

# COMP 7005

## Assignment 2

### User Guide

Winston Nguyen  
A01297231  
Feb 11th, 2024

# Purpose

- A program with a server and client to send and receive data to be analyzed and show how to handle multiple connections.

# Installing

## Obtaining

git clone <https://github.com/Wontoni/comp7005-network-socket.git>

## Running

```
python3 ./source/server.py
```

```
python3 ./source/client.py <file_name>.txt
```

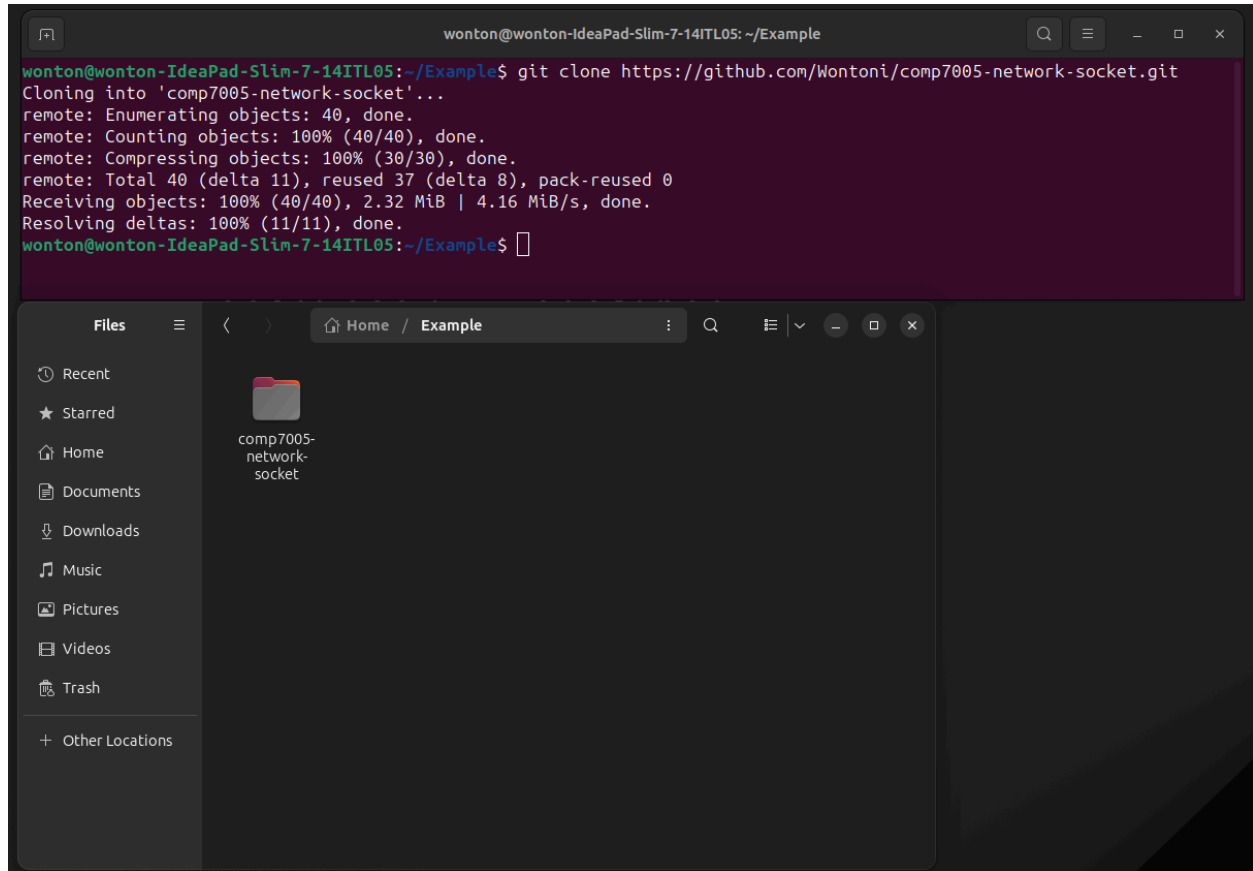
## Command Line Arguments

The following configuration values can be set in ./source/client.py:

Variable	Purpose
<file_name >	The text file containing the data to send to the server and analyze.
<ip_addres s>	The ip address of the server to connect with.

# Examples

## Cloning Repository



The screenshot shows a terminal window at the top and a file manager window at the bottom. The terminal window displays the output of a git clone command, showing the progress of cloning a repository from GitHub. The file manager window shows the contents of the cloned repository, which is a folder named 'comp7005-network-socket'.

```
wonton@wonton-IdeaPad-Slim-7-14ITL05: ~/Example
wonton@wonton-IdeaPad-Slim-7-14ITL05:~/Example$ git clone https://github.com/Wontoni/comp7005-network-socket.git
Cloning into 'comp7005-network-socket'...
remote: Enumerating objects: 40, done.
remote: Counting objects: 100% (40/40), done.
remote: Compressing objects: 100% (30/30), done.
remote: Total 40 (delta 11), reused 37 (delta 8), pack-reused 0
Receiving objects: 100% (40/40), 2.32 MiB | 4.16 MiB/s, done.
Resolving deltas: 100% (11/11), done.
wonton@wonton-IdeaPad-Slim-7-14ITL05:~/Example$
```

The file manager window shows the following structure:

- Files
- Recent
- Starred
- Home
- Documents
- Downloads
- Music
- Pictures
- Videos
- Trash
- Other Locations

The main pane shows the contents of the 'Example' directory, which is a folder named 'comp7005-network-socket'.

## Setting IPv4 and IPv6 Addresses

```
notepad++
server.py M  client.py M x  test.txt M
source > client.py > ...
1  import socket
2  import sys
3  import ipaddress
4  import struct
5  import pickle
6
7  # Variables to change based on server host location
8  ipv4 = "my.ipv4.address.here"
9  ipv6 = "my:ipv6::address:here"
10
11 # Change to ipv4 for connection via IPv4 Address or ipv6 for IPv6
12 server_host = ipv4
13
14 server_port = 8080
15
```

## Example Data

```
notepad++
server.py M  client.py M  test.txt M x
test.txt
1  a b c d e f g h i j
2  1 2 3 4 5 6 7 8 9 10
```

## Running the Programs

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

○ wonton@wonton-IdeaPad-Slim-7-14ITL05:~/work/comp7005/Assignment 2: Network Sockets$ python3 ./source/server.py
Server running on dual-stack mode (IPv4 and IPv6).
Server is listening on port 8080 for incoming connections...
█

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

● wonton@wonton-IdeaPad-Slim-7-14ITL05:~/work/comp7005/Assignment 2: Network Sockets$ python3 ./source/client.py test.txt
Received response
Word Count: 20
Character Count: 21
Character Frequencies:
0: 1
1: 2
2: 1
3: 1
4: 1
5: 1
6: 1
7: 1
8: 1
9: 1
a: 1
b: 1
c: 1
d: 1
e: 1
f: 1
g: 1
h: 1
i: 1
j: 1

○ wonton@wonton-IdeaPad-Slim-7-14ITL05:~/work/comp7005/Assignment 2: Network Sockets$ █
```