTOP-I954NQOC:5678
[Server] Added RFC 123 from LAPTOP-I954NQOC
```

Disconnect

Peer

```
Enter command (ADD / LOOKUP / LIST / GET / EXIT): EXIT
[PEER] Disconnecting.
PS E:\IP Project\Peer1>
```

Client

```
[SERVER] Closing connection with ('127.0.0.1', 57247)
[Server] Peer LAPTOP-I954NQOC:5678 disconnected
[Server] Removed all records for LAPTOP-I954NQOC:5678
[SERVER] Closing connection with ('127.0.0.1', 50711)
[Server] Peer LAPTOP-I954NQOC:5679 disconnected
[Server] Removed all records for LAPTOP-I954NQOC:5679
```