Server overview

FILE, IMAGE, AUDIO AND VIDEO TRANSFER USING SOCKET PROGRAMMING

A socket is a software object that acts as an end point establishing a bidirectional network communication link between a server-side and a client-side program.

The data which we send and receive in our code are encoded and decoded with utf-8 respectively.

To write the socket programming we need to import the socket module in Python.

```
import socket
```

We store the IP address of a server and port number in a tuple.

```
ADDR=(IP,PORT)
```

The path of the files and the extension of that files are stored in two different dictionaries named as paths and types respectively.

If the running code is main code, then we call the main function.

```
if __name__=="__main__":
    main()
```

Whenever we start the main function, it will print the “server is starting”.

```
print("SErver is starting")
```

we tried to create the socket by using socket.socket(`socket.AF_INET,socket.SOCK_STREAM`), AF_INET is an address family that is used to designate the type of addresses that your socket can communicate with which is IPv4 here and SOCK_STREAM is for using TCP packets for communication.

if in any case, creation of socket is failed then it will print “socket creation failed with error some error”.

```
print("Socke creation failed with error %s "%(er))
```

the socket creation is success then we go to then we bind the address to socket. After binding the address, we will start listening to client and waiting for the client for connection. And we print “server is listening” and “waiting for client connection”.

```
    server.bind(ADDR)
    server.listen()
    print("Server is listening")
    print("Waiting for client to connect")
```

Then we create the infinite loop(`while True:`), in that infinite loop we accept the client connection and print “new connection (address of client) connected” and “connection estimated between server and client”.

```
        connection, address = server.accept()

        print(f" NEW CONNECTION {address} connected")
        print("Connection Established between Server and Client")
```

The client will send the message it may be received or send.

```
        msg=connection.recv(SIZE).decode("utf-8")
        print(f"[CLIENT] Received Data")
```

IF THE CLIENT WANTS TO RECEIVE FILE

If the client send the message “receive”, we print that “receive is selected”.

```
      if msg=="send":
            print("send is selected")
```

And we get one more message the type of file that client want.

```
msg=connection.recv(SIZE).decode("utf-8")
```

If the file type is video, audio or image , then we send the name of the file and we open the file in read mode and we read the data and send it to the client and we close the particular file.

```
total=path+filename
print("File name :",total,"000")

file=open(total,'wb')
data_in=connection.recv(1024)
while data_in:
    file.write(data_in)
    data_in=connection.recv(1024)
    print("receving")
file.close()
```

For other type of file we open the particular files and we read that file and first we send that file name , next we send that file . After sending that file, it will close.

```
connection.send("Give the filename".encode("utf-8"))
filename=connection.recv(SIZE).decode("utf-8")
print(f"[RECVIED] {filename}")
name=path+filename
print("[RECVIED] File received  ",name)
file=open(name,"w")
```

IF THE CLIENT WANTS TO SEND FILE

If the if the client want to send the data, we print “send is selected” and we receive one more message the type of the file.

```
print("send is selected")
msg=connection.recv(SIZE).decode("utf-8")
```

if the type of the file is video, image or audio then we receive filename and create the file with given name.it will be open in read mode. While we are receiving the data we write the data to that particular file after completion of receiving the data and it will close.

```
filename=connection.recv(SIZE).decode("utf-8")
print(f"[RECVIED] {filename}",filename)
total=path+filename
print("File name :",total,"000")
```

```
file=open(total,'wb')
data_in=connection.recv(1024)
while data_in:
    file.write(data_in)
    data_in=connection.recv(1024)
    print("receving")
file.close()
```

if client want to send other than video, image and audio, the server will request to the client to give the filename and it will get the message from the client is the name of the file and it will be printed. We create the file with given name and open it in write mode.

```
connection.send("Give the filename".encode("utf-8"))
filename=connection.recv(SIZE).decode("utf-8")
print(f"[RECVIED] {filename}")
name=path+filename
print("[RECVIED] File received  ",name)
file=open(name,"w")
```

Now the data which we receive from the client is written in that file and then server send the message “file written”

```
file.write(data)
connection.send("File writted".encode("utf-8"))
```