```
melainesit@ubuntu:~/cmpsc497$ python3 server.
py 65001
Waiting for a connection
Connected by  ('127.0.0.1', 59358)
{'message': 1, 'files': [['bse', 1822]], 'lPo
rt': 65050}
Connected by  ('127.0.0.1', 59360)
{'message': 1, 'files': [['23', 69630]], 'lPo
rt': 65051}
Connected by  ('127.0.0.1', 59362)
{'message': 2}
Connected by  ('127.0.0.1', 59364)
{'message': 2}
Connected by  ('127.0.0.1', 59366)
{'message': 2}
Connected by  ('127.0.0.1', 59368)
{'message': 3, 'fileName': '23'}
Connected by  ('127.0.0.1', 59372)
{'message': 2}
Connected by  ('127.0.0.1', 59374)
{'message': 3, 'fileName': '23'}
Connected by  ('127.0.0.1', 59378)
{'message': 4, 'fileName': '23', 'chunk': 2,
'lPort': 65050}
```

This is the server output. It takes in the python code and a port to connect on. When it initially runs, it will wait for a peer to connect with it. Once a peer connects, it will state who it is connected by. When you run any of the messages (1,2,3,4,5,6), it will state that it has received that message. Then it will return to the client what was requested. The server will loop in connecting with a socket and then return a message of the message number and the data the user was requesting.

Peer Request Keys:
Message 1: Register Request
Message 2: File List Request
Message 3: File Locations Request
Message 4: Chunk Register Request
Message 5: File Chunk Request
Message 6: Close out of the client

Descriptions of Messages 1-5 are in the original lab document assigned.

```
melainesit@ubuntu:~/cmpsc497$ python3 client.p
y 65001 65050 client1 bse
Waiting for connection
{'message': 1, 'file': 'bse', 'success': 1}
What message would you like to send: 2
{'message': 2, 'length': 2, 'files': {'bse': {
'127.0.0.1:65050': [1, 2]}, '23': {'127.0.0.1:
65051': [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,
24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35
, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46,
47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58
, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68]}}}
What message would you like to send: 3
{'message': 2, 'length': 2, 'files': {'bse': {
'127.0.0.1:65050': [1, 2]}, '23': {'127.0.0.1:
65051': [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,
24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35
, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46,
47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58
, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68]}}}
Here are a list of files to choose from:
1.      bse
2.      23
What file are you looking for: 23
File not found, try again
What file do you want: 2
{'message': 3, 'fileName': '23', 'peers': {'12
7.0.0.1:65051': [1, 2, 3, 4, 5, 6, 7, 8, 9, 10
, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21,
22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33
, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44,
45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56
, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67,
68]}, 'length': 1}
What message would you like to send: 5
{'message': 2, 'length': 2, 'files': {'bse': {
'127.0.0.1:65050': [1, 2]}, '23': {'127.0.0.1:
65051': [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,
24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35
, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46,
47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58
, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68]}}}
Here are a list of files to choose from:
1.      bse
2.      23
What file are you looking for: 2
{'message': 3, 'fileName': '23', 'peers': {'12
7.0.0.1:65051': [1, 2, 3, 4, 5, 6, 7, 8, 9, 10
, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21,
22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33
, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44,
45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56
, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67,
68]}, 'length': 1}
This is list of chunks: [1, 2, 3, 4, 5, 6, 7,
8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19,
20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42,
43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54
, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65,
66, 67, 68]
What chunk number do you want: 2
Choose one of these peers to receive the data
from:
1.      127.0.0.1:65051
Enter which peer you want to receive data from
:1
{'message': 4, 'file': '23', 'chunk': 2, 'succ
ess': 1}
What message would you like to send:
```

This is the first peer that connects with the client, called client1. The arguments are the python file, the port that connects to the server, its own port, and the name of the files it wants to share with the server. Message 1 will run automatically and will get a message that states it was successful. We run message 2 and it will return a message of what the client requested.
We run message 3 and in message 3, message 2 is also runned. We get a receipt of message 2 and then we get to choose a list of files.
In this time, client2 joined the network and shared their file ("bse") with the network. It will update the list of file to choose from.
If the number inputted is not found, then the client has to try again. Then the receipt of message 3 is returned with the requested data.

Message 5 is ran and within message 5, message 2 and 3 is ran.

Then a list of chunks for that file is provided. Client choose which chunk they want from the list

Client chooses out a peer (client 2) out of a list of peers that have that specific file and chunk. The client receives the chunk. Message 4 is automatically ran and the server is updated

client1 > ≡ 23

```
OUS Barry's mother, JANET BENSON,
    yells up at Barry. JANET BENSON Barry, breakfast is ready! CUT TO: "Bee Movie" -
    JS REVISIONS 8/13/07 1. INT. BARRY'S ROOM - CONTINUOUS BARRY Coming! SFX: Phone RINGING. Barry's
    antennae vibrate as they RING like a phone. Barry's hands are wet. He looks around for a towel. BARRY
    (CONT'D) Hang on a second! He wipes his hands on his sweater, and pulls his antennae down to his ear
    and mouth. BARRY (CONT'D) Hello? His best friend, ADAM FLAYMAN, is on the other end. ADAM Barry?
    BARRY Adam? ADAM Can you believe this is happening? BARRY Can't believe it. I'll pick you up. Barry
    sticks his stinger in a sharpener. SFX: BUZZING AS HIS STINGER IS SHARPENED. He tests the sharpness
    with his finger. SFX: Bing. BARRY (CONT'D) Looking sharp. ANGLE ON: Barry hovering down the hall,
    sliding down the staircase bannister. Barry's mother, JANET BENSON, is in the kitchen. JANET BENSON
    Barry, why don't you use the stairs? Your father paid good money for those
```

Client1 requested for file "23" chunk 2 from client2. It appears in a new file in client1's directory.

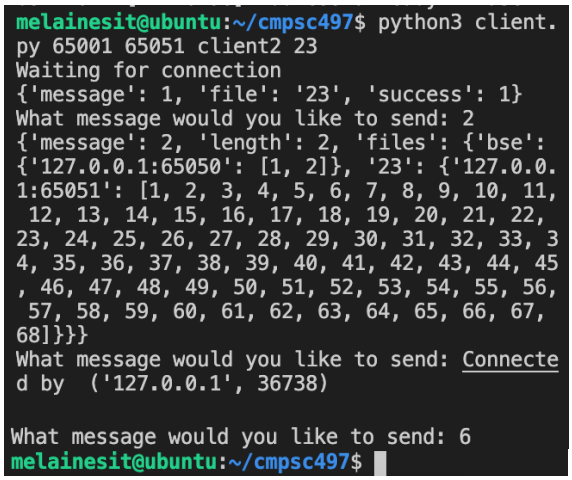
client2 > ≡ 23

```
According to all known laws of aviation, there is no way that a bee should be able to fly.
Its wings are too small to get its fat little body off the ground. The bee, of course, flies anyway.
Because bees don't care what humans think is impossible." SEQ. 75 - "INTRO TO BARRY" INT. BENSON HOUSE
 - DAY ANGLE ON: Sneakers on the ground. Camera PANS UP to reveal BARRY BENSON'S BEDROOM ANGLE ON: Barry's
  hand flipping through different sweaters in his closet. BARRY Yellow black, yellow black, yellow black,
  yellow black, yellow black, yellow black...oohh, black and yellow... ANGLE ON: Barry wearing the sweater
   he picked, looking in the mirror. BARRY (CONT'D) Yeah, let's shake it up a little. He picks the black
   and yellow one. He then goes to the sink, takes the top off a CONTAINER OF HONEY, and puts some honey
   into his hair. He squirts some in his mouth and gargles. Then he takes the lid off the bottle, and rolls
   ome on like deodorant. CUT TO: INT. BENSON HOUSE KITCHEN - CONTINUOUS Barry's mother, JANET BENSON,
   yells up at Barry. JANET BENSON Barry, breakfast is ready! CUT TO: "Bee Movie" -
   JS REVISIONS 8/13/07 1. INT. BARRY'S ROOM - CONTINUOUS BARRY Coming! SFX: Phone RINGING. Barry's
   antennae vibrate as they RING like a phone. Barry's hands are wet. He looks around for a towel. BARRY
   (CONT'D) Hang on a second! He wipes his hands on his sweater, and pulls his antennae down to his ear
   and mouth. BARRY (CONT'D) Hello? His best friend, ADAM FLAYMAN, is on the other end. ADAM Barry?
   BARRY Adam? ADAM Can you believe this is happening? BARRY Can't believe it. I'll pick you up. Barry
   sticks his stinger in a sharpener. SFX: BUZZING AS HIS STINGER IS SHARPENED. He tests the sharpness
   with his finger. SFX: Bing. BARRY (CONT'D) Looking sharp. ANGLE ON: Barry hovering down the hall,
   sliding down the staircase bannister. Barry's mother, JANET BENSON, is in the kitchen. JANET BENSON
   Barry, why don't you use the stairs? Your father paid good money for those. "Bee Movie" - JS REVISIONS
   8/13/07 2. BARRY Sorry, I'm excited. Barry's father, MARTIN BENSON, ENTERS. He's reading a NEWSPAPER
   with the HEADLINE, "Queen gives birth to thousandtuplets: Resting Comfortably." MARTIN BENSON Here's
   the graduate. We're very proud of you, Son. And a perfect report card, all B's. JANET BENSON (mushing
   Barry's hair) Very proud. BARRY Ma! I've got a thing going here. Barry re-adjusts his hair, starts to
   leave. JANET BENSON You've got some lint on your fuzz. She picks it off. BARRY Ow, that's me! MARTIN
   BENSON Wave to us. We'll be in row 118,000. Barry zips off. BARRY Bye! JANET BENSON Barry, I told you
```

This is client2's file of "23". It contains all the chunks. The highlighted portion is the chunk that client1 requested.

```
Choose one of these peers to receive the data
from:
1.      127.0.0.1:65051
2.      127.0.0.1:65050
```

After client1 receives the chunk, it is reflected in the peer list that client1 had file "23" chunk 2.



This is client2.
It connects with the server. Message 1 is automatically ran and succeeded. We run message 2 and we can see our files were shared with the server.

Client1 ran message 5 and requested to connect with client2. It sent the chunk over and can continue to run messages. Message 6 is ran and closes out of the client.