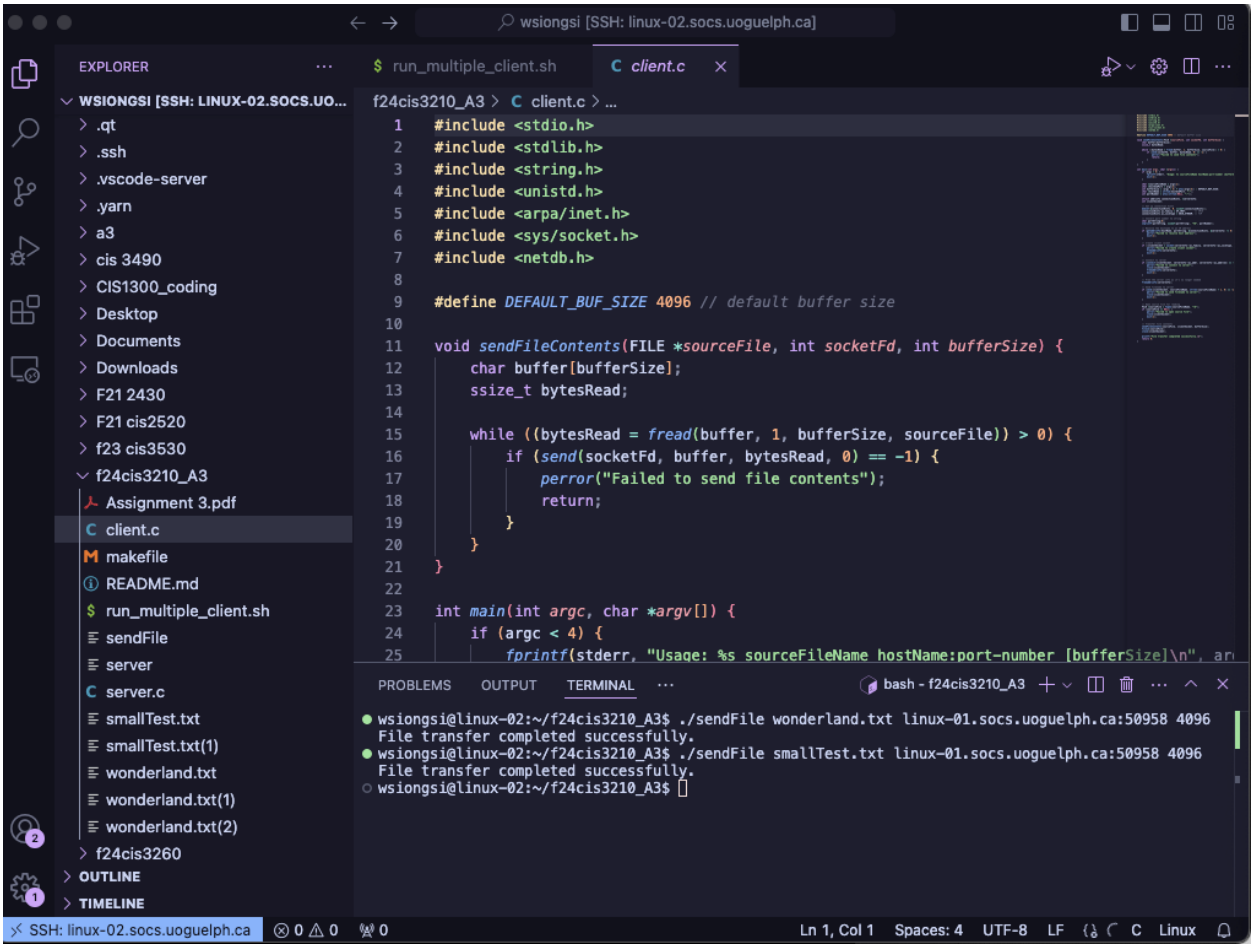
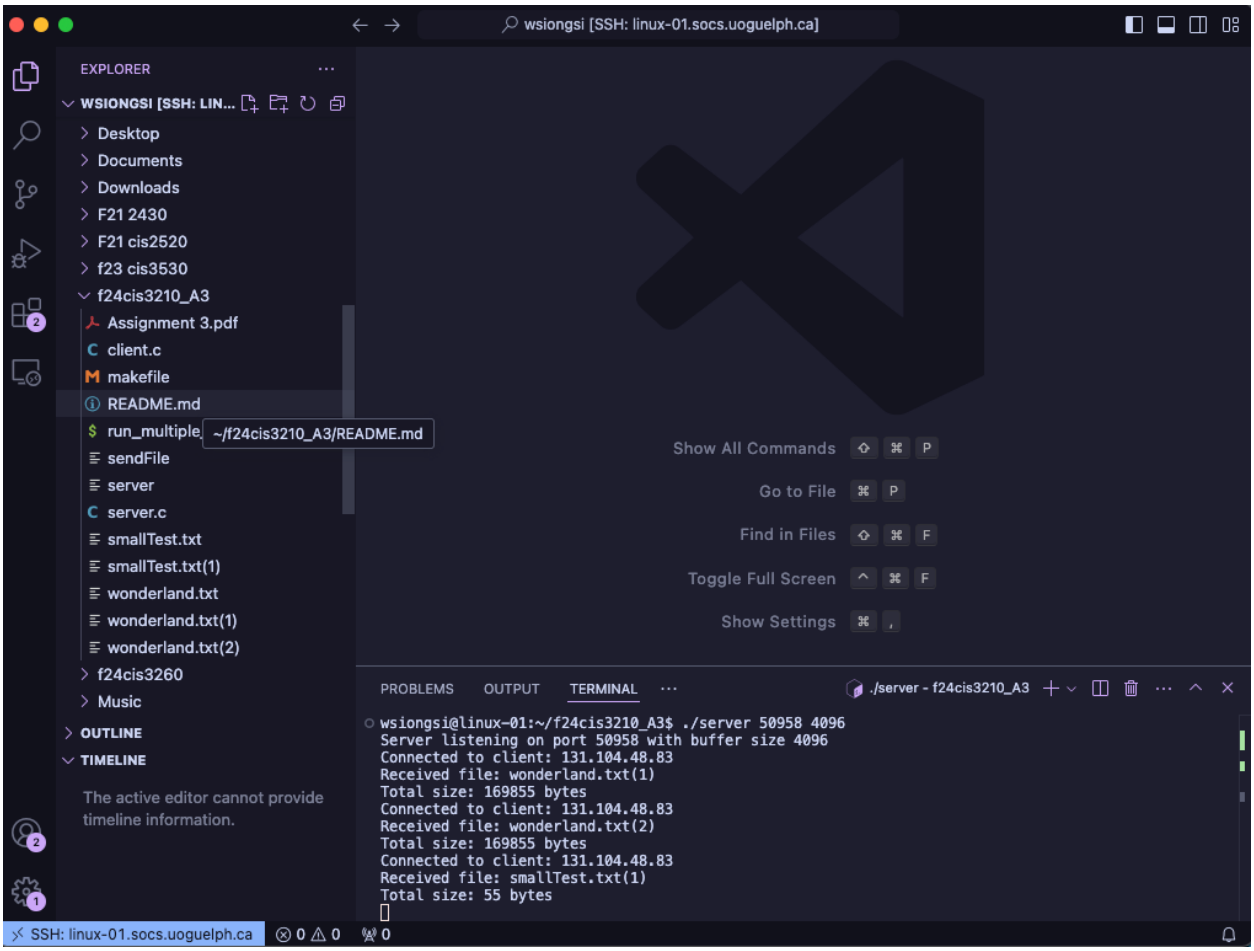
William Siong
CIS*3210
A3 – TCP client and server

Test Results

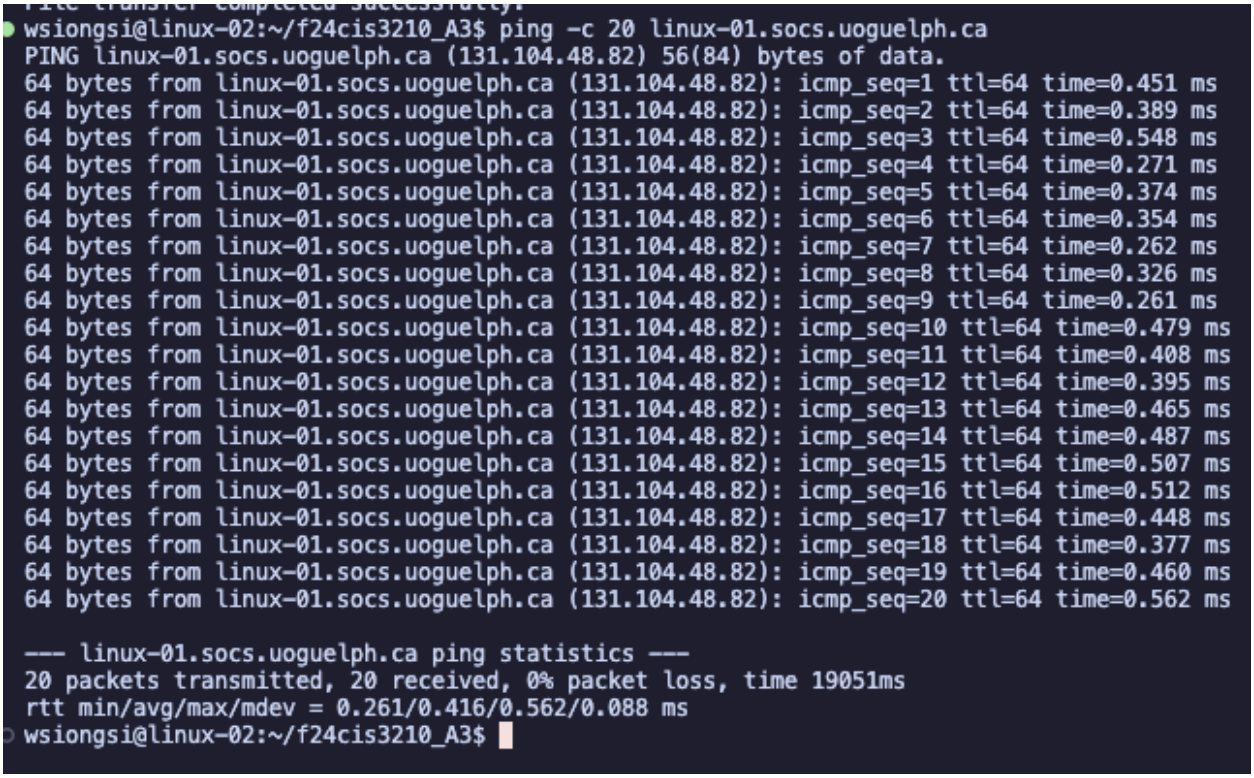
- For this test scenario, I ran the server on the server on linux-01.socs.uoguelph.ca and the client on linux-02.socs.uoguelph.ca
- In the screenshots below you can see that both test files was sent from the client to the server successfully.
- And they were renamed to avoid duplicates




wsiongsi [SSH: linux-01.socs.uoguelph.ca]
EXPLORER
WSIONGSI [SSH: LIN...
Desktop
Documents
Downloads
F21 2430
F21 cis2520
f23 cis3530
f24cis3210_A3
Assignment 3.pdf
client.c
makefile
README.md
run_multiple
~/f24cis3210_A3/README.md
sendFile
server
server.c
smallTest.txt
smallTest.txt(1)
wonderland.txt
wonderland.txt(1)
wonderland.txt(2)
f24cis3260
Music
OUTLINE
TIMELINE
The active editor cannot provide timeline information.
Show All Commands
Go to File
Find in Files
Toggle Full Screen
Show Settings
PROBLEMS
OUTPUT
TERMINAL
./server - f24cis3210_A3
wsiongsi@linux-01:~/f24cis3210_A3$ ./server 50958 4096
Server listening on port 50958 with buffer size 4096
Connected to client: 131.104.48.83
Received file: wonderland.txt(1)
Total size: 169855 bytes
Connected to client: 131.104.48.83
Received file: wonderland.txt(2)
Total size: 169855 bytes
Connected to client: 131.104.48.83
Received file: smallTest.txt(1)
Total size: 55 bytes
SSH: linux-01.socs.uoguelph.ca
0 0
0

For each environment, record the following:

Ping time - let the ping utility do at least 20 pings, record the stats (round-trip min/avg/max/stddev, packet loss rate).



The average, minimum, and maximum time that your code took to do the transfer. Do at least 20 file transfers, use the same file each time. A test file will be provided to you.

The min/max/average transfer rates.

$ transfer_test.sh

```
#!/bin/bash

FILE="smallTest.txt"
SERVER="linux-01.socs.uoguelph.ca:50958"
BUFFER_SIZE=4096
NUM_TRANSFERS=20
TIMES=()

for i in $(seq 1 $NUM_TRANSFERS); do
    START=$(date +%s%N)  # Start time in nanoseconds
    ./sendFile "$FILE" "$SERVER" "$BUFFER_SIZE"
    END=$(date +%s%N)    # End time in nanoseconds
    TIME=$((END - START))
    TIMES+=($TIME)
    echo "Transfer $i took $((TIME / 1000000)) ms"
done

# Calculate min, max, and average transfer times
MIN=${TIMES[0]}
MAX=${TIMES[0]}
SUM=0

for TIME in "${TIMES[@]}"; do
    (( TIME < MIN )) && MIN=$TIME
    (( TIME > MAX )) && MAX=$TIME
    SUM=$((SUM + TIME))
done

AVG=$((SUM / NUM_TRANSFERS))

echo "Minimum time: $((MIN / 1000000)) ms"
echo "Maximum time: $((MAX / 1000000)) ms"
echo "Average time: $((AVG / 1000000)) ms"
```

```
wsiongsi@linux-02:~/f24cis3210_A3$ ./transfer_test.sh
File transfer completed successfully.
Transfer 1 took 6 ms
File transfer completed successfully.
Transfer 2 took 6 ms
File transfer completed successfully.
Transfer 3 took 12 ms
File transfer completed successfully.
Transfer 4 took 17 ms
File transfer completed successfully.
Transfer 5 took 14 ms
File transfer completed successfully.
Transfer 6 took 7 ms
File transfer completed successfully.
Transfer 7 took 8 ms
File transfer completed successfully.
Transfer 8 took 7 ms
File transfer completed successfully.
Transfer 9 took 1014 ms
File transfer completed successfully.
Transfer 10 took 10 ms
File transfer completed successfully.
Transfer 11 took 9 ms
File transfer completed successfully.
Transfer 12 took 6 ms
File transfer completed successfully.
Transfer 13 took 6 ms
File transfer completed successfully.
Transfer 14 took 6 ms
File transfer completed successfully.
Transfer 15 took 8 ms
File transfer completed successfully.
Transfer 16 took 1013 ms
File transfer completed successfully.
Transfer 17 took 7 ms
File transfer completed successfully.
Transfer 18 took 19 ms
File transfer completed successfully.
Transfer 19 took 8 ms
File transfer completed successfully.
Transfer 20 took 9 ms
Minimum time: 6 ms
Maximum time: 1014 ms
Average time: 110 ms
wsiongsi@linux-02:~/f24cis3210_A3$
```