Reliable UDP Protocol

Assumptions:

Here we have assumed that the before the file transmission starts there is no actual packet loss happening. Therefore, our protocol handles the packet loss once the File Transfer is started.

Working:

1. First the server is started.

2. The client already knows on what port and ip the server is running. Hence the client sends it’s information(ip and port) to server and the server records it.

3. Then the server sends the client a list a the available file and their sizes for the client to download and the client replies with the name of the file it wants;

4. The server not constructs a byte 2-D array to where size of each row is the packet size(here 1024 bytes).

5. Now the Server stores the file in the said 2-D byte array, partitiong the file in 1024 byte segments.

6. The Server sends the client the size of the file.

7. The client then knows the number of packets to receive.

8. Then for each iteration clients requests a packet identified by its id.

9. The Server sends takes the packet from the 2d byte array and sends to client.

Packet Loss and Time Delay:

1. On all receive statements of UDP socket a timeout has been put.

2. So if there is a delay greater than the timeout or a packet loss the client or Server throws an exception.

3. While handling the exception we re do the current iteration from the client and to the server.

4. At the end of the buffer byte array we send from Server to Client we have attached the packet number its transferring. So the Client know the packet number of the incoming packet.

5. Therefore in case when Client receives wrong packet it immediatelyknow and re-requests the Server for the correct packet.

Packet Corruption:

The Client checks for invalid bytes in the incoming byte-array packet.
If Yes, Client requests the server to send the packet again.

Retransmissions:

As Client is aware of the packet it should receive, the knows rejects the re-transmitted packet incoming from the host.