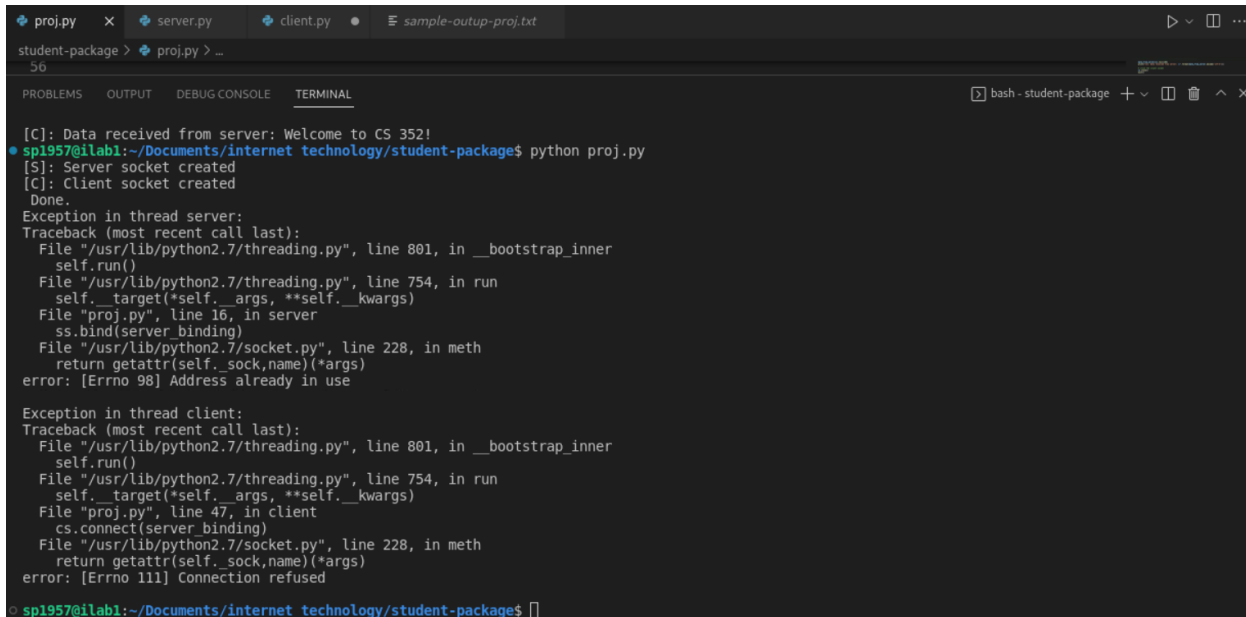


## Internet Technology Project 1 Report

- 1.) Shiv Patel - sp1957
- 2.) I worked by myself on this first project and did not collaborate with any other individuals. Resources that I consulted were lecture slides, recitation slides and notes. I also used my knowledge of Python as well as Python resources online.
- 3.) What I observed from step two was that I received two errors:



```
proj.py x server.py client.py sample-output-proj.txt
student-package > proj.py > ...
56
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
[C]: Data received from server: Welcome to CS 352!
• sp1957@ilab1:~/Documents/internet technology/student-package$ python proj.py
[S]: Server socket created
[C]: Client socket created
Done.
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

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
sp1957@ilab1:~/Documents/internet technology/student-package$
```

- [Errno 98] Address already in use
    - time.sleep(5) makes it so that the program comes to rest for 5 seconds before executing the next step in the program. By getting rid of this line we are making it so that the program does not have enough time to stop and is still running. This causes the error message since our program is running and trying to bind to the same port.
  - [Errno 111] Connection refused
    - This error occurs while the ports are trying to connect but are unable to connect since the program is still running.
- 4.)
  - 5.)
  - 6.) After comparing what the sample outputs looked like to the results I believe that the code is correct and it fulfills all the requirements required.

- 7.) I encountered some difficulty while trying to find a way to return both the upper and reversed outputs into their respective .txt files. I previously wrote 2 separate while functions to try and output the results into the 2 .txt files which didn't work so then I tried combining it into 1 while function which helped bring the expected result.
- 8.) From working on this project I learned how servers and clients work and how they can send and receive messages. Through this program I also learned how to make two hosts communicate via sockets. This was a fun assignment to work on and I definitely learnt a lot through it.