

COMP3331 assignment report

Written by XiaoHu Z5233731

Language: Python3.7

Platform: MacOS, Windows and CSE

Program: Support multiple clients

Transport Layer Protocol:

TCP

Functionality:

Format:

CRT: Create Thread	CRT	thread-title		
MSG: Post Message	MSG	thread-title	message	
DLT: Delete Message	DLT	thread-title	message-number	
EDT: Edit Message	EDT	thread-title	message-number	message
LST: List Threads	LST			
RDT: Read Thread	RDT	thread-title		
UPD: Upload file	UPD	thread-title	filename	
DWN: Download file	DWN	thread-title	filename	
RMV: Remove Thread	RMV	thread-title		
XIT: Exit	XIT			
SHT: Shutdown	SHT	admin_password		

Application Layer Protocol:

During exchange:

Format of messages:

Header (encoded username and message number)

Data (encoded content)

Assume:

The default admin_password for server is "admin". It can be changed in server.py.

Problem:

Since the assignment specification doesn't mention that the server program has to be shut down when SHT command executed, the server will send a shutdown message to all active clients (the client executed SHT command will exit immediately, the rest of them after received shutdown message by server needs to enter any key to exit), close all current connection and delete all files that created by clients or server and the server program will exit when next client tries to connect.

However, the client who try to connect after SHT needs to enter any key twice (except enter key) to exit.

Data Structure:

Dictionary and list are most used. Boolean type is most used to check state.

Error handle:

All functionalities cover error handling, like the clients try to post messages to a nonexistent thread, then there will be an error message show in the terminal to prompt the users that what kind of error they had triggered.

How does the program work?

Firstly, we have to run server.py, then we run client.py many times, each time indicate one more client try to connect to the server.

Secondly, we have to log in. The server would ask client to register if the username typed by user doesn't exist.

After it, the clients can use all functionalities but SHT command if they don't have the admin_password.