Communication Networks : Socket Programming Assignment

Roll No:- 20161205
Name : MEHTHAB SAHEBA SHAIK

Language : Python

Files : client12.py server12.py client122.py server122.py

        Client12.py and server 122.py run on one computer ; client122.py and
server12.py run on one computer
        C1 & C2 computers

        Both the computers are connected via a wifi hotspot and ifconfig is used
to manually enter the ip addresses on the computers   with servers to
respective clients.
        client12.py on C1 is given ip address of C2 with server122.py running on
it. client122.py on C2 is given ip address of C1 with server12.py running on it
        client12.py and server122.py access the folder SOS1 on C1 .This is the
shared folder.client122.py requests information on files in this folder and
client12.py downloads files from SOS2 on C2 vis server12.py into this folder.
client122.py downloads from SOS1 in SOS2 via server12.py.

        The code for both the clients(client12.py and client122.py) is the same
as is for the servers(server12.py server122.py) save the ip address and shared
folder.

        Client can connect to the server running on the same system by using
localhost ip address '127.0.0.1' .

        Let cleint12.py and server12.py run on C1 .The folder SOS is the shared
folder .server runs here ,client downloads files from here to folder SOSC . The
SOSC folder maintains a file history containing all the commands given by user.

 IndexGet :

Commands : IndexGet longlist
           IndexGet longlist .txt <word_to_search_in_file>
           IndexGet shortlist <starttimestamp> <endtimestamp>
           IndexGet shortlist <starttimestamp> <endtimestamp> .<fileextension>

Protocol/Implementation - The client tales input from the server and using a tcp
client socket connects to a tcp socket on server (3 sockets are listening on
server 2 tcp and 1 udp) .server finds the required files using python libraries
and returns the name size timestamp etc information on file to client.

FileHash :
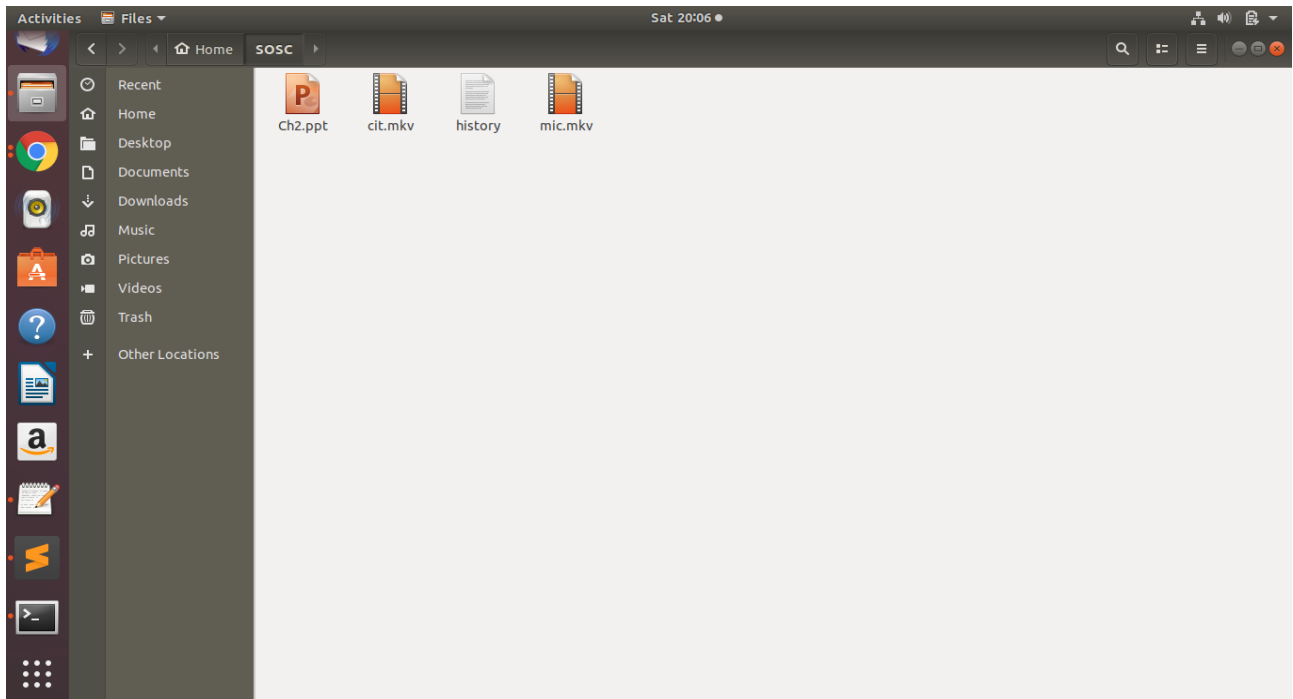
Commands : FileHash checkall
           FileHash verify <filename>

Implementation : Same as IndexGet
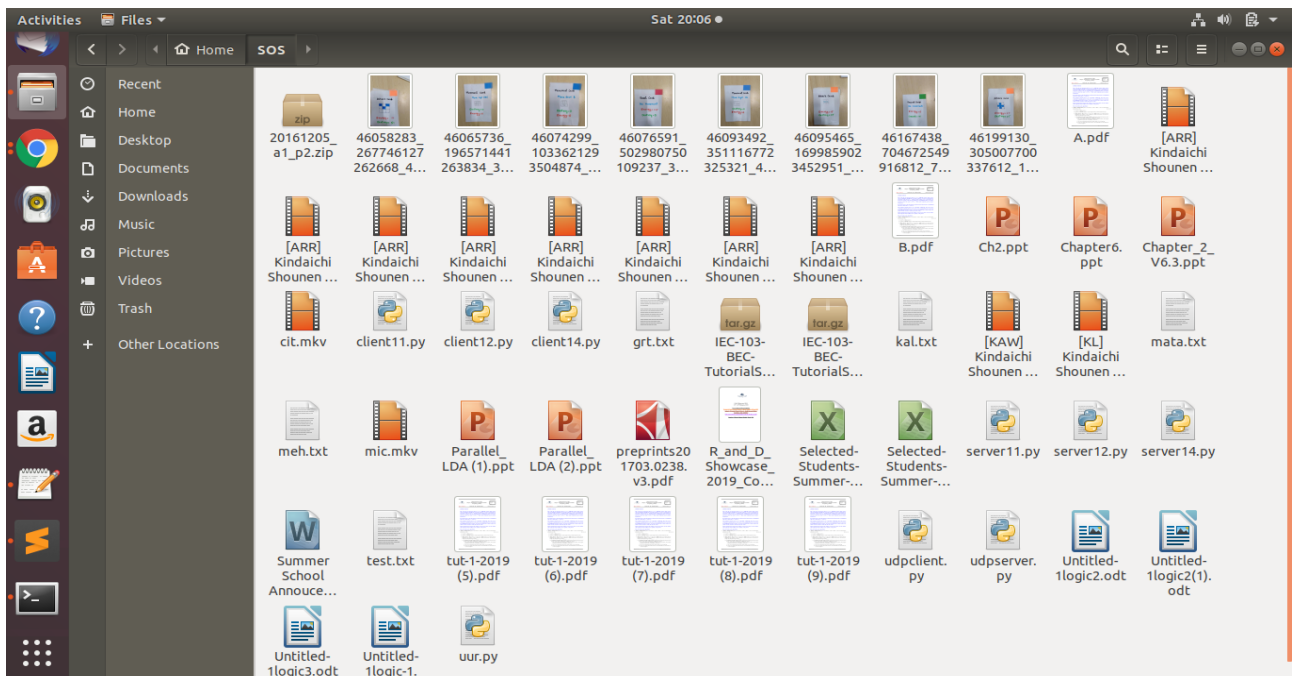
FileDownload :

Commands : FileDownload TCP <filename>
           FileDownload UDP <filename>

Implementation : in a while loop a flag is used which toggles if file is
correctly received else process is repeated client sends command to
server .server returns info on file including MD5 hash .client then creates
another socket - udp or tcp depending on flag used - to connect to another
server socket tcp/udp respectively.It sends a message. server then begins the
file transfer .in tcp connection once buffer is empty for a timeout it closes
connection with the server and md5 hash of received file is calculated if it
does not match with the md5 received from server earlier the again the client
proceeds to send the download command to server. In udp the server sends a
message before every file packet .If its "off" file has ended and server and
client close connection.The md5 is compares same as tcp.

SOSC folder

SOS folder

File download compete