Assignment-2

QUESTION - 1

Solution:

Source IP address: 10.1.40.128
TCP port number: 51142

Destination IP address: 10.4.20.103 (proxy.iiit.ac.in)
TCP port number: 8080 (port of proxy)

Question – 2
Solution

According to our understanding we ping the server and got following information of its ip
Destination ip : 128.119.245.12

and its port used according to HTTP protocol must be 80.
Port : 80

Question – 3
Solution

Source IP address: 10.1.40.128
TCP port number: 51142

Due to proxy our packets go to proxy as destination which inturns sends the packet to desired destinations thus ip of proxy apperars as destination ip on packets captured by wireshark on our system

Destination IP address: 10.4.20.103 (proxy.iiit.ac.in)
TCP port number: 8080 (port of proxy)

Question – 4
Solution:

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 is 0 in this trace.
The SYN flag is set to 1 and it indicates that this segment is a SYN segment

Question-5

Solution:

We don't get from gaia.cs.umass.edu as we are under proxy thus we can only sent SYN packets to proxy whenever we make connection.
So this information is according to the syn came from proxy.
Sequence number of the SYNACK segment from “proxy.iiit.ac.in” 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 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.

Question – 6
Solution:

The sequence number of this segment has the value of 1.

Question-7
Solution:

Segment 1 sequence number: 1
Segment 2 sequence number: 559
Segment 3 sequence number: 2018
Segment 4 sequence number: 3408
Segment 5 sequence number: 4958
Segment 6 sequence number: 6362

	Sent time	**ACK recieved time**	**RTT**
Segment-1	7.376211000	7.376548000	0.000337
Segment-2	7.376271000	7.376763000	0.000492
Segment-3	7.376275000	7.377094000	0.000819
Segment-4	7.376279000	7.377134000	0.000855
Segment-5	7.376282000	7.377222000	0.00094
Segment-6	7.376284000	7.377244000	0.00096

EstimatedRTT = 0.875 * EstimatedRTT + 0.125 * SampleRTT

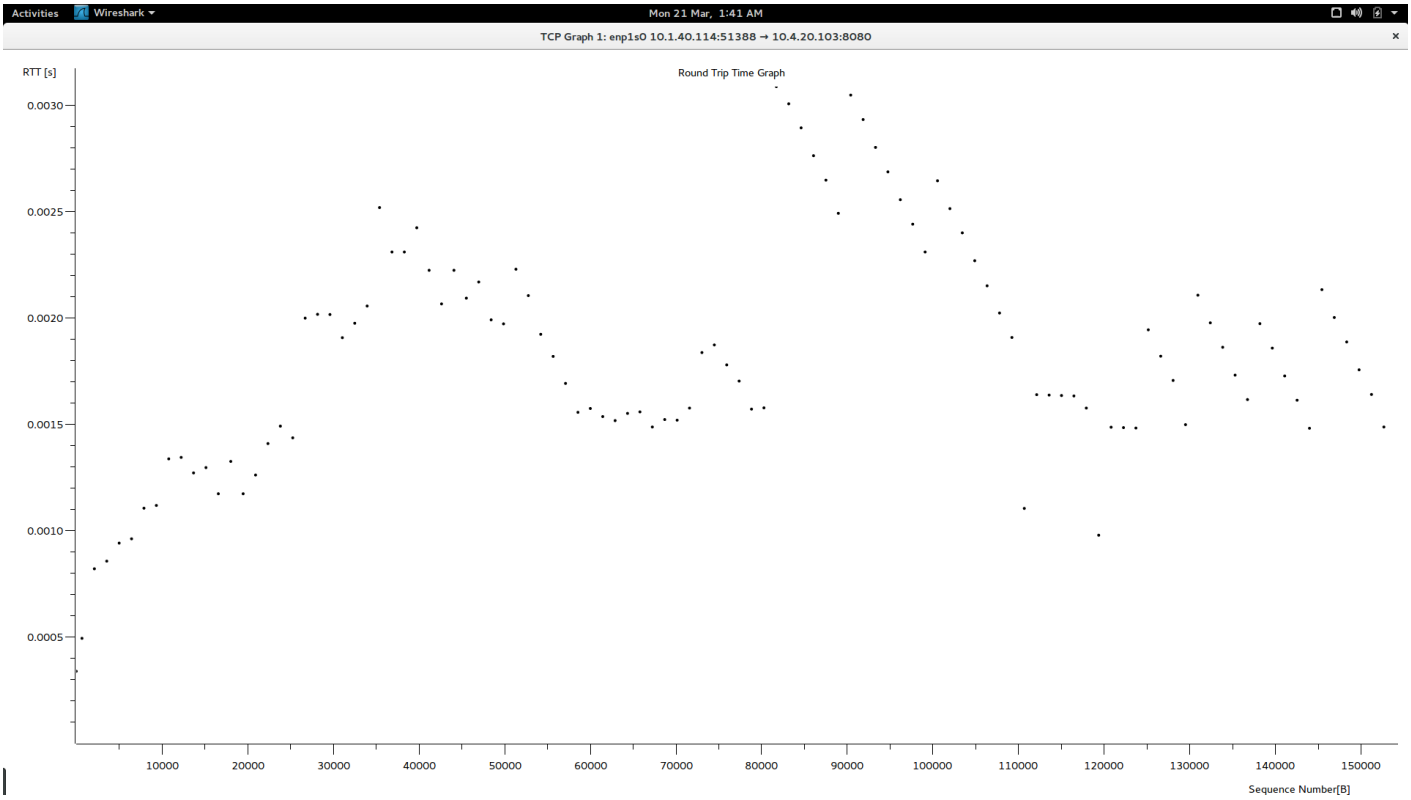
EstimatedRTT after the receipt of the ACK of segment 1:
EstimatedRTT = RTT for segment1 = 0.000337

EstimatedRTT after the receipt of the ACK of segment 2:
EstimatedRTT = 0.875 * 0.000337 + 0.125 *0.000492 = 0.000356375

EstimatedRTT after the receipt of the ACK of segment 3:
EstimatedRTT = 0.875 * 0.000356375 + 0.125 * 0.000819 = 0.00041

EstimatedRTT after the receipt of the ACK of segment 4:
EstimatedRTT = 0.875 *0.00041+ 0.125 * 0.000855= 0.00046

EstimatedRTT after the receipt of the ACK of segment 5:
EstimatedRTT = 0.875 * 0.00046 + 0.125 * 0.00094 = 0.00052



Question -8
Solution: Length of the first TCP segment (containing the HTTP POST): 559 bytes
Length of each of the other five TCP segments: 1448 bytes

Question -9
Solution:
The minimum amount of buffer space (receiver window) advertised at gaia.cs.umass.edu for the entire trace is 28960 bytes, which shows in the first acknowledgement from the server. This receiver window grows steadily until a maximum receiver buffer size of 682780 bytes.

Question – 10

Solution:

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. In the Time-Sequence-Graph (Stevens) of this trace, all sequence numbers from the source (10.1.40.128) to the destination (10.4.20.103) are increasing monotonically with respect to time. If there is a retransmitted segment, the sequence number of this retransmitted segment should be smaller than those of its neighboring segments.