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Data Communication and Networking

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**Lab 2 Part 2 Report**

Learning Objectives

-Create sockets that bind with UDP

- Routing a message within a local network through different applications

- Manipulating data with a 40 percent chance to get a bug

-Using crc32 method to encapsulate a message into hex code

-Compare hex code on server side to examine errors

Synopsis

For this lab we had to utilize our client/server knowledge and create a forwarder called inbet.cpp that will have a client side and a receiver side. Inbet.cpp will take the message, along with the crc32 generated hex code, and forward it to the server. For this lab, we need a 40% chance that an error would occur, so I implemented the ctime library and used the srand function to generate a number from 1 to 10. The importance of setting ctime in srand to null is that it changes the algorithm of generating the random number based on the system’s clock time. If the number generated is 4, 3, 2, or 1 the message will have the word “bug” inside it to simulate network interference. Once that statement is completed, then the message will be forwarded to the sender to check the original hex code with the new generated crc32 code from the message that could have been bugged

User-Story

The user can perform the following:

-Enter a message through the client, and the server prints client’s message

- Message is routed using UDP from client.cpp to inbet.cpp to server.cpp

- generate a crc code once message is inputted

-compare original crc and new crc from message after being routed through the network

- When user types “bye”, this message will be passed through all 3 applications and close successfully.

Difficulties In the server.cpp we had difficulties completing the error printing function when we set the parameters if hex != crc {print error}. But instead, we created a loop to go through each character in the crc code and if any selected position did not equal each other, then we would break the loop and print the error.