

# Internet Technology: Project 1 Report

## Submission Details

**Step 4 is implemented in files** server1.py and client1.py

**Step 5 is implemented in files** server2.py and client2.py

### 1) Team Details

**Clearly state the names and needs of your team members (There are 2 of you)**

**Name:** Prachiti Atigre      **NetID:** pka24

**Name:** Ujani Patel      **NetID:** ukp10

### 2) Collaboration:

**Who did you collaborate with on this project? What resources and references did you consult?**

We did not collaborate with any other individuals on this project.

The resources and references that we consulted were:

- Lecture Slides
- Recitation Slides/ Recordings
- Understanding the difference in raw\_input() and input() for python 2  
[https://www.geeksforgeeks.org/difference-between-input-and-raw\\_input-functions-in-python/](https://www.geeksforgeeks.org/difference-between-input-and-raw_input-functions-in-python/)

### 3) What did you observe after running step 2 above? Can you explain why you see what you see?

After running step 2, we were given the error

```
ukp10@h416-2:~/student-package$ python proj.py
[S]: Server socket created
[C]: Client socket created
Done.
Exception in thread client:
Traceback (most recent call last):
  File "/usr/lib/python2.7/threading.py", line 801, in __bootstrap_inner
    self.run()
  File "/usr/lib/python2.7/threading.py", line 754, in run
    self.__target(*self.__args, **self.__kwargs)
  File "proj.py", line 47, in client
    cs.connect(server_binding)
  File "/usr/lib/python2.7/socket.py", line 228, in meth
    return getattr(self._sock,name)(*args)
error: [Errno 111] Connection refused

Exception in thread server:
Traceback (most recent call last):
  File "/usr/lib/python2.7/threading.py", line 801, in __bootstrap_inner
    self.run()
  File "/usr/lib/python2.7/threading.py", line 754, in run
    self.__target(*self.__args, **self.__kwargs)
  File "proj.py", line 16, in server
    ss.bind(server_binding)
  File "/usr/lib/python2.7/socket.py", line 228, in meth
    return getattr(self._sock,name)(*args)
error: [Errno 98] Address already in use
```

After running step 2, we got two errors:

- **Error: [Errno 98] Address already in use**
  - The time.sleep(5) helps the program to come to rest for 5 seconds before proceeding to execute the next step in the program. However, in step 2, we are getting rid of the time.sleep(5) and we are running proj.py immediately after running it once. Due to this, the program doesn't have enough time to stop and is still running. This causes the "[Errno 98] Address already in use" error because our program is still running and it is trying to connect to the same port.
- **Error: [Errno 111] Connection refused**
  - Occurs as the port is trying to connect, however, the program is still running, and therefore it is unable to connect.

**4) Is there any portion of your code that does not work as required in the description above? Please explain.**

No. All the requirements from Step 1 through Step 5 have been implemented in our code.

**5) Did you encounter any difficulties? If so, explain.**

The challenge encountered during the project was how to send line-by-line strings of the in-proj.txt from client2.py to server2.py. When we were trying to send the strings from the in-proj.txt file from client2.py to server2.py, server2.py was reading all the lines together and then reversing it due to which, in the last line of the in-proj.txt file was the first reversed line in the out-proj.txt

**6) What did you learn from working on this project? Add any interesting observations not otherwise covered in the questions above. Be specific and technical in your response.**

- Working on this project, we learned how a server and client can send and receive messages. At a practical level, we also learned how a client can request a connection and how a connection can be accepted. We also learned new python syntaxes such as "raw\_input()" as we are new to python.
- It was interesting to see how a client can choose its own port number and did not have to use the port by the server. Below is our output after running proj.py twice and we can see that during both times, the client had decided to use a different port that was not the same port by the server which was 50007

```
ukp10@h416-2:~/student-package$ python proj.py
[S]: Server socket created
[S]: Server host name is h416-2.cs.rutgers.edu
Done.
[C]: Client socket created
[S]: Server IP address is 128.6.5.31
[S]: Got a connection request from a client at ('128.6.5.31', 41794)
[C]: Data received from server: Welcome to CS 352!
```

```
[S]: Got a connection request from a client at ('128.6.5.31', 41794)
```

```
ukp10@h416-2:~/student-package$ python proj.py
[S]: Server socket created
[S]: Server host name is h416-2.cs.rutgers.edu
Done.
[C]: Client socket created
[S]: Server IP address is 128.6.5.31
[S]: Got a connection request from a client at ('128.6.5.31', 41786)
[C]: Data received from server: Welcome to CS 352!
```

```
[S]: Got a connection request from a client at ('128.6.5.31', 41786)
```