

# ELL405 Assignment 2

## Distributed File System - FUSE

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### 1 Client-Server Model

The client-server model is implemented in Python. On the client side, the FUSE file system is implemented so that the file system calls can be caught by FUSE and sent to the server side.

One problem was observed that when we tried to open the folder where we mounted the file system using mouse click in Linux, the FUSE file system logged in the mouse click and raised an exception. So, to avoid this, **we run all the codes and commands from Terminal only.**

Appropriate permission scheme has been implemented. Only the owner of the file can delete it. Other users can read or write on a file depending the access permissions of the file. We give default permission to a directory as 0777 (octal) and a file as 0644 (octal).

### 2 Client-Server Communication

The client and the server communicates over the Socket using TCP protocol. The client sends a comma-delimited string message to the server over the socket. The server listens to the socket and when it receives the command, it takes appropriate actions. All actions are taken synchronously after which a reply is sent to the client.

The server generates one thread for each client so our code is capable of serving multiple clients working at different mount points.

### 3 Encryption-Decryption

We could not implement this scheme due to time constraint.

### 4 Instructions to run the code

First run the **server.py** in 1 terminal window and then run **client.py** in another terminal window and 2 arguments have to be given to the **client.py** in terminal. First argument is the address of the **[directorytobemounted]** and second argument is the address of **[mountpoint]**

#### 4.1 Commands to be given in terminal

```
#Running server file in 1 terminal  
python3 server.py
```

```
#Running client file in another terminal  
python3 client.py [directorytobemounted] [mountpoint]
```

### 5 Screenshots of 2 clients and 1 server running

The following 2 images show two clients connected to server at /Downloads and having their respective mount points at 'mount1' and 'mount2' in Desktop. First we mounted client-1 at 'mount1' and then we mounted client-2 at 'mount2'. The server and the client showing the logs what all functions have been called on their side.

