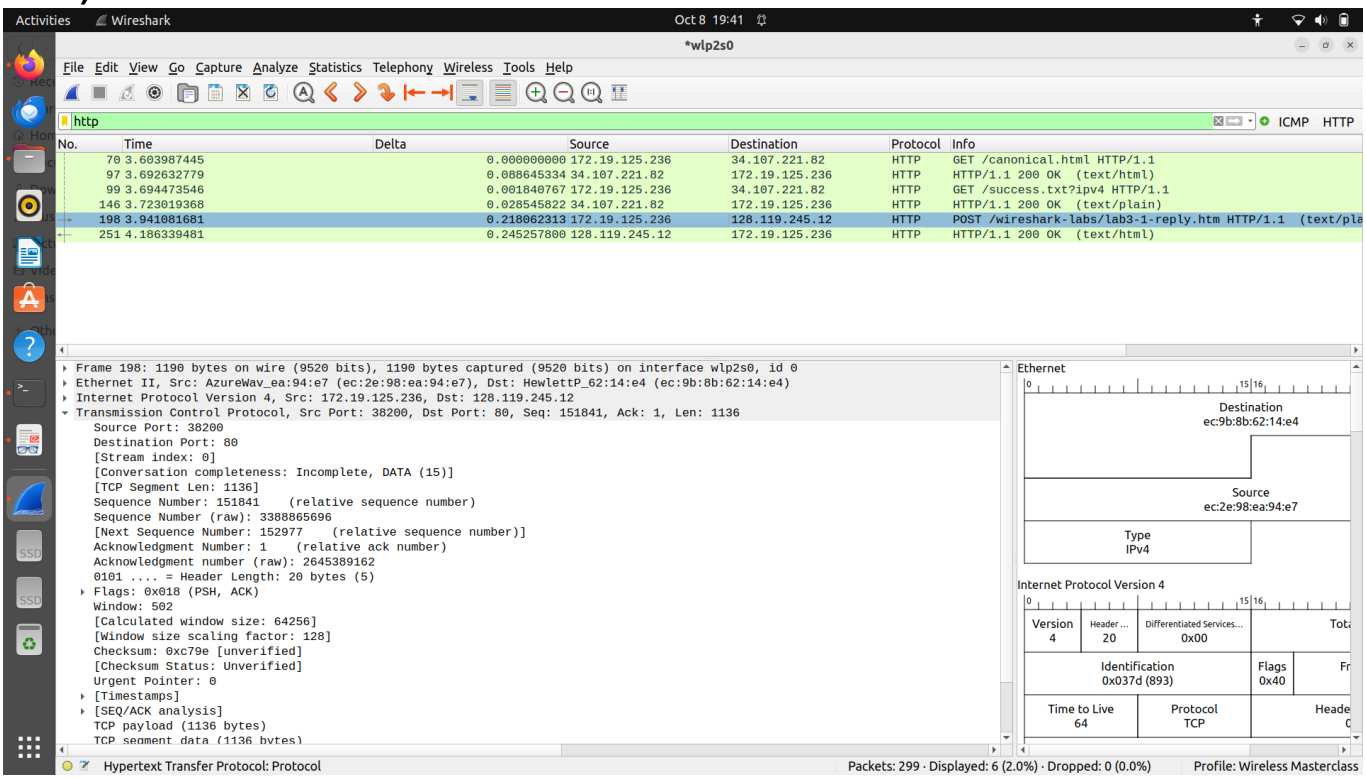
Wireshark assignment -2

Arjit Gupta
CS23mtech12001

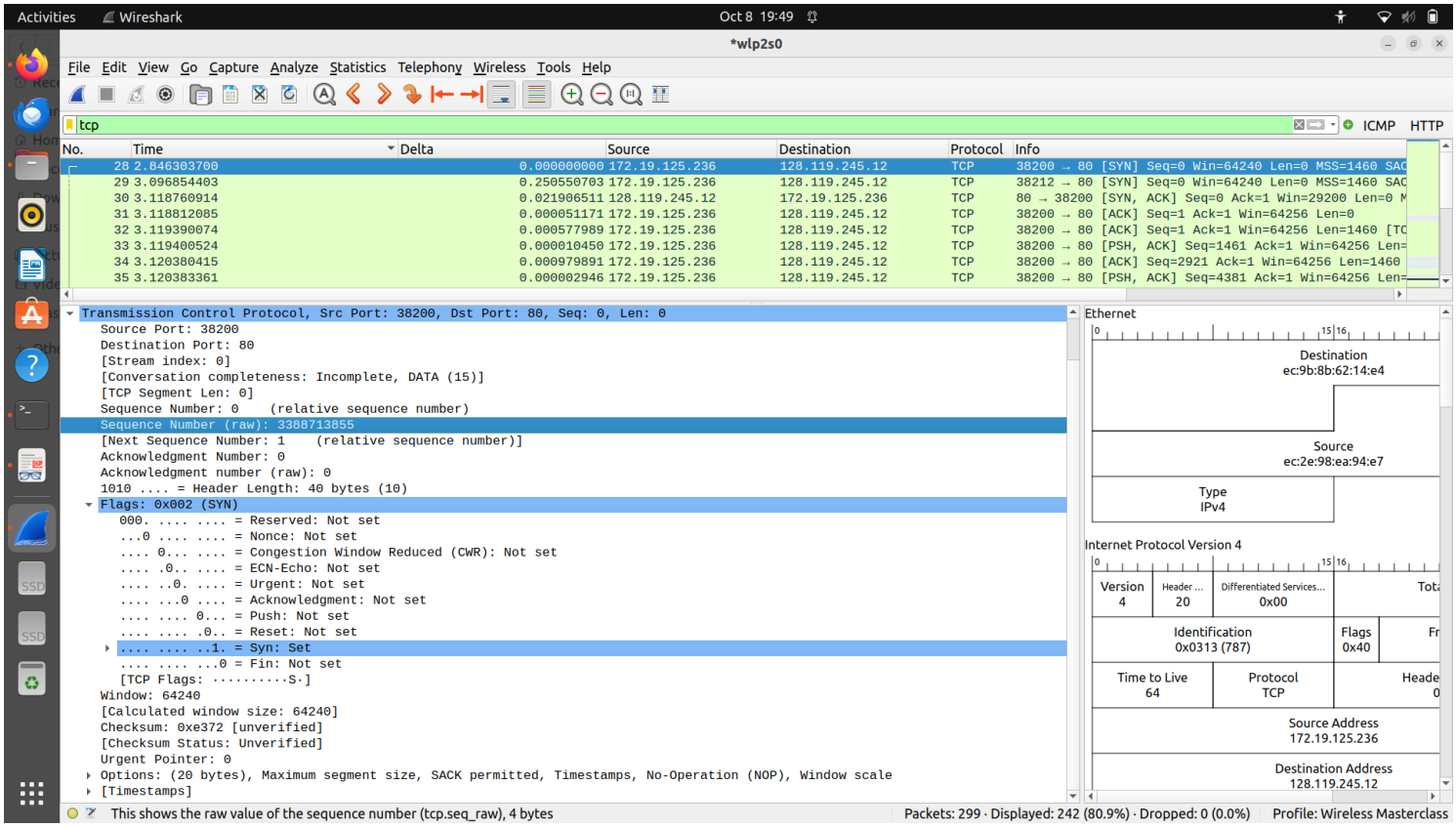
1)



1)
IP address: 172.19.125.236
Source Port: 38200

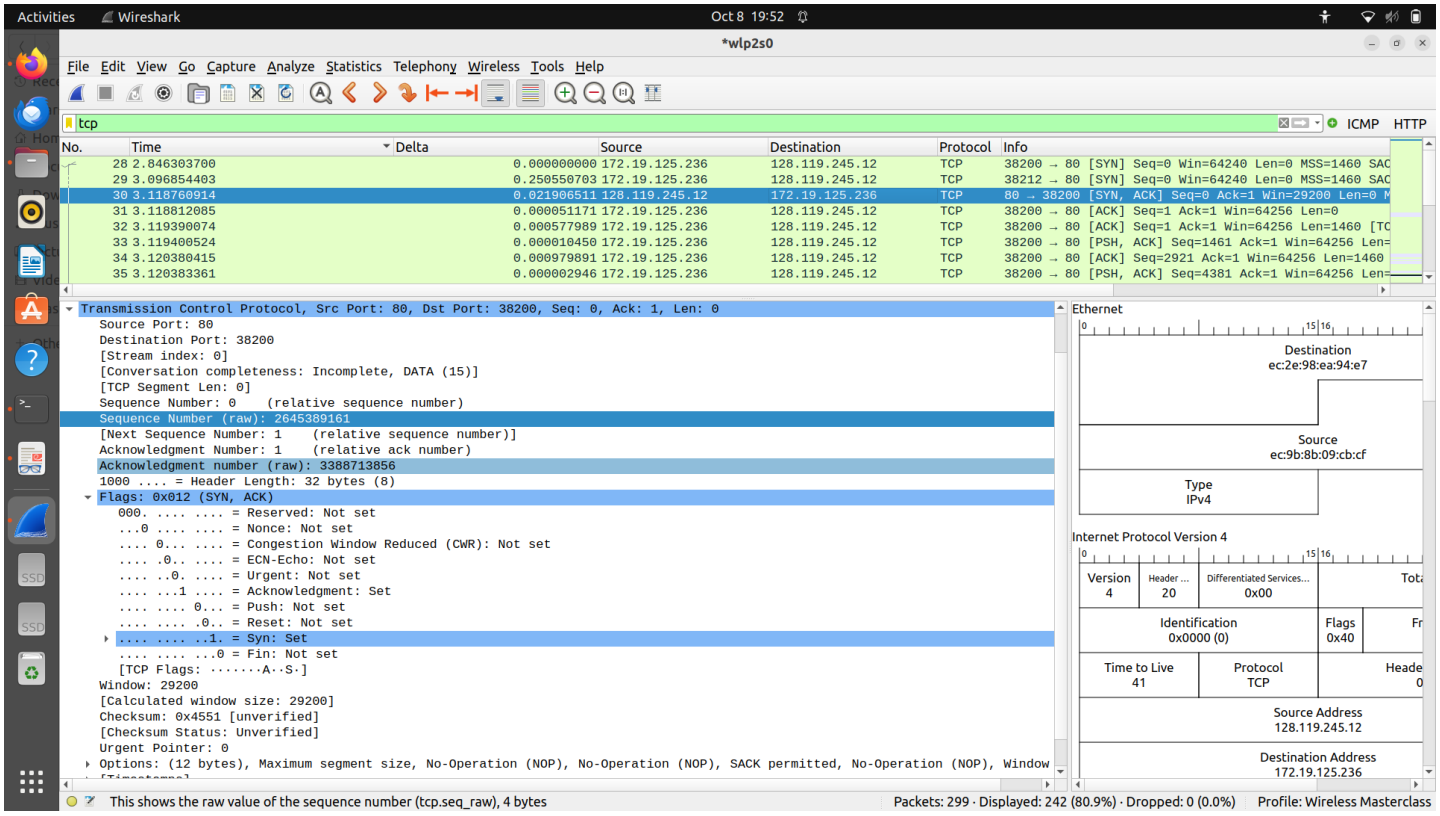
2)IP address:128.119.245.12
Source Port: 80

3)



Seq no: 3388713855

4)

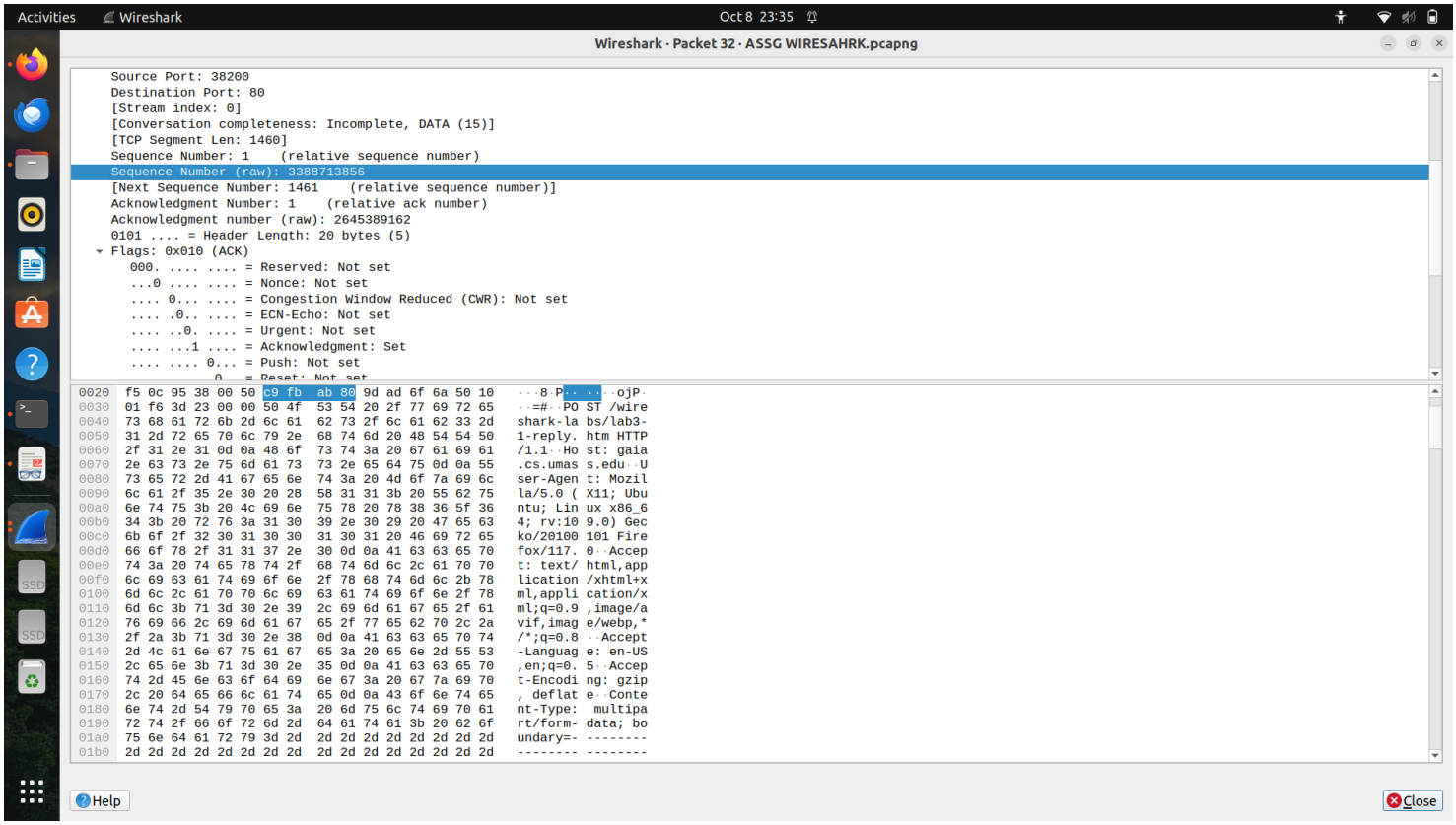


Sequence no(raw): 2645389161

Acknowledgement no. : 3388713856

See the flags, there Syn is “1” and Acknowledgement is “1”. This indicates that the packet is SYN ACK packet.

5)

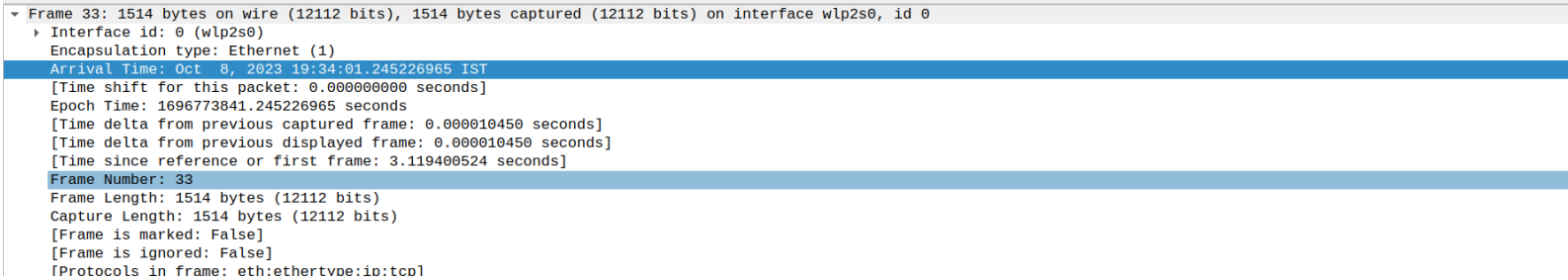


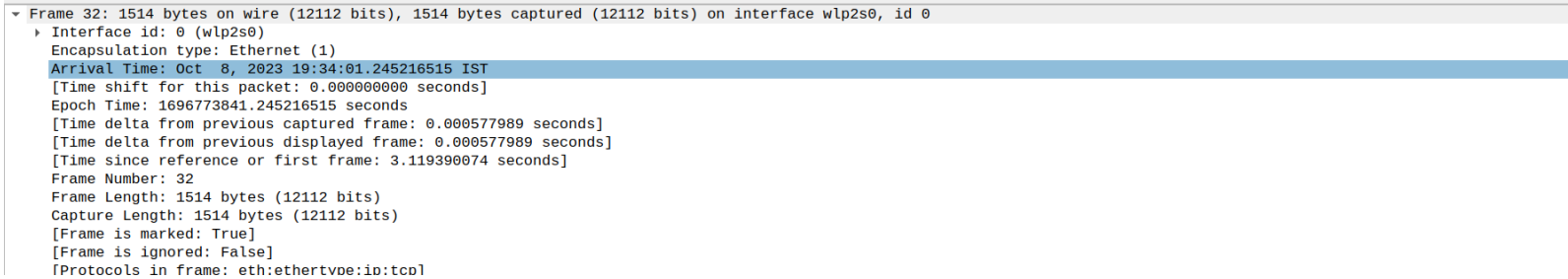
Sequence number(raw): 3388713856

Payload: Tcp payload = 1460 bytes

No, data is divided into multiple segments

6)





Arrival Time: Oct 8, 2023 19:34:01.245216515 IST

Ack receive time: Oct 8, 2023 19:34:01.245226965 IST

RTT for 1st packet : | 245226965 - 245216515 |

=.245210450 ms

RTT for second packet: 19:34:01.245228112 - 19:34:01.245226965

= .2452241147 ms

Estimated RTT:

EstimatedRTT = (1 – α) * EstimatedRTT + α * SampleRTT
= (1-0.125) * .2452241147 + 0.125 * .245210450 ms
= 0.21457110036 + 0.03065130625
= 0.24522240661 seconds

7)

32	3.119390074	172.19.125.236	128.119.245.12	TCP	1514
33	3.119400524	172.19.125.236	128.119.245.12	TCP	1514
34	3.120380415	172.19.125.236	128.119.245.12	TCP	1514
35	3.120383361	172.19.125.236	128.119.245.12	TCP	1514
36	3.121302401	172.19.125.236	128.119.245.12	TCP	1514
37	3.121304305	172.19.125.236	128.119.245.12	TCP	1514
38	3.122232805	172.19.125.236	128.119.245.12	TCP	1514

Length of the first four TCP segments is 1460 +20 Bytes

1480 Bytes
(header + payload)

8)

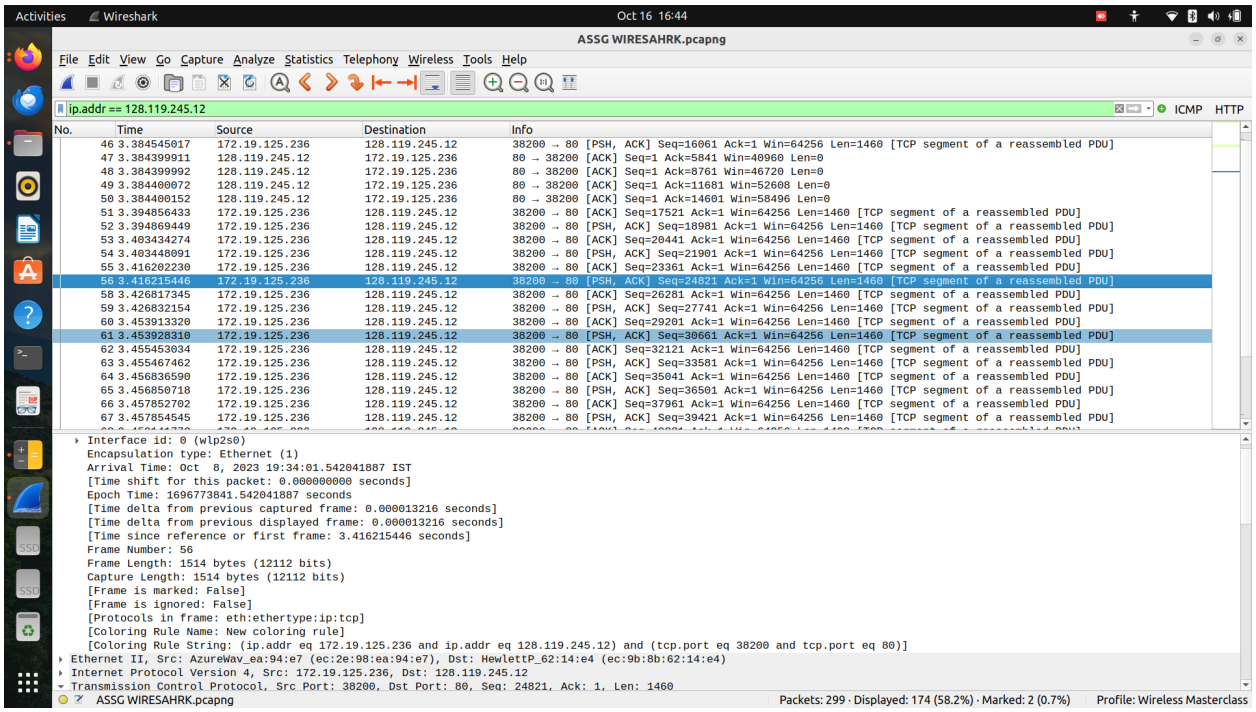
Apply a display filter ... <Ctrl-/> ICMP

No.	Time	Source	Destination	Info
28	2.846303700	172.19.125.236	128.119.245.12	38200 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 SACK_PERM=1 TSval=3299605096 TSecr=0 WS=128
29	3.096854403	172.19.125.236	128.119.245.12	38212 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 SACK_PERM=1 TSval=3299605347 TSecr=0 WS=128
30	3.118760914	128.119.245.12	172.19.125.236	80 → 38200 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1460 SACK_PERM=1 WS=128
31	3.118812085	172.19.125.236	128.119.245.12	38200 → 80 [ACK] Seq=1 Ack=1 Win=64256 Len=0
32	3.119390074	172.19.125.236	128.119.245.12	38200 → 80 [ACK] Seq=1 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
33	3.119400524	172.19.125.236	128.119.245.12	38200 → 80 [PSH, ACK] Seq=1461 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
34	3.120380415	172.19.125.236	128.119.245.12	38200 → 80 [ACK] Seq=2921 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
35	3.120383361	172.19.125.236	128.119.245.12	38200 → 80 [PSH, ACK] Seq=4381 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
36	3.121302401	172.19.125.236	128.119.245.12	38200 → 80 [ACK] Seq=5841 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
37	3.121304305	172.19.125.236	128.119.245.12	38200 → 80 [PSH, ACK] Seq=7301 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
38	3.122232805	172.19.125.236	128.119.245.12	38200 → 80 [ACK] Seq=8761 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
39	3.122235039	172.19.125.236	128.119.245.12	38200 → 80 [PSH, ACK] Seq=10221 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
40	3.123193888	172.19.125.236	128.119.245.12	38200 → 80 [ACK] Seq=11681 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
41	3.123196243	172.19.125.236	128.119.245.12	38200 → 80 [PSH, ACK] Seq=13141 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
42	3.384399280	128.119.245.12	172.19.125.236	80 → 38212 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1460 SACK_PERM=1 WS=128
43	3.384501481	172.19.125.236	128.119.245.12	38212 → 80 [ACK] Seq=1 Ack=1 Win=64256 Len=0
44	3.384399831	128.119.245.12	172.19.125.236	80 → 38200 [ACK] Seq=1 Ack=2921 Win=35072 Len=0
45	3.384541951	172.19.125.236	128.119.245.12	38200 → 80 [ACK] Seq=14601 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
46	3.384545017	172.19.125.236	128.119.245.12	38200 → 80 [PSH, ACK] Seq=16061 Ack=1 Win=64256 Len=1460 [TCP segment of a reassembled PDU]
47	3.384399911	128.119.245.12	172.19.125.236	80 → 38200 [ACK] Seq=1 Ack=5841 Win=40960 Len=0
48	3.384399992	128.119.245.12	172.19.125.236	80 → 38200 [ACK] Seq=1 Ack=8761 Win=46720 Len=0

Minimum window size advertised by receiver : 29200 B

No there is no throttle because we never sent more data than the available window size at the receiver side.

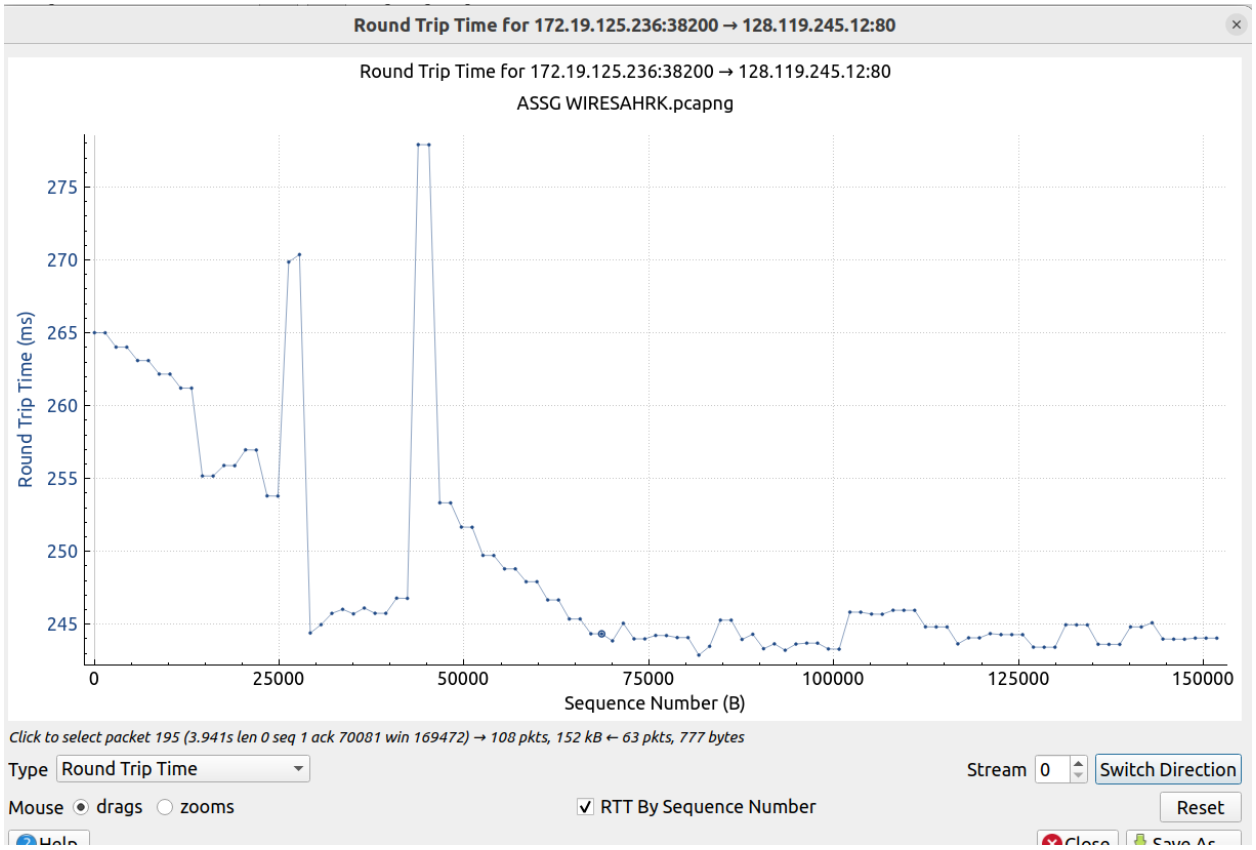
9)



It is 64256 B for data carrying segments. It is the same throughout the communication.

Q10) No there are no retransmissions as we can see using Round Trip Graph

If there were back lines as same sequence number would have been visited again then there are re-transmissions



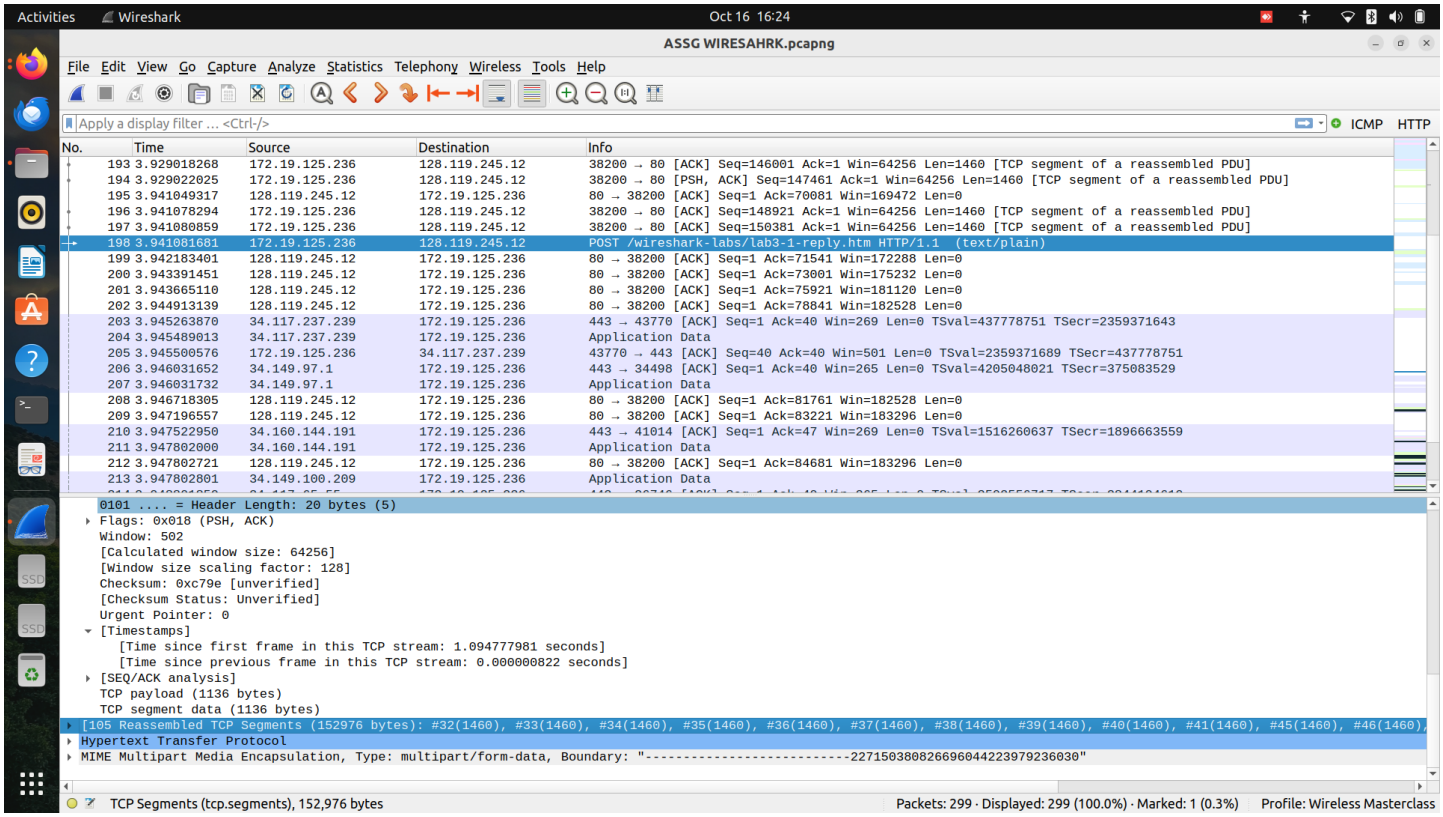
11)

	Ack Seq number	Acknowledged data
Ack 1	1	1460 Bytes
Ack 2	-	1460 Bytes
Ack 3	2921	1460 Bytes
Ack 4	-	1460 Bytes
Ack 5	5841	1460 Bytes
Ack 6	7301	1460 Bytes
Ack7	8761	1460 Bytes
Ack 8	-	1460 Bytes
Ack 9	11681	1460 Bytes
Ack 10		1460 Bytes

Yes there are cases when their is cumulative acknowledgement. For ack 2, there is cum ack, similarly for ack 4 and ack 8, there is cum acknowledgement.

Segment size is 1460 B in all the packets.

12)



First segment sent time:

Arrival Time: Oct 8, 2023 19:34:01.245216515 IST

Last segment ack time:

Arrival Time: Oct 8, 2023 19:34:02.066908124 IST

Total time taken = Last segment ack time - First segment sent time

02.066908124- 01.245216515 = 0.821691609 seconds

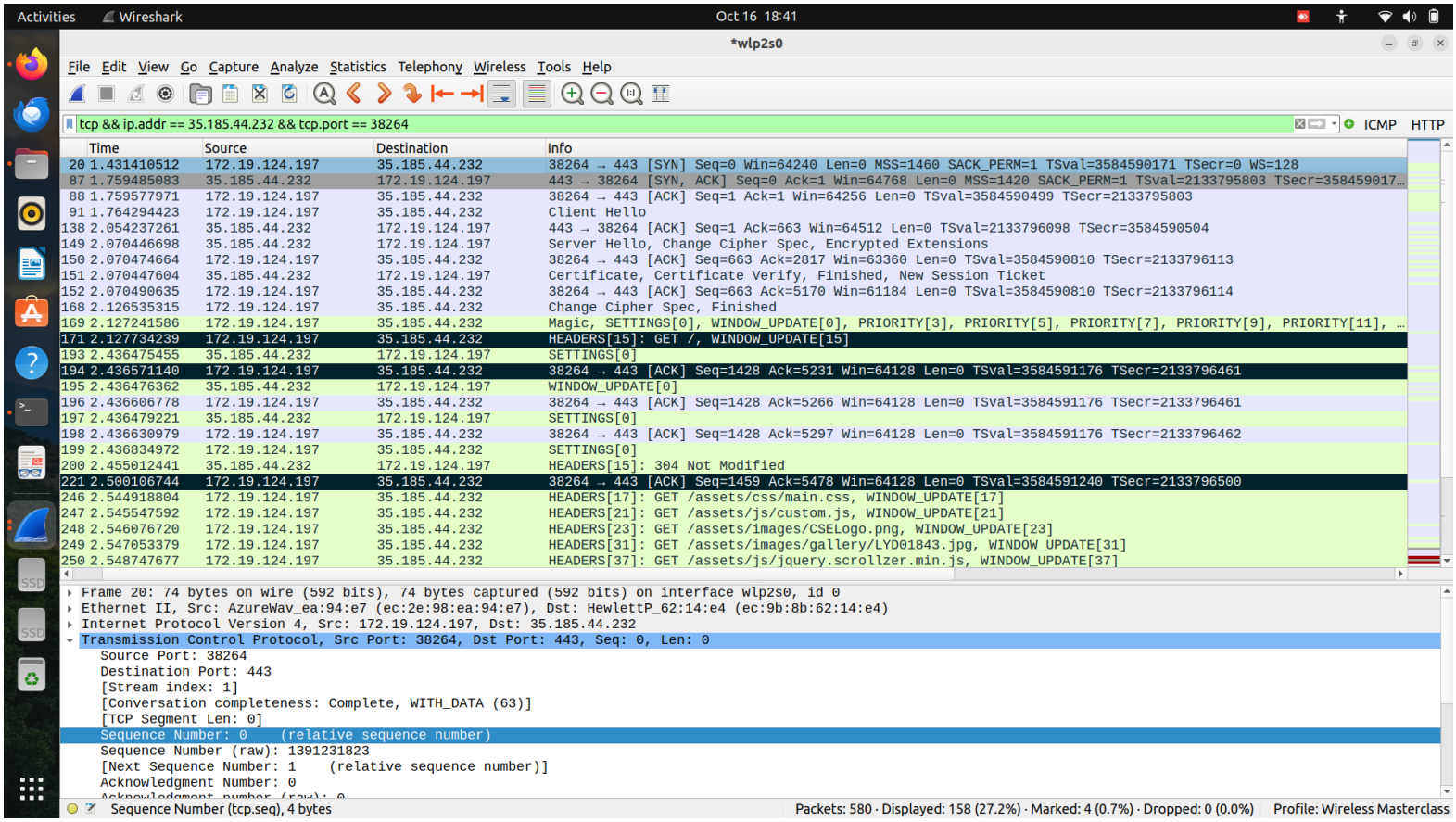
Throughput = total data sent / Total time taken

= 152976B / 0.821691609 seconds
=186172.036229227 B / sec

= 186 KB/sec

Part B -

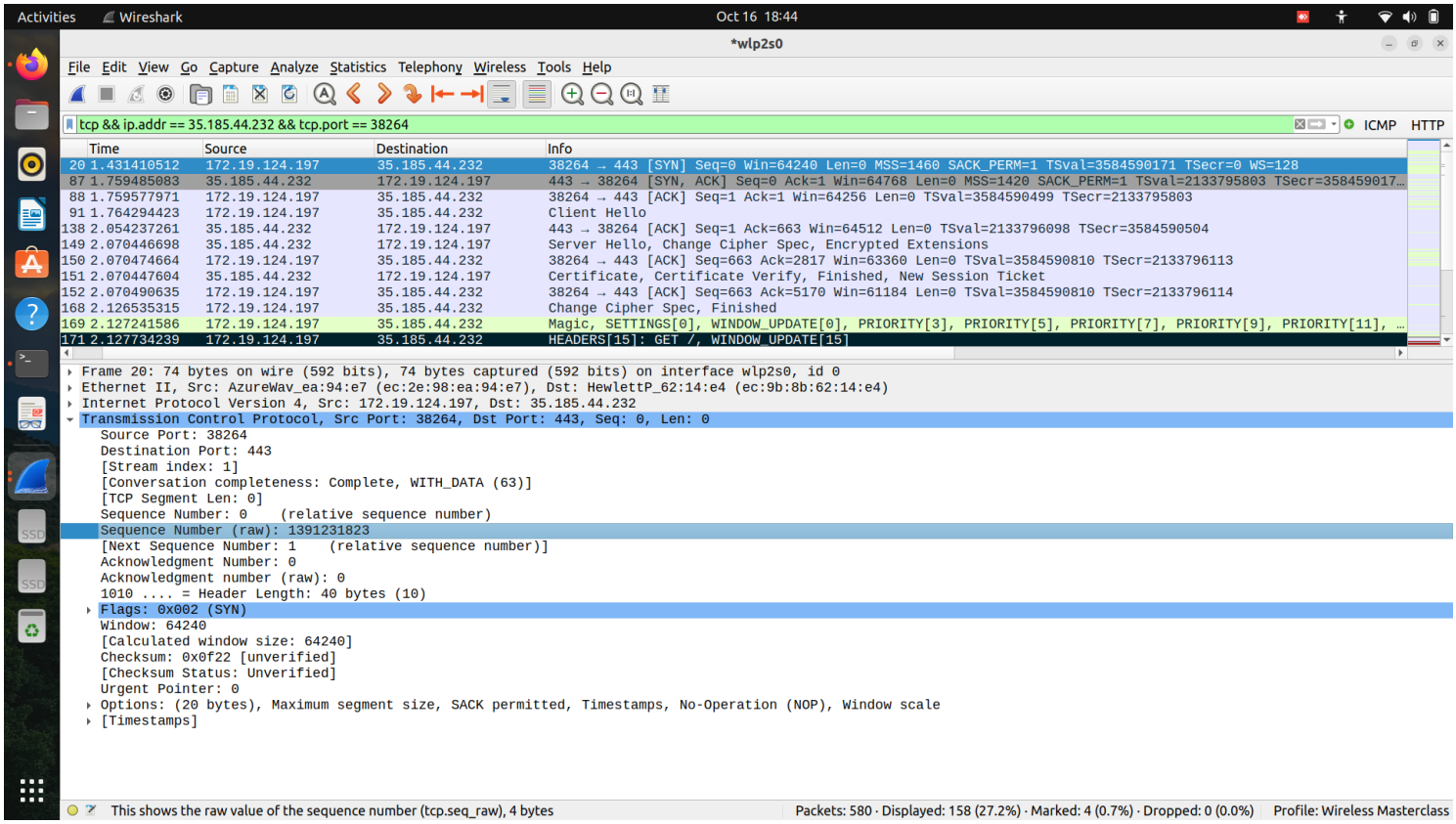
1)



Q1 and Q2)

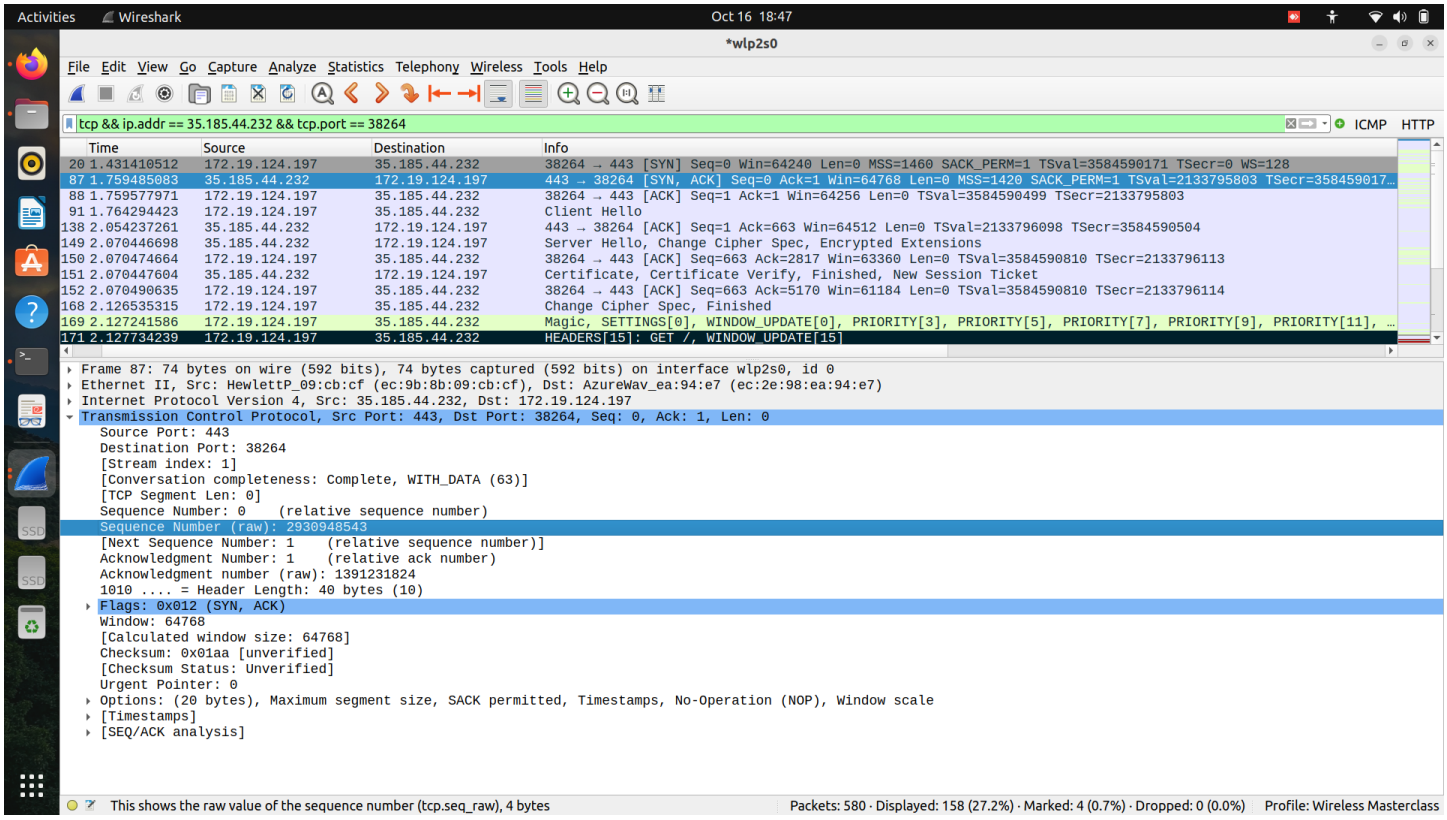
Source Port: 38264
Destination Port: 443
Source Address: 172.19.124.197
Destination Address: 35.185.44.232

Q3)



Sequence Number (raw): 1391231823

Q4)

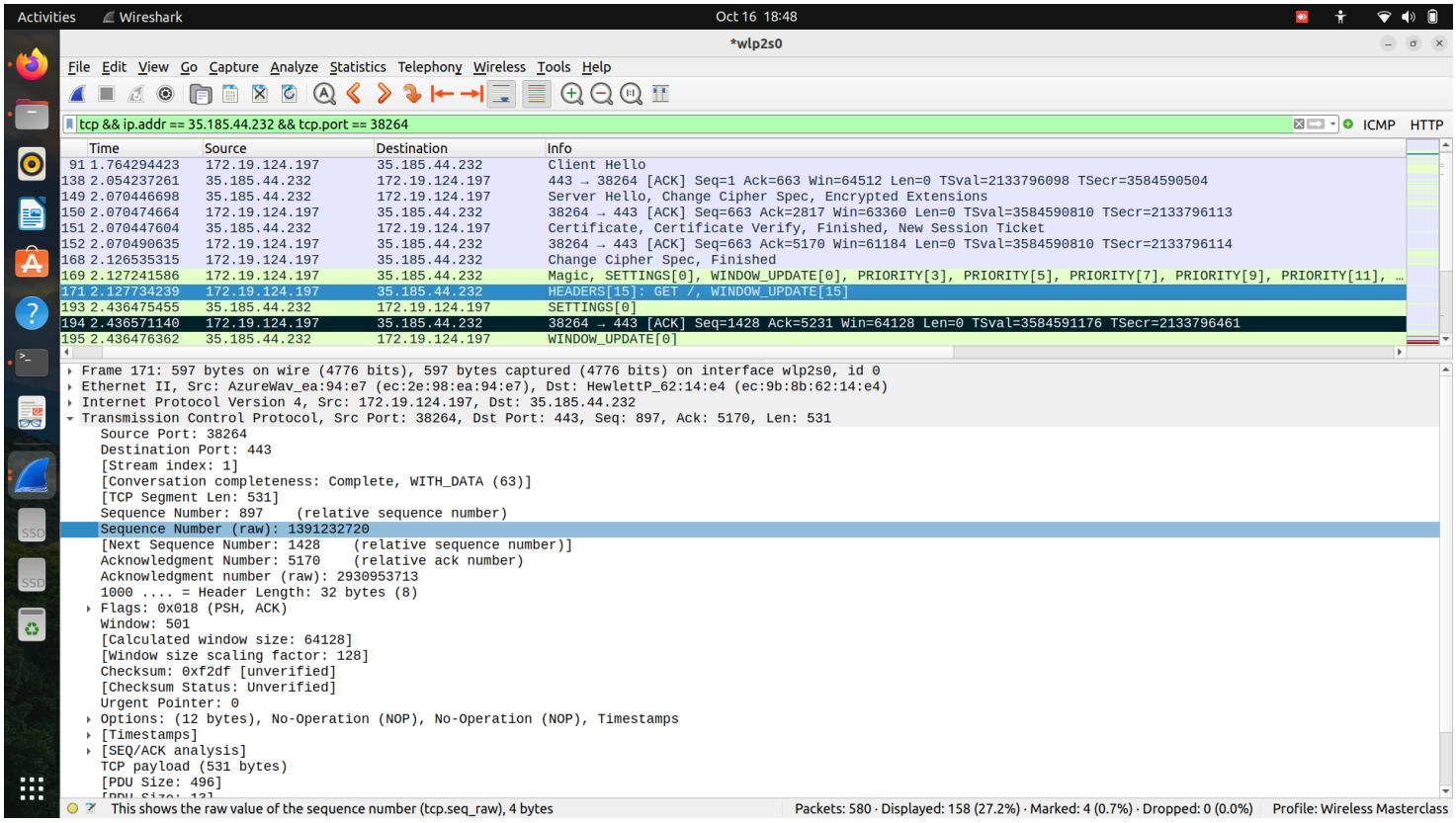


Sequence Number (raw): 2930948543

Acknowledgment number (raw): 1391231824

See the flags, there Syn is “1” and Acknowledgement is “1”. This indicates that the packet is SYN ACK packet.

Q5)

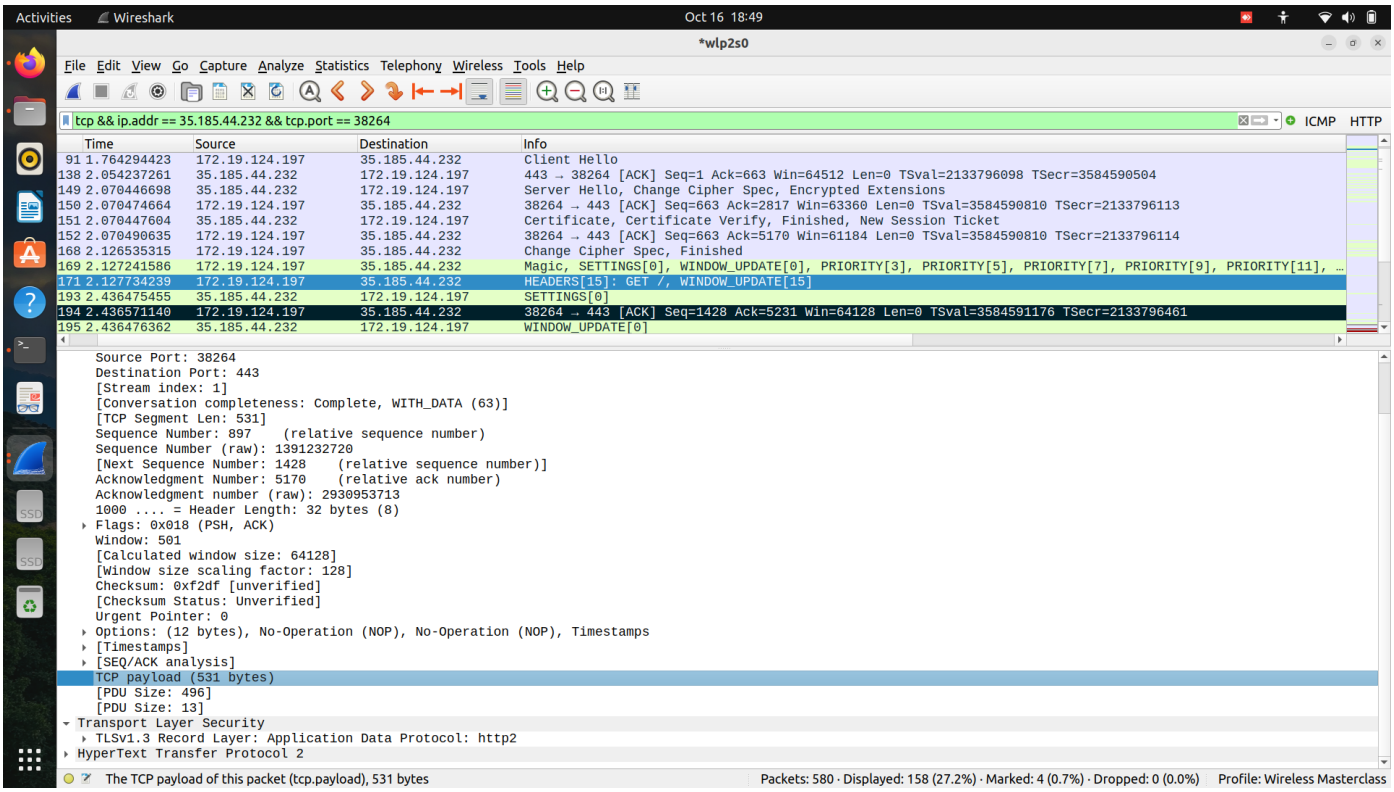


Sequence number of the packet containing GET request:

Sequence Number (raw): 1391232720

This was a get request so all the data was transferred in a a single request

Q6)



TCP payload (531 bytes)

Time at which the GET was sent.
Arrival Time: Oct 16, 2023 18:06:36.276286698 IST

Ack is received at

Arrival Time: Oct 16, 2023 18:06:36.585028821 IST

RTT = 18:06:36.585028821 - 18:06:36.276286698
= 18:06:36.308742123

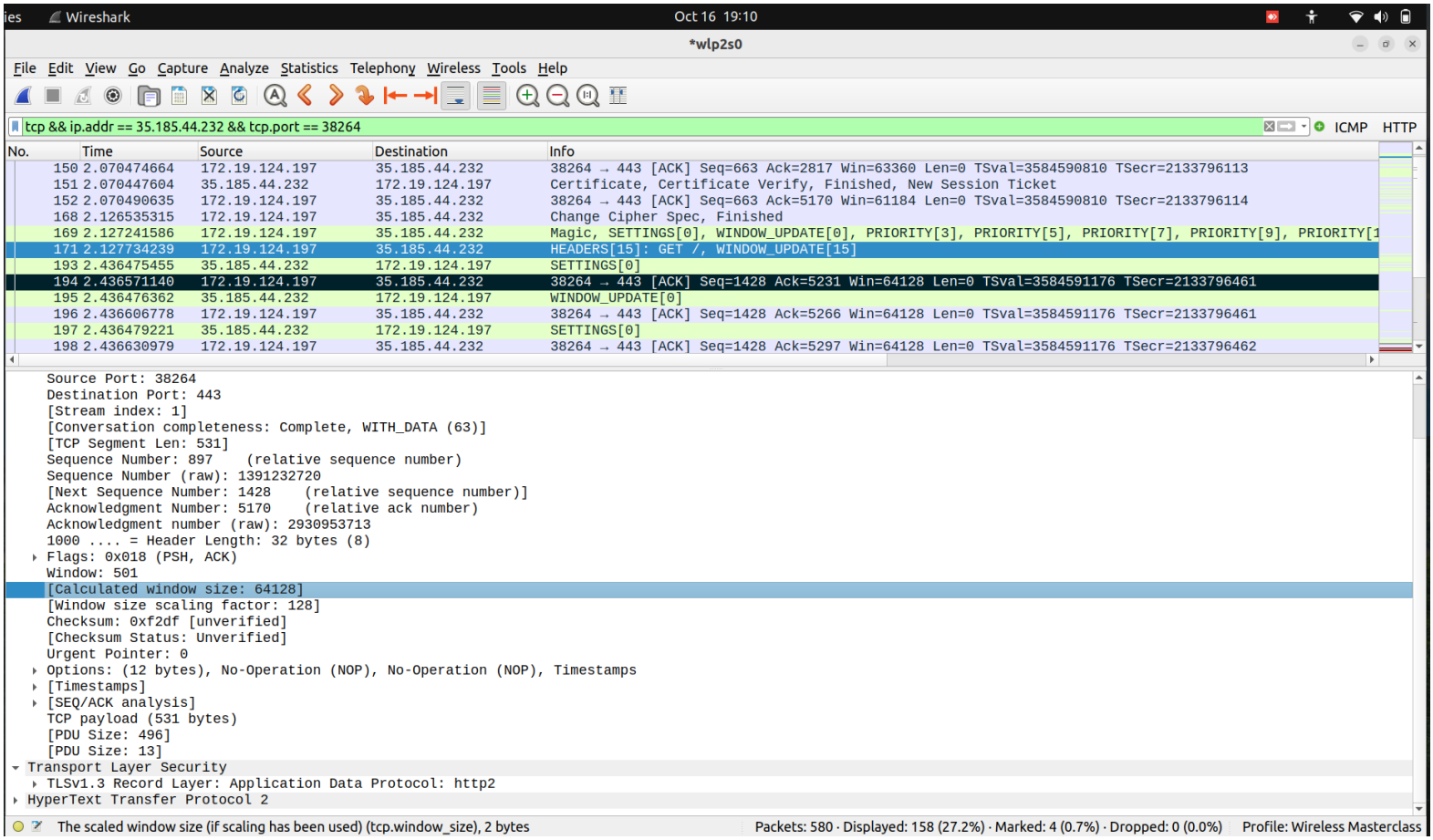
Estimated RTT:

EstimatedRTT = (1 – α) * EstimatedRTT + α * SampleRTT
= (1-0.125) * .585028821 + 0.125 * .276286698 ms
= .0.51190021837 + 0.03453583725
= 0.54643605562 seconds

Q7)

segment 1: 531 bytes
Segment 2: 142 bytes
Segment 3: 52 bytes
Segment 4: 104 bytes

Q8)

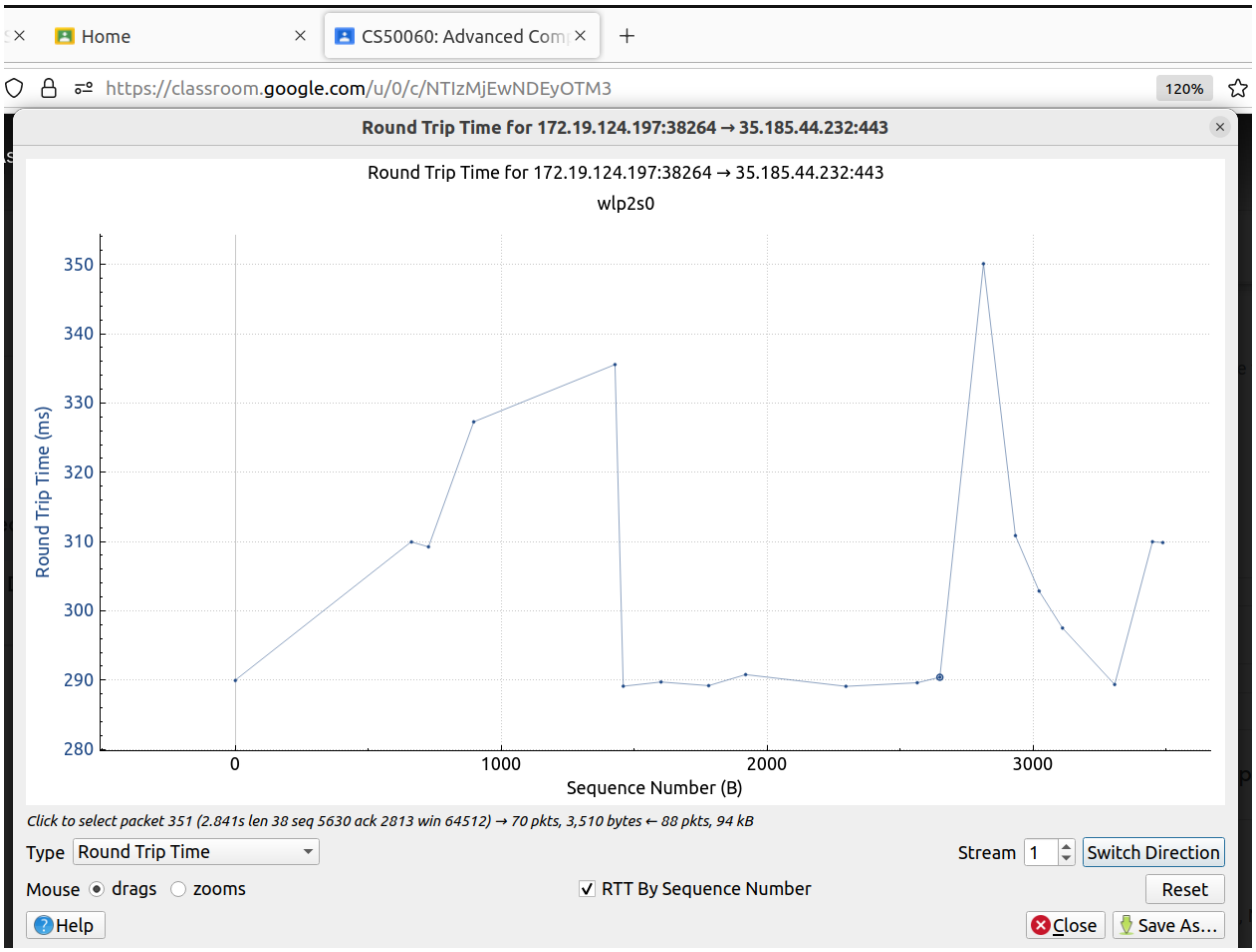


Minimum window size advertised in the 5 segments is
Window size : 64128 Bytes

Q9)Minimum window size advertised by the client
Window size : 64369 Bytes

Q10)No, there is no retransmission of the packets

We can verify them via the graph



Q11)

- **Receiver has acknowledged all the data in the first 10 segments since here we are sending GET requests.**

Q 12)

[Reassembled PDU length: 16393]

Arrival Time: Oct 16, 2023 18:06:38.223798592 IST

- **Arrival Time: Oct 16, 2023 18:06:38.223781433 IST**

  0.223798592 - 0.223781433
  0.000017159 ms

Throughput = data sent/ time taken

16393 B/ 0.000017159 ms