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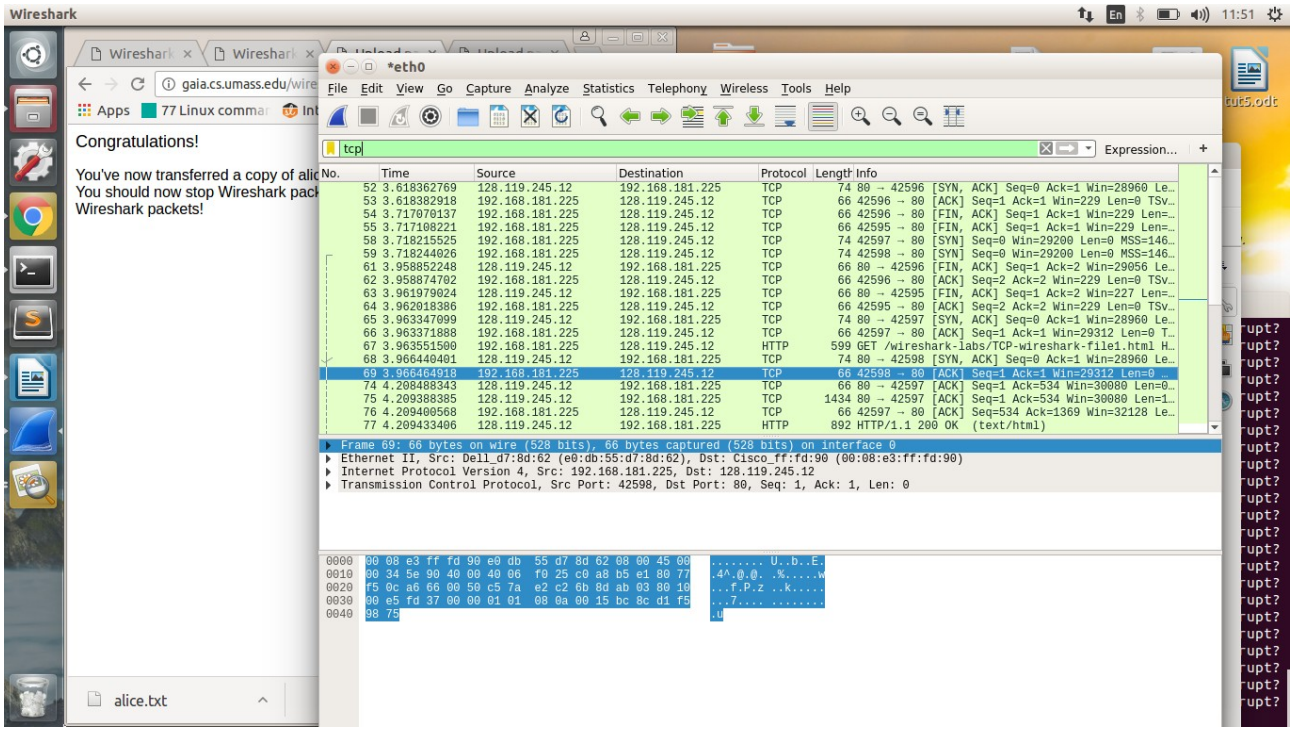
Btech. CSE 3rd Year

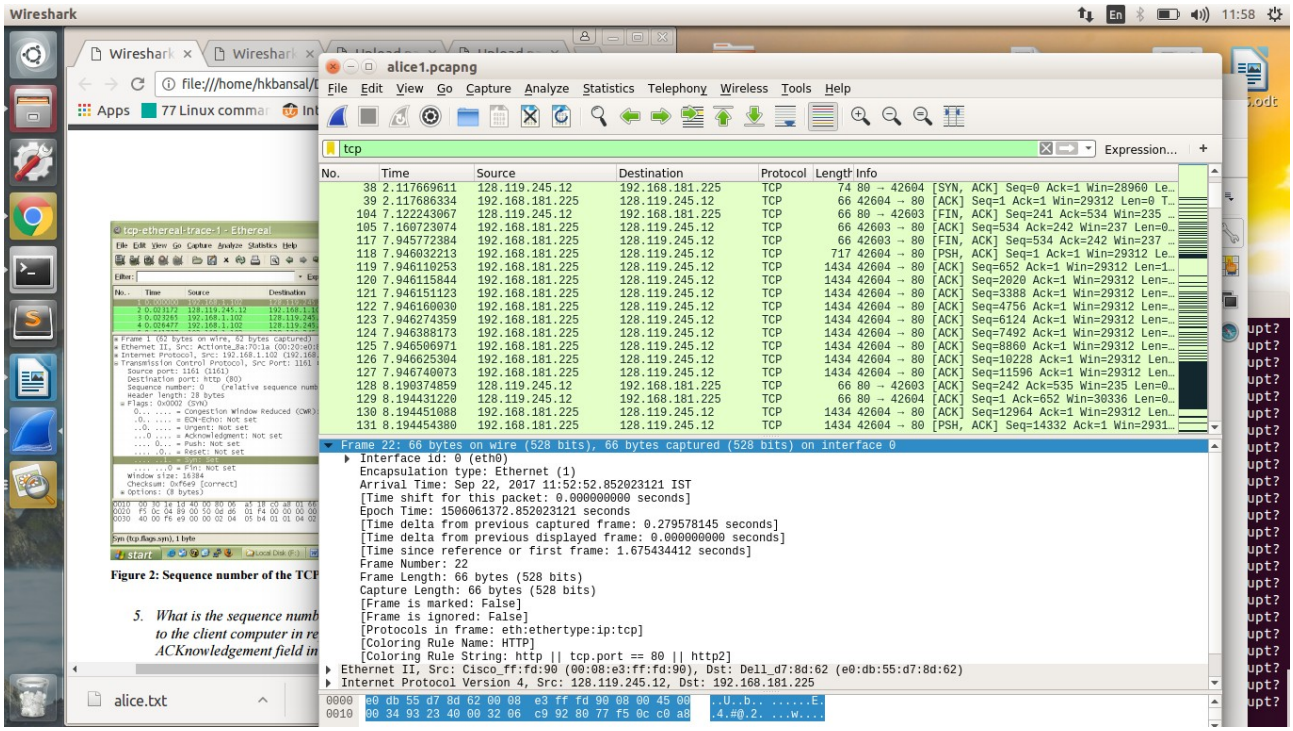
Ans1.

Source (Client)
IP Address 192.168.181.225
TCP Port 42596

Ans2. Destination (Server)
IP Address 128.119.245.12
TCP Port 80



Ans3.



Source (Client)

IP Address 192.168.181.225

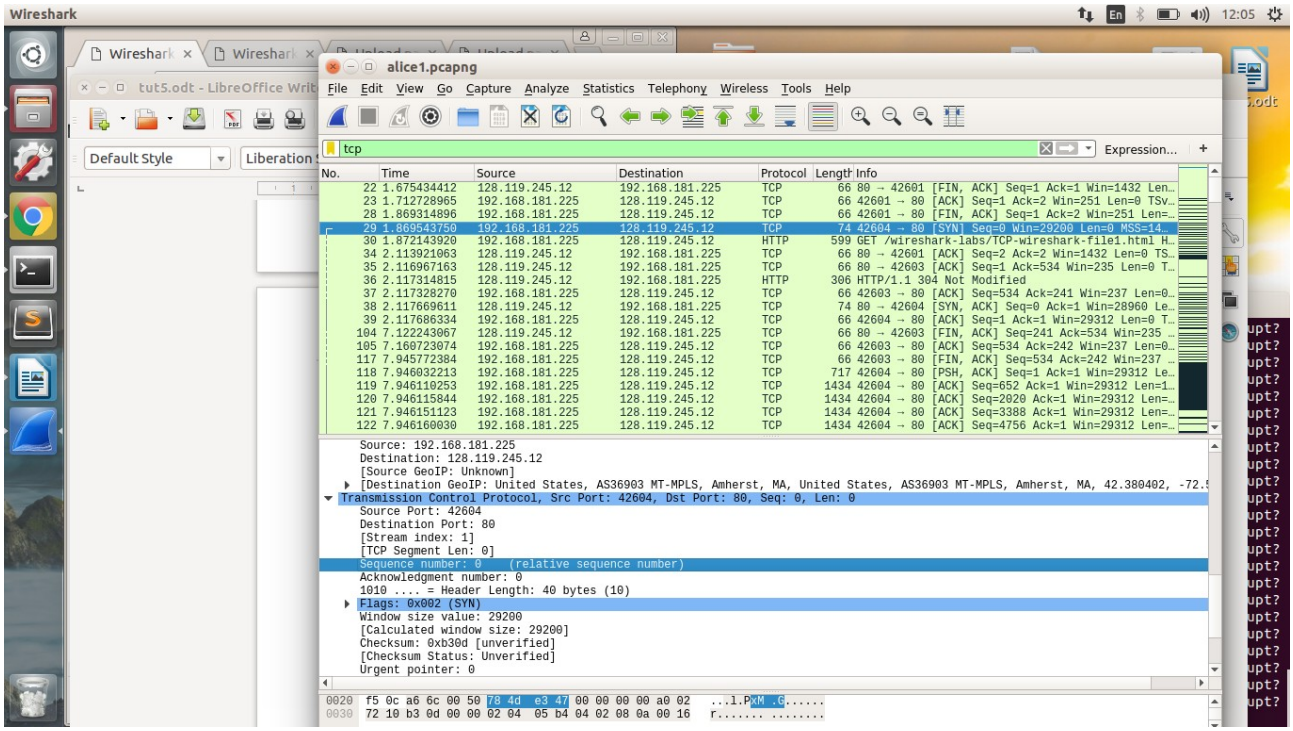
TCP Port 42604

Destination (Server)

IP Address 128.119.245.12

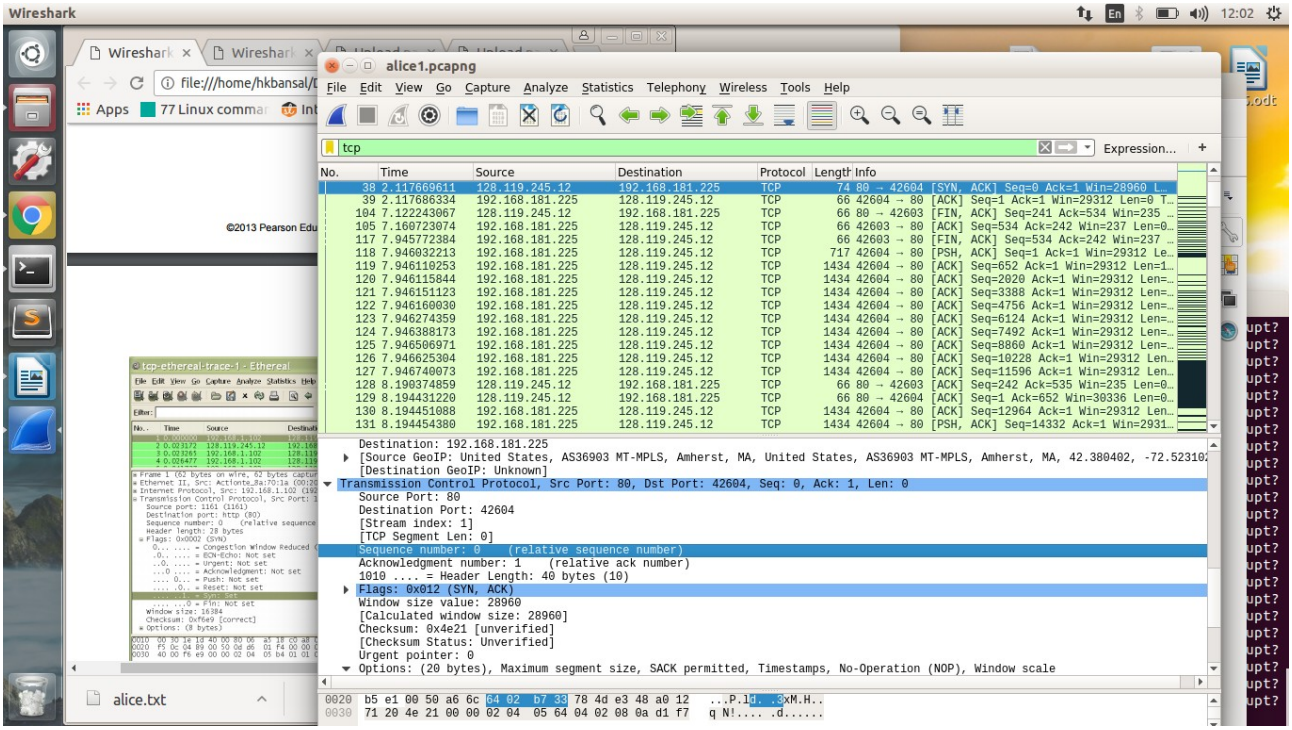
TCP Port 80

Ans4.



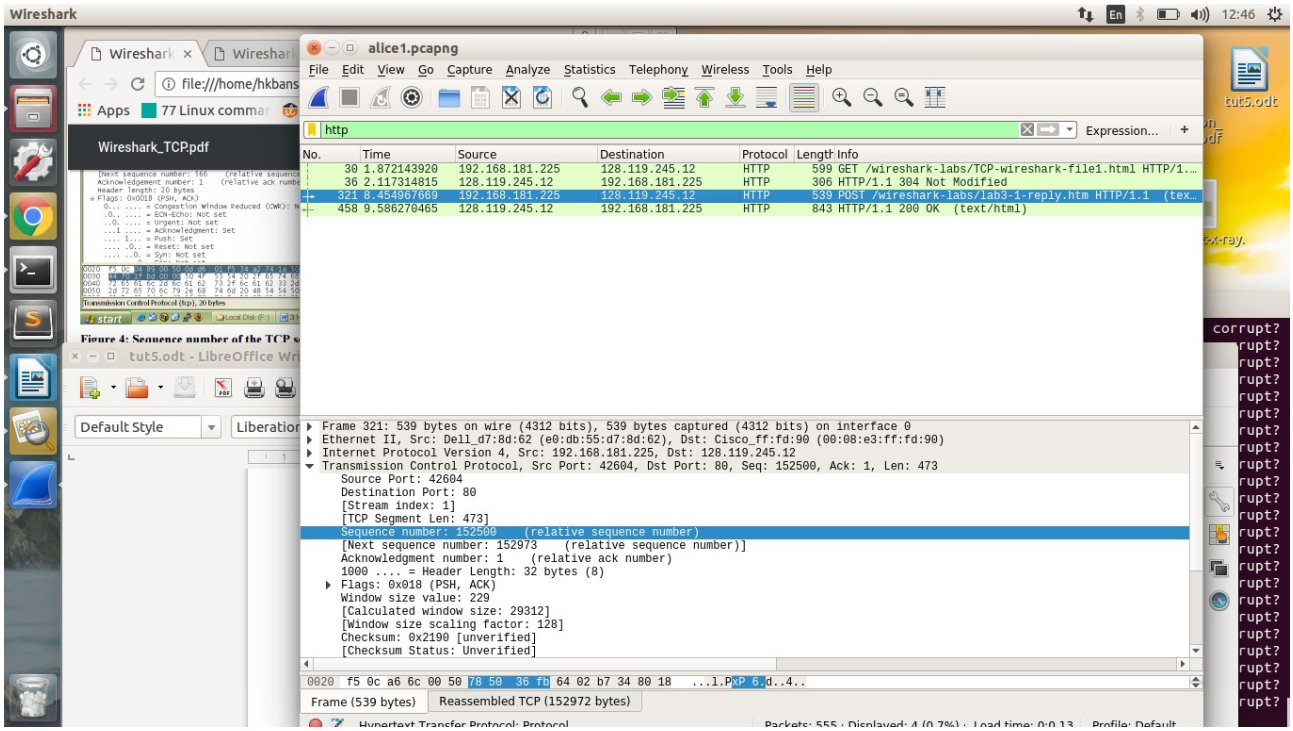
Sequence number of the TCP SYN segment is used to initiate the TCP connection between the client computer and gaia.cs.umass.edu.
The value of sequence No. is 0 in this case.

Ans5.



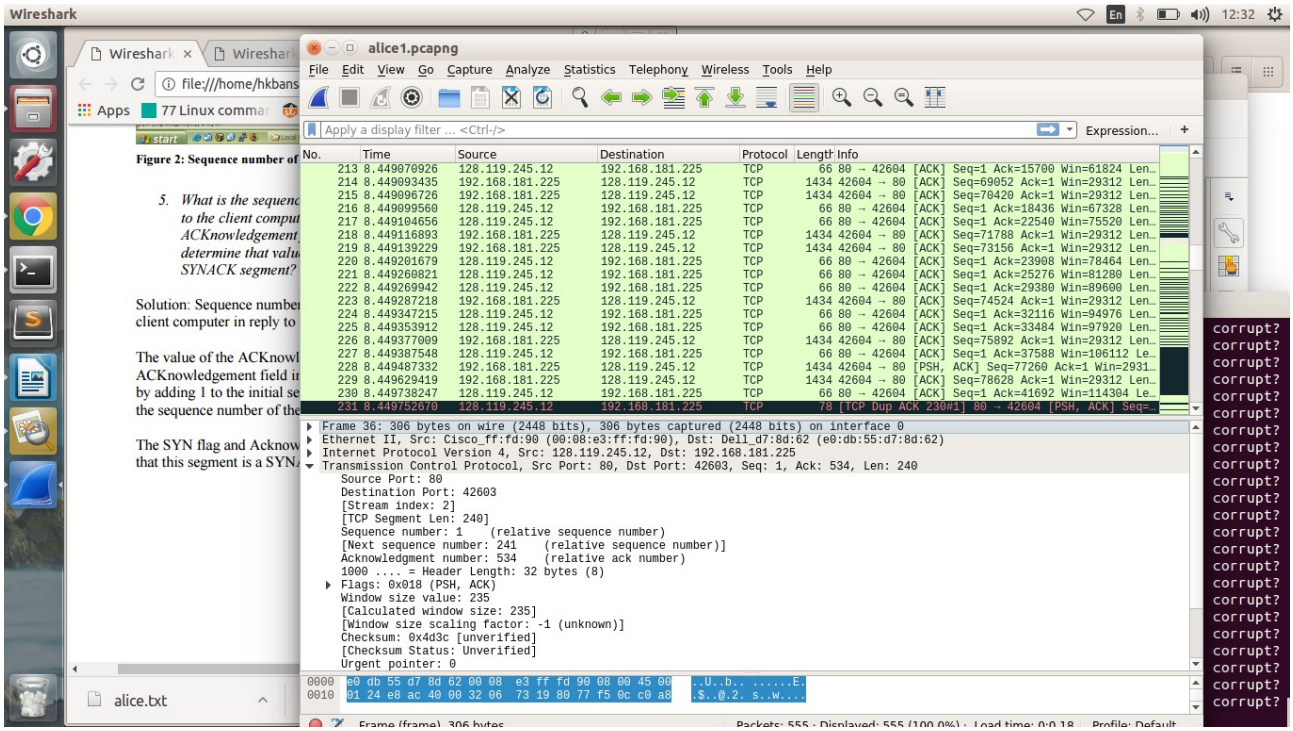
Sequence number of the SYNACK segment from gaia.cs.umass.edu to the client computer in reply to the SYN has the value of 0 in this trace. The value of the ACKnowledgement field in the SYNACK segment is 1. The value of the ACKnowledgement field in the SYNACK segment is determined by gaia.cs.umass.edu by adding 1 to the initial sequence number of SYN segment from the client computer (i.e. the sequence number of the SYN segment initiated by the client computer is 0.). The SYN flag and Acknowledgement flag in the segment are set to 1 and they indicate that this segment is a SYNACK segment.

Ans6.



No.321 segment is the TCP segment containing the HTTP GETcommand. The sequence number of this segment has the value of 151500 (relative number).

Ans7.

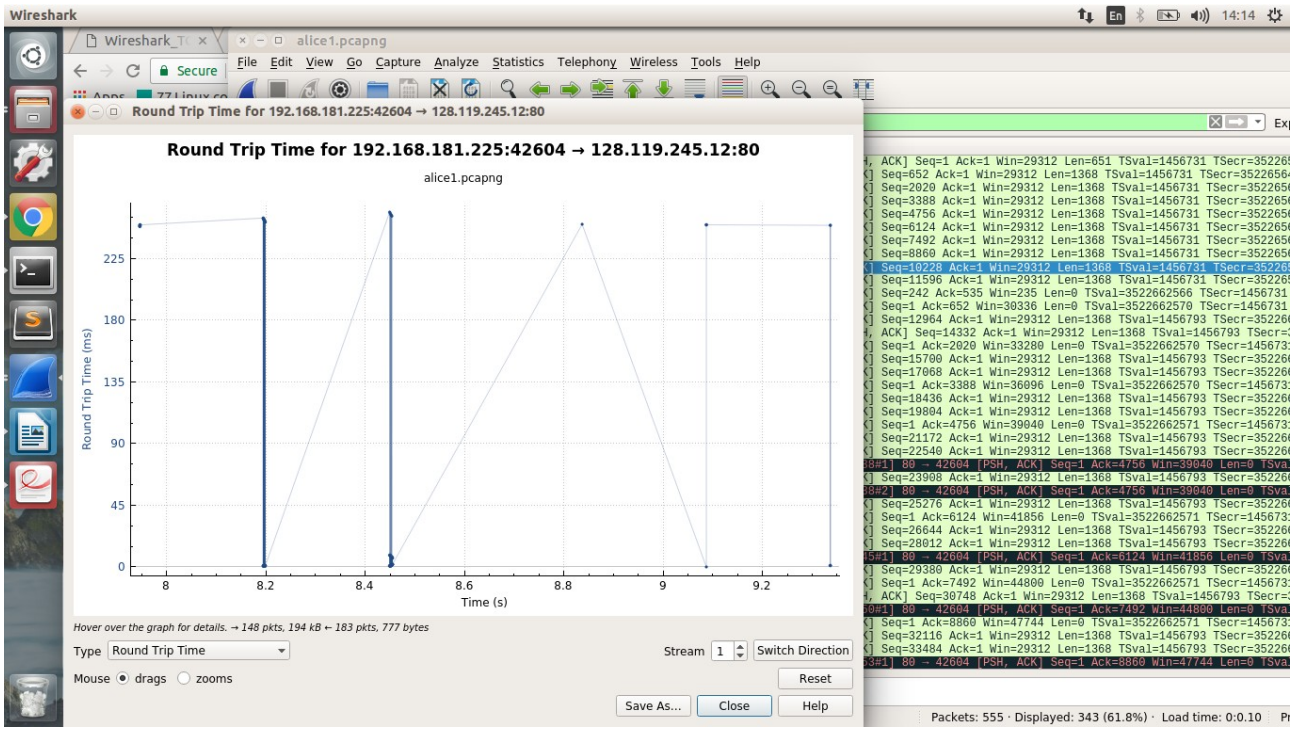


The HTTP GET segment is considered as the first segment. Segments 1 – 6 are No. 118, 119, 120,121,122 and 123 in this trace respectively.

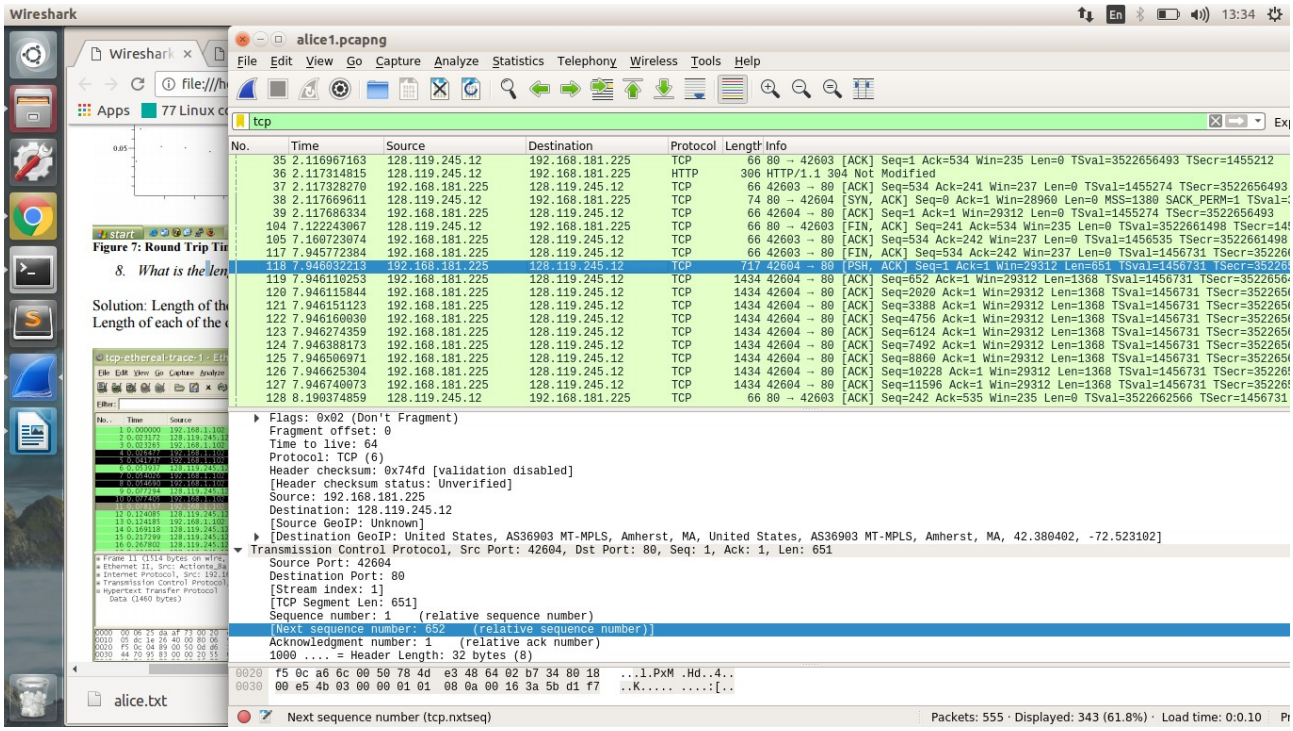
segment	sequence No.	Sent Time	Received Time	RTT
118	1	7.946032213	8.190126423	0.24409421
119	652	7.946110253	8.194431220	0.248320967
120	2020	7.946115844	8.194677389	0.248561545
121	3388	7.946151123	8.197694046	0.251542923
122	4756	7.946160030	8.195043270	0.24888324
123	6124	7.946274359	8.195336255	0.249061896

EstimatedRTT = 0.875 * EstimatedRTT + 0.125 * SampleRTT

RTT for segment 118 = 0.24409421
RTT for segment 119 =0.244622554
RTT for segment 120 = 0.245114927
RTT for segment 121 =0.245918426
RTT for segment 122 =0.246289028
RTT for segment 123 =0.246635636

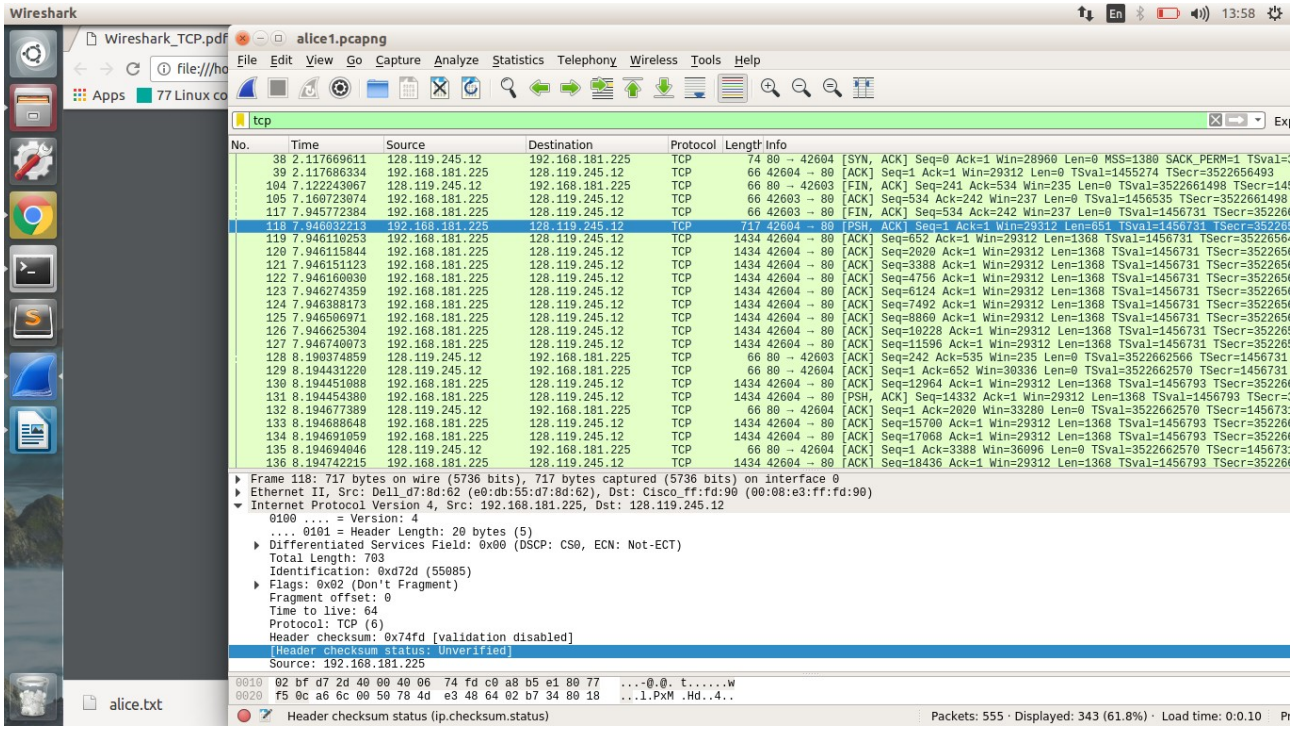

Wireshark
alice1.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Round Trip Time for 192.168.181.225:42604 → 128.119.245.12:80
Round Trip Time for 192.168.181.225:42604 → 128.119.245.12:80
alice1.pcapng
Round Trip Time (ms)
Time (s)
Hover over the graph for details. → 148 pkts, 194 kB ← 183 pkts, 777 bytes
Type Round Trip Time
Stream 1
Switch Direction
Mouse drags zooms
Reset
Save As...
Close
Help
Packets: 555 · Displayed: 343 (61.8%) · Load time: 0:0.10

Ans8.



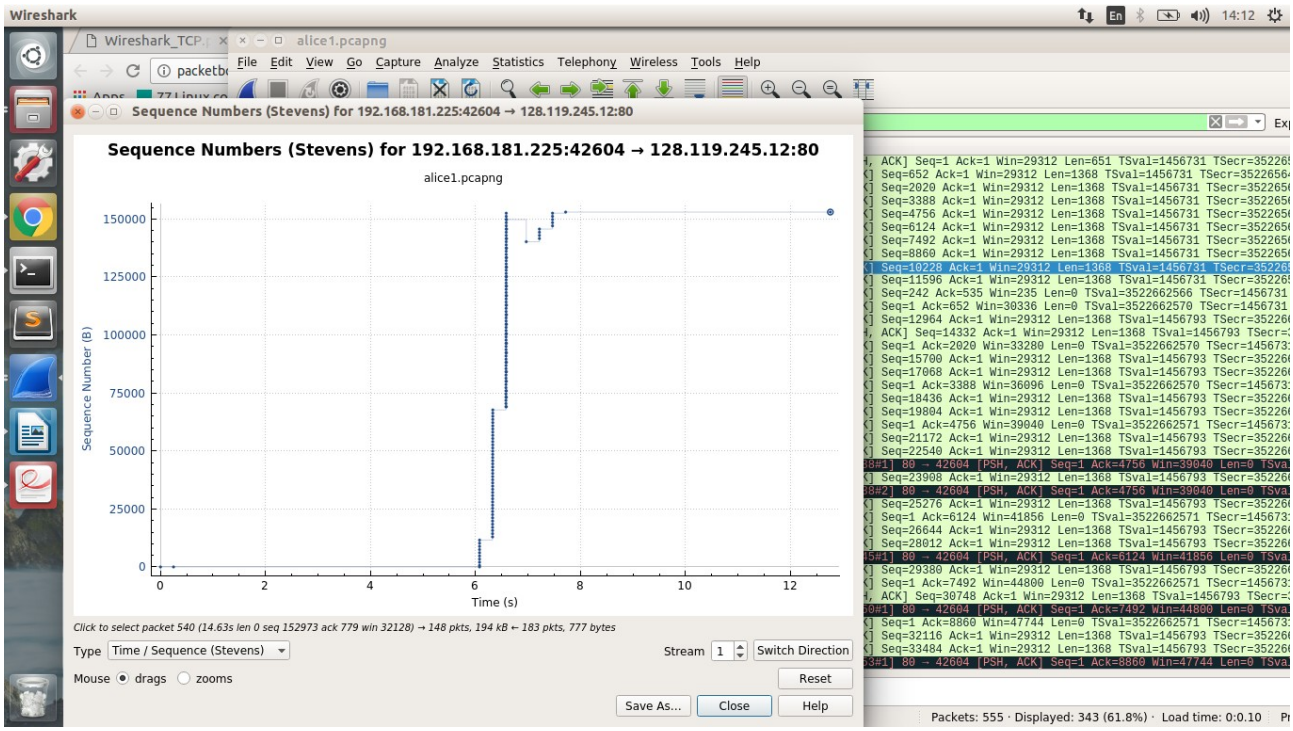
First one is of 651 bytes
And all other fives are of 1368 bytes.

Ans9.



The minimum amount of buffer space (receiver window) advertised at gaia.cs.umass.edu for the entire trace is 29312 bytes, which shows in the first acknowledgement from the server. This receiver window grows steadily until a maximum receiver buffer size of 204032 bytes. The sender is never throttled due to lacking of receiver buffer space by inspecting this trace.

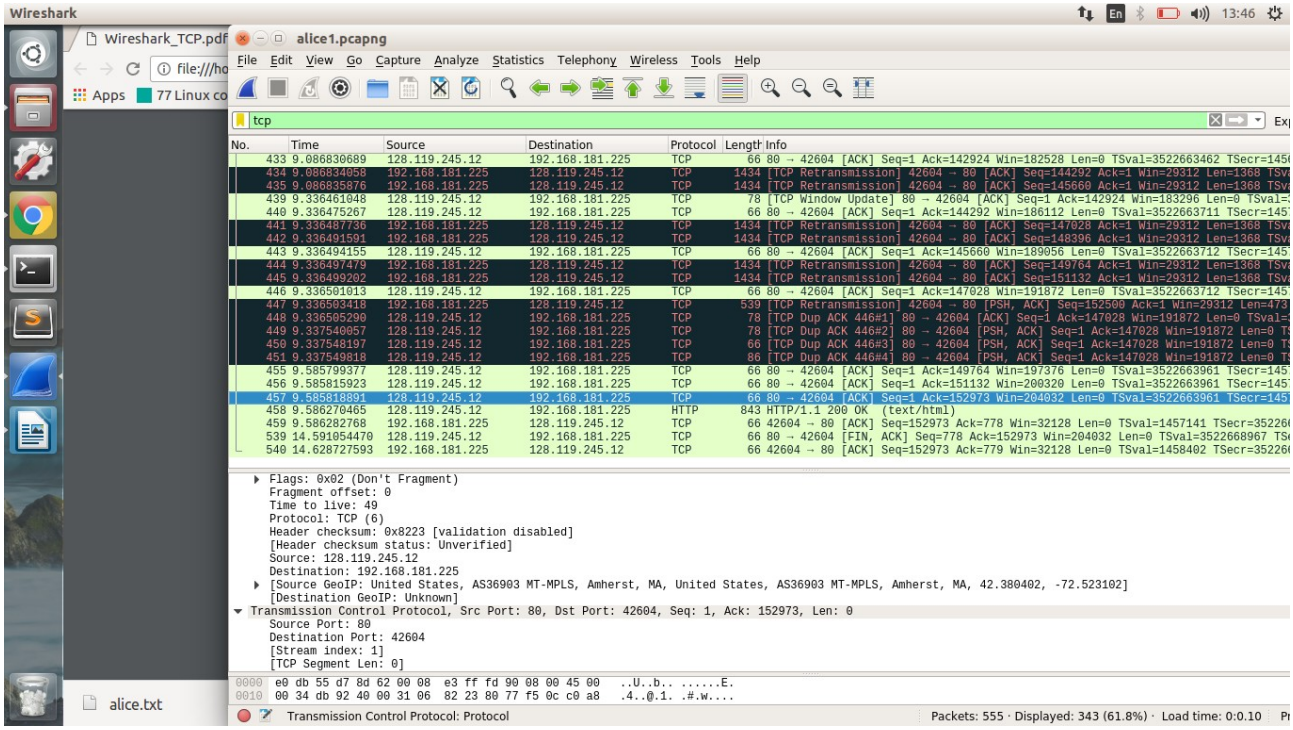
Ans10. There are no retransmitted segments in the trace file. We can verify this by checking the sequence numbers of the TCP segments in the trace file.



Ans 11.

Ack1 651 and all other rest five are of 1368 bytes

Ans12.



the sequence number of the first TCP segment (i.e. 1 byte for No. 118 segment)
the acknowledged sequence number of the last ACK (152973 bytes for No. 457 segment)
Total Bytes of data = 152973-1=152972 bytes.
Total time taken =9.585818891-7.946032213=1.639786678
Throughput = 93.2877441KBytes/second.