CSC 361 **Raymond Wang**
Assignment 3 (R2) **V00802086**

Q1.

Number of probes per TTL (group1)

TTL	trace1	trace2	trace3	trace4	trace5
1	3	3	3	3	3
2	3	3	3	3	3
3	3	3	3	3	3
4	3	3	3	3	3
5	3	3	3	3	3
6	3	3	3	3	3
7	3	3	3	3	3
8	3	3	3	3	3
9	3	3	3	3	3
10	3	3	3	3	3
11	3	3	3	3	3
12	2	2	2	2	3
13	1	1	1	1	1
14	1	1	1	1	1
15	1	1	1	1	1
16	1	1	1	1	13
17	13	12	12	12	N/A

Q2.

The sequence of the intermediate routers is not exactly the same in different the trace files, but most of the sequence is the same.

Q3.

It seems that the first 13 intermediate routers are the same and the last 3 intermediate routers are different in the five trace files of group1.

For the different intermediate routers, the IPs share some common parts, and all the IPs with the same pattern: 209.85.[246-250].xxx.

I think it is most likely that there is a large network of routers close to the destination, and the best path for the traceroute is constantly changing, which also explains why the IPs are share the same pattern (the maybe belongs to the same corporate IP range).

Q4.

Average RTT at each TTL value (ms)

TTL	Average RTT in Trace 1	Average RTT in Trace 2	Average RTT in Trace 3	Average RTT in Trace 4	Average RTT in Trace 5
Same IP sequences					
1	11.37	11.39	11.69	11.21	11.30
2	16.01	15.45	15.73	15.71	16.69
3	16.85	15.93	16.31	15.42	17.48
4	17.56	16.88	17.16	16.69	18.25
5	18.36	17.71	17.91	17.44	19.01
6	11.86	11.64	12.11	11.52	11.92
7	13.51	13.43	14.41	13.59	13.54
8	14.10	50.24	15.18	14.01	18.52
9	16.91	16.79	18.09	16.93	16.71
10	18.23	17.58	18.86	18.18	17.96
11	19.43	19.22	20.10	19.43	19.33
12	11.77	14.83	15.97	14.24	13.89
13	17.62	16.41	9.57	13.64	19.37
Different IP sequences					
14	18.47	17.42	19.55	19.01	19.65
15	19.82	17.94	19.80	19.51	19.89
16	20.57	18.70	23.17	20.81	20.88
Destination					
17	19.98	18.13	19.80	19.65	N/A

Based on this table, it seems the hop at TTL = 11 has the highest average RTT, and would incur the maximum delay. Additionally, the hop at TTL = 8 has the largest single average RTT value, though this is likely an outlier. Lastly, the last three hops appear to have average RTT values larger than the other intermediate routers, since these routers are the furthest from the source.