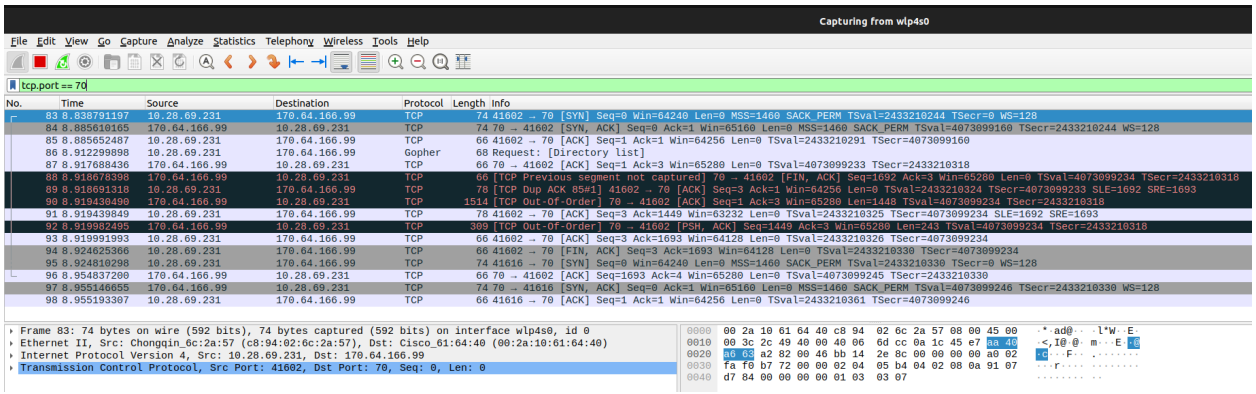
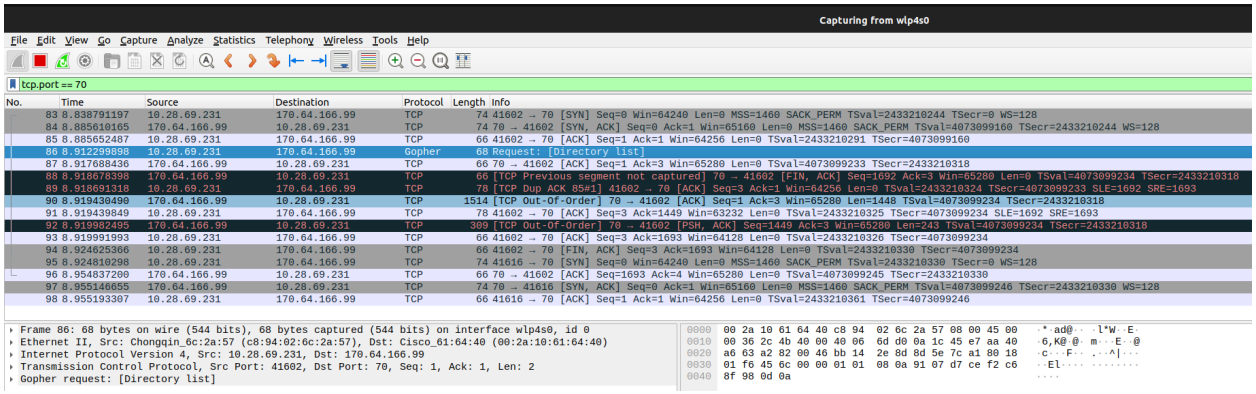
COMP3310 Assignment 2: Indexing a Gopher

Screenshot Result from Wireshark on Gopher Server Initial Response:

Below is the screenshot of the Wireshark where the Gopher Client sent an initial SYN signal to the Gopher Server:



Below is the screenshot of the Wireshark where the Gopher Client sent a request to get the directory list signal to the Gopher Server:



An explanation for each request done between the Gopher Client and Gopher Server:

- No. 83 -> The Gopher client (10.20.150.197) sends an SYN packet to the Gopher server (170.64.166.99) on port 70, requesting to establish a TCP connection.
- No. 84 -> The Gopher server acknowledges the client's SYN packet by sending an SYN-ACK packet back to the client, indicating that the server is ready to establish the connection.
- No. 85 -> The client acknowledges the server's SYN-ACK packet by sending an ACK packet. At this point, the TCP connection has been established.
- No. 86 -> The client sends a Gopher request to the server, asking for a directory listing.
- No. 87 -> The server acknowledges the client's request with an ACK packet.

- No. 88 -> The server sends a FIN-ACK packet to the client, indicating that it has finished sending data. However, this packet was not captured by Wireshark.
- No. 89 -> The client sends a duplicate ACK packet to the server, indicating that it has not received all the expected data (based on the sequence number). The client also includes Selective Acknowledgment (SLE, SRE) options to inform the server about the missing data.
- No. 90 -> The server sends an out-of-order packet containing part of the directory listing data. This packet is out-of-order because Wireshark has not seen the previous missing packet (packet from No. 88) yet.
- No. 91 -> The client acknowledges the received out-of-order packet and again includes Selective Acknowledgment (SLE, SRE) options to inform the server about the missing data.
- No. 92 -> The server sends another out-of-order packet containing the rest of the directory listing data.
- No. 93 -> The client sends an ACK packet to the server, acknowledging the receipt of all data.
- No. 94 -> The client sends a FIN-ACK packet to the server, indicating that it is done with the current connection and wants to close it.
- No. 95 -> The client initiates a new TCP connection to the server by sending an SYN packet, possibly for another request.
- No. 96 -> The server acknowledges the client's previous FIN-ACK packet (No. 94) by sending an ACK packet.
- No. 97 -> The server acknowledges the client's SYN packet (No. 95) by sending an SYN-ACK packet back to the client.
- No. 98 -> The client acknowledges the server's SYN-ACK packet by sending an ACK packet. At this point, a new TCP connection has been established, ready for another request.