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FH-97

2)

a) Command: traceroute www.google.com

Output:

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traceroute to www.google.com (172.217.160.132), 30 hops max, 60 byte packets
 1  _gateway (192.168.0.1)  1.798 ms  1.729 ms  1.695 ms
 2  172.16.185.1 (172.16.185.1)  4.993 ms  4.961 ms  4.929 ms
 3  * * *
 4  xe-1-3-0.dhakacom.com (202.4.100.253)  6.296 ms  6.264 ms  6.234 ms
 5  GI0-2-2-aggr01.as58656.net (103.12.177.1)  6.204 ms  7.267 ms  7.237 ms
 6  103.12.176.29 (103.12.176.29)  7.201 ms  19.665 ms  19.598 ms
 7  103.131.157.104 (103.131.157.104)  3.701 ms  3.340 ms  5.212 ms
 8  hu-cig2-0010-cig1-0010.pico.net.bd (163.47.159.170)  4.143 ms  4.110 ms  4.076 ms
 9  te-google-chn-sw4-cig2-0212.pico.net.bd (103.7.250.50)  33.353 ms  33.322 ms  33.286 ms
10  108.170.253.113 (108.170.253.113)  33.372 ms 108.170.253.97 (108.170.253.97)  35.457 ms 108.170.253.113
(108.170.253.113)  34.590 ms
11  216.239.59.231 (216.239.59.231)  33.655 ms  32.756 ms 216.239.59.171 (216.239.59.171)  32.709 ms
12  maa03s29-in-f4.1e100.net (172.217.160.132)  32.678 ms  32.964 ms  33.012 ms
```

b) Reasons for the found anomaly inconsistencies:

- The delays to Router 6 (15.488 average of 3 RTT values) are larger than the delays to Router 7 (4.084333333 average of 3 RTT values) because the queuing delay is varying with time.

- The Router 3 has "* * *" (asterisk) after the router number because the source received fewer than three messages from any given router, due to packet loss in the network. Thus traceroute places "* * *" (asterisk).

- The Routers 1, 2, 4, 5, 6, 8, 9, 10 and 11 have IP addresses displayed as "192.168.0.1", "172.16.185.1", "202.4.100.253", "103.12.177.1", "103.12.176.29", "163.47.159.170", "103.7.250.50", "108.170.253.97", "216.239.59.231" respectively. They are not in the format "xxx.xxx.xxx.xxx" because there were extra 0's in the left out positions. And thus traceroute has just ignored them.