Network Assignment

Names:	IDs:
Omar Ihab Mohamed	5461
Ahmed Ibrahim AlAdham	5448
Rana Dorgham	4933
Mohamed ElTahan	4713

Sample run:

Client 1:

```
<html>
<head>
    <title>Hello World client 2</title>
</head>
<body>
    <h1>Hello World, 2!</h1>
    <p>Welcome to the index2.html web page..</p>
    <p>Here's a link to <a href="ipsum.html">Ipsum</a></p>
</body>
</html>

[CLIENT] Data received from ('127.0.0.1', 65432)  <html>
<head>
    <title>Hello World client 2</title>
</head>
<body>
    <h1>Hello World, 2!</h1>
    <p>Welcome to the index2.html web page..</p>
    <p>Here's a link to <a href="ipsum.html">Ipsum</a></p>
</body>
</html>
[CLIENT] Data saved in file index2.html
[CLIENT] DONE! Request is cached
POST /post_test.txt HTTP/1.1
Host: 127.0.0.1:65432

test post here

[CLIENT] Request sent to server ('127.0.0.1', 65432)
[CLIENT] Response received from ('127.0.0.1', 65432)  HTTP/1.1 201 Created


[CLIENT] DONE! Request is cached
GET /omar2.txt HTTP/1.1
Host: 127.0.0.1:65432


[CLIENT] Request sent to server ('127.0.0.1', 65432)
[CLIENT] Response received from ('127.0.0.1', 65432)  HTTP/1.1 404 NOT FOUND

File Not Found

[CLIENT] DONE! Request is cached
[CLIENT] This request is already exists
[CLIENT] Cached response  HTTP/1.1 200 OK

<html>
<head>
    <title>Hello World</title>
</head>
<body>
    <h1>Hello World!</h1>
    <p>Welcome to the index.html web page..</p>
    <p>Here's a link to <a href="ipsum.html">Ipsum</a></p>
</body>
</html>

[CLIENT] Cached file content  <html>
<head>
    <title>Hello World</title>
</head>
<body>
    <h1>Hello World!</h1>
    <p>Welcome to the index.html web page..</p>
    <p>Here's a link to <a href="ipsum.html">Ipsum</a></p>
</body>
</html>
[CLIENT] This request is already exists
[CLIENT] Cached response  HTTP/1.1 201 Created


(base) omarihab@omars-MacBook-Pro client % █
```

This is after testing client with the following requests:

GET /index.html 127.0.0.1 65432
GET /index2.html 127.0.0.1 65432
POST /post_test.txt 127.0.0.1 65432
GET /omar2.txt 127.0.0.1 65432   (Not in server directory)
GET /index.html 127.0.0.1 65432   (Already cached)
POST /post_test.txt 127.0.0.1 65432   (Already cached)

Client 2 (running at the same time) :

```
<body>
    <h1>Hello World, 3!</h1>
    <p>Welcome to the index3.html web page..</p>
    <p>Here's a link to <a href="ipsum.html">Ipsum</a></p>
</body>
</html>

[CLIENT] Data received from ('127.0.0.1', 65432)  <html>
<head>
    <title>Hello World client 2</title>
</head>
<body>
    <h1>Hello World, 3!</h1>
    <p>Welcome to the index3.html web page..</p>
    <p>Here's a link to <a href="ipsum.html">Ipsum</a></p>
</body>
</html>
[CLIENT] Data saved in file index3.html
[CLIENT] DONE! Request is cached
GET /index4.html HTTP/1.1
Host: 127.0.0.1:65432


[CLIENT] Request sent to server ('127.0.0.1', 65432)
[CLIENT] Response received from ('127.0.0.1', 65432)  HTTP/1.1 200 OK

<html>
<head>
    <title>Hello World client 2</title>
</head>
<body>
    <h1>Hello World, 4!</h1>
    <p>Welcome to the index4.html web page..</p>
    <p>Here's a link to <a href="ipsum.html">Ipsum</a></p>
</body>
</html>

[CLIENT] Data received from ('127.0.0.1', 65432)  <html>
<head>
    <title>Hello World client 2</title>
</head>
<body>
    <h1>Hello World, 4!</h1>
    <p>Welcome to the index4.html web page..</p>
    <p>Here's a link to <a href="ipsum.html">Ipsum</a></p>
</body>
</html>
[CLIENT] Data saved in file index4.html
[CLIENT] DONE! Request is cached
POST /post_test.txt HTTP/1.1
Host: 127.0.0.1:65432

test post here

[CLIENT] Request sent to server ('127.0.0.1', 65432)
[CLIENT] Response received from ('127.0.0.1', 65432)  HTTP/1.1 201 Created


[CLIENT] DONE! Request is cached
GET /omar.txt HTTP/1.1
Host: 127.0.0.1:65432


[CLIENT] Request sent to server ('127.0.0.1', 65432)
[CLIENT] Response received from ('127.0.0.1', 65432)  HTTP/1.1 200 OK

hi iam omar

[CLIENT] Data received from ('127.0.0.1', 65432)  hi iam omar
[CLIENT] Data saved in file omar.txt
[CLIENT] DONE! Request is cached
(base) omarihab@omars-MacBook-Pro client % ▌
```

This is after testing client with the following requests:

GET /index3.html 127.0.0.1 65432
GET /index4.html 127.0.0.1 65432
POST /post_test.txt 127.0.0.1 65432
GET /omar.txt 127.0.0.1 65432

Server:

```
 Terminal   Shell   Edit   View   Window   Help
[(base) omarihab@omars-MacBook-Pro server % python server.py
[SERVER] Started
[SERVER] Waiting for connection
[SERVER] listening on port 65432....
[SERVER] Starting Thread #  1
[SERVER] New connection started from:  ('127.0.0.1', 49356)
[SERVER] Processing connection from:  ('127.0.0.1', 49356)
[SERVER] Message:  GET /index.html HTTP/1.1
Host: 127.0.0.1:65432

  from client ('127.0.0.1', 49356)
[SERVER] DATA SENT
[SERVER] Message:  GET /index2.html HTTP/1.1
Host: 127.0.0.1:65432

  from client ('127.0.0.1', 49356)
[SERVER] DATA SENT
[SERVER] Message:  POST /post_test.txt HTTP/1.1
Host: 127.0.0.1:65432

test post here
  from client ('127.0.0.1', 49356)
[SERVER] DATA SENT
[SERVER] Message:  GET /omar2.txt HTTP/1.1
Host: 127.0.0.1:65432

  from client ('127.0.0.1', 49356)
[SERVER] DATA SENT
[SERVER] Starting Thread #  2
[SERVER] New connection started from:  ('127.0.0.1', 49357)
[SERVER] Processing connection from:  ('127.0.0.1', 49357)
[SERVER] Message:  GET /index3.html HTTP/1.1
Host: 127.0.0.1:65432

  from client ('127.0.0.1', 49357)
[SERVER] DATA SENT
[SERVER] Message:  GET /index4.html HTTP/1.1
Host: 127.0.0.1:65432

  from client ('127.0.0.1', 49357)
[SERVER] DATA SENT
[SERVER] Message:  POST /post_test.txt HTTP/1.1
Host: 127.0.0.1:65432

test post here
  from client ('127.0.0.1', 49357)
[SERVER] DATA SENT
[SERVER] Message:  GET /omar.txt HTTP/1.1
Host: 127.0.0.1:65432

  from client ('127.0.0.1', 49357)
[SERVER] DATA SENT
[SERVER] Client from  ('127.0.0.1', 49356)  disconnected
[SERVER] Client from  ('127.0.0.1', 49357)  disconnected
```

Note: server closes a persistent connection after some period of time (timeout).

Note: input file is taken from the user via terminal