## CS 2031: Telecommunications

Assignment #1

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Blah blah

Web proxy client class:

**Place code here**

The client operates on port 2000

My client class takes in a string which becomes the payload of the message being send to the server.

The client class puts the packet number into the first space of the header array (header[0]) and the receiver number (1) into the second space of the array (header[1]) which means that the intended target is the server.

Proxy server class:

The gateway operates on port 50001

My gateway class possessed 2 destination addresses, the client and the server. The gateway prints what it receives whether the information is coming from the server or the client. The gateway then extracts the header[1] of the packet which contains its destination. 1 to go to the server or any other values to return to the client. The gateway then proceeds to reroute the packet and send it to its correct destination.

Management console class:

Operates on port 2000.

The main objective of this is to implement a persistent ban list, which is stored as a txt file.

It can dynamically add websites to the ban list as well as check if a website is banned.

LRUcache & LRUnode class:

Implements a least recently used cache to cache requests locally to save bandwidth.

Packet content class:

My packet content class serves as an interface. It possesses the toString() and toDatagramPacket() methods. It also holds the length of the header as HEADERLENGTH.

String content class:

String content implements the packet content class. It returns the string and makes a datagram packet through.

Node class:

The listener function in the node class listens for incoming packets on a datagram socket and informs registered receivers about incoming packets. It listens for incoming packets and informs receivers upon arrival.

**Errors:**

No matter how much research I did I was not able to get multiple clients open at the same time.

I was also not able to resend the packet if it has not received an acknowledgement after a given time. I had experimented with the setSoTimeout method but after approximately 6 hours work I reached a dead end. You can see that my code still catches socket timeout exceptions even though they won’t be thrown.

**Conclusion:**

I spent approximately 26 hours on this project including the report.

All in all this was a very challenging assignment to work on. I started with little to no knowledge of how sockets, datagram packets and treads work but just a solid understanding of how java works. As time went on I understood more and more of how what I was doing was designing a protocol, both packet layout and handling for the communication between client and server. This assignment made me see how the study of telecommunications can be practically applied to real life. Since it was done in java I had an environment that I was already familiar in yet a daunting new challenge of TCP and UDP ports being used. I think my gateway implementation worked way for me as I found an effective solution with not too many lines of code.