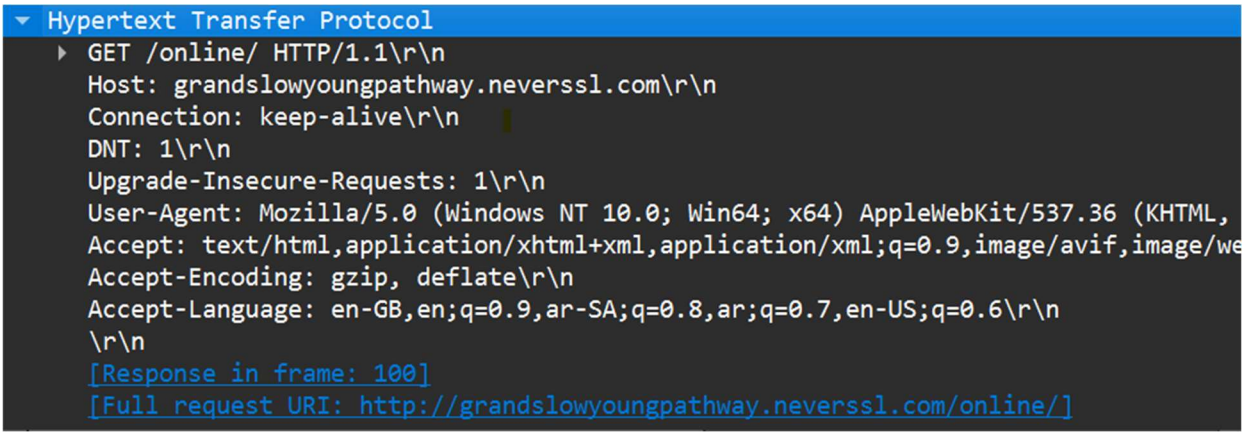
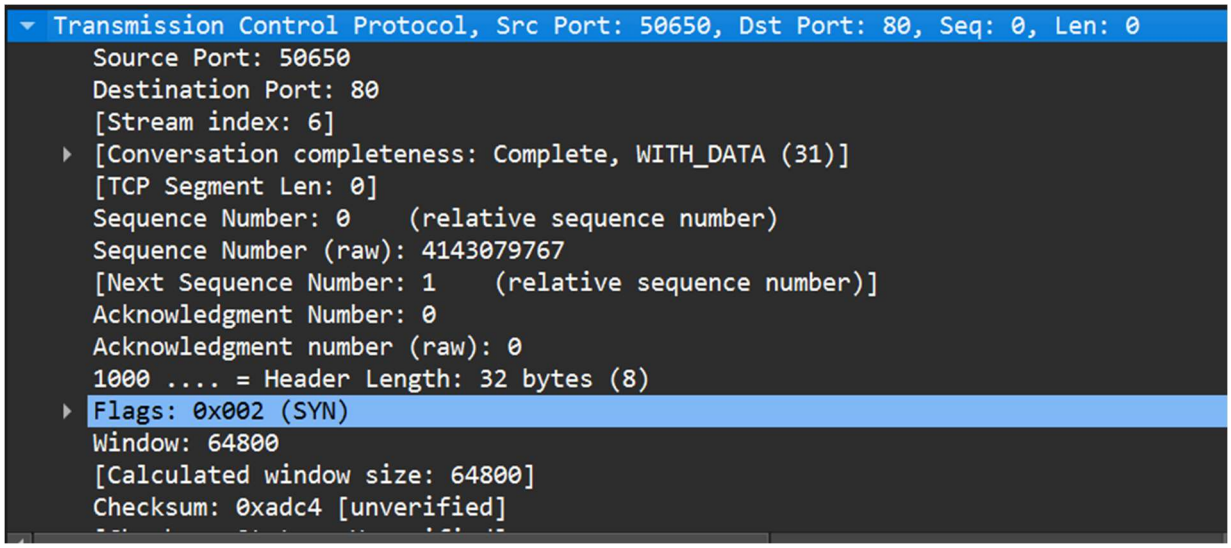
Lab – 1

1- Wireshark Screenshots:

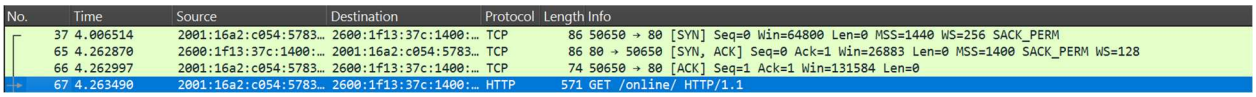
a- HTTP header:



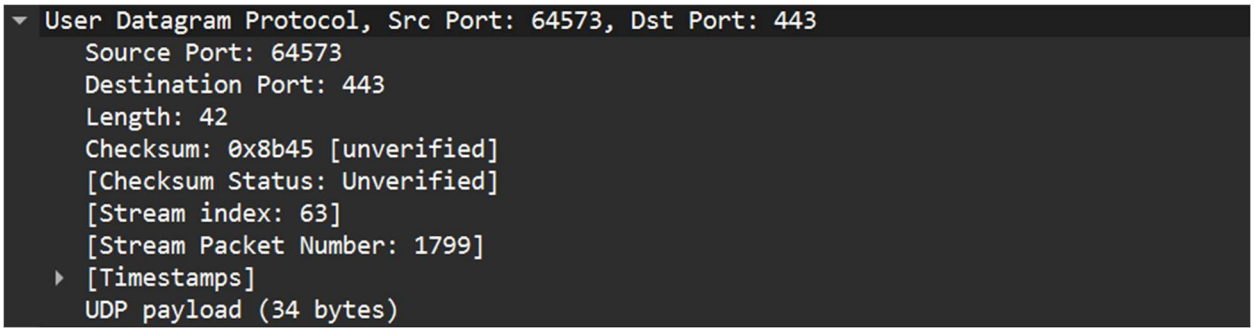
b- TCP header:



c- TCP handshake:



d- UDP header:



2- TCP VS UDP

Feature	TCP	UDP
1. Connection Establishment	Connection-oriented (requires a three-way handshake: SYN, SYN-ACK, ACK before data transfer).	Connectionless (sends data without establishing a connection).
2. Data Integrity	Ensures data integrity using error detection, acknowledgments, and retransmission of lost packets.	Provides basic checksum error detection but no retransmission or correction of lost/corrupted data.
3. Ordering	Guarantees ordered data delivery using sequence numbers and reassembly.	No ordering guarantee; packets may arrive out of order.
4. Reliability	Reliable due to acknowledgments, retransmission, and congestion control.	Unreliable; no acknowledgment or retransmission, meaning lost packets are not recovered.
5. Use Cases	Web browsing (HTTP/HTTPS), email (SMTP, IMAP, POP3), file transfer (FTP, SFTP), database transactions, remote login (SSH, Telnet).	Live streaming, VoIP, online gaming, DNS, DHCP, real-time video/audio communication.
6. Performance	Slower due to overhead from connection setup, acknowledgments, and error checking.	Faster and more efficient due to lower overhead and no connection setup.