

Q3. Explore traceroute/tracert for different websites and analyse the parameters in the output and explore different options for traceroute command

```
C:\Users\brindha>tracert google.com

Tracing route to google.com [2404:6800:4007:825::200e]
over a maximum of 30 hops:

  1    2 ms     5 ms     3 ms    2401:4900:67a5:1f95::37
  2    *        *        *        Request timed out.
  3   73 ms    101 ms   100 ms   2401:4900:0:152e::1
  4  123 ms    100 ms   101 ms   2401:4900:0:6ff::3
  5  138 ms    101 ms    99 ms   2401:4900:0:6f9::1
  6    *        *        *        Request timed out.
  7  145 ms    101 ms   100 ms   2404:a800:3a00:1::605
  8   36 ms    105 ms   100 ms   2404:a800::92
  9    *        *        *        Request timed out.
 10    *        *        *        Request timed out.
 11  160 ms    102 ms   100 ms   2001:4860:0:1::2d0c
 12  130 ms    100 ms   101 ms   2001:4860:0:1::4878
 13    *        *        *        Request timed out.
 14  105 ms     27 ms    72 ms   2001:4860:0:1::55cb
 15   86 ms    100 ms   100 ms   maa03s40-in-x0e.1e100.net [2404:6800:4007:825::200e]

Trace complete.

C:\Users\brindha>tracert -d google.com

Tracing route to google.com [2404:6800:4007:825::200e]
over a maximum of 30 hops:

  1   13 ms     3 ms     3 ms    2401:4900:67a5:1f95::37
  2    *        *        *        Request timed out.
  3  146 ms    100 ms   101 ms   2401:4900:0:152e::1
  4  112 ms    101 ms   101 ms   2401:4900:0:6ff::3
  5  120 ms    101 ms   101 ms   2401:4900:0:6f9::1
  6    *        *        *        Request timed out.
  7  211 ms    101 ms   101 ms   2404:a800:3a00:1::605
  8  114 ms     60 ms    34 ms   2404:a800::92
  9    *        *        *        Request timed out.
 10    *        *        *        Request timed out.
 11  127 ms    101 ms   100 ms   2001:4860:0:1::2d0c
 12  111 ms    100 ms   100 ms   2001:4860:0:1::4878
 13    *        *        *        Request timed out.
 14   54 ms    100 ms    54 ms   2001:4860:0:1::55cb
 15  105 ms    100 ms    51 ms   2404:6800:4007:825::200e

Trace complete.
```

tracert google.com - Displays both IP addresses and resolved hostnames (maa03s40-in-x0e.1e100.net at hop 15).

DNS resolution happens for the final destination.

tracert -d google.com - Skip hostname resolution. Above the -d version skips hostname resolution at hop 15, which can save time.

```

C:\Users\brindha>tracert -w 1000 google.com

Tracing route to google.com [2404:6800:4007:825::200e]
over a maximum of 30 hops:

  1      3 ms      3 ms      3 ms  2401:4900:67a5:1f95::37
  2      *        *        *      Request timed out.
  3     130 ms    203 ms    101 ms  2401:4900:0:152e::1
  4     117 ms    101 ms    100 ms  2401:4900:0:6ff::3
  5     134 ms    202 ms    204 ms  2401:4900:0:6f9::1
  6      *        *        *      Request timed out.
  7     192 ms    203 ms    203 ms  2404:a800:3a00:1::605
  8     106 ms    100 ms    100 ms  2404:a800::92
  9     319 ms    *         *      2001:4860:1:1::d2e
 10      *        *        *      Request timed out.
 11     372 ms    202 ms    203 ms  2001:4860:0:1::2d0c
 12     200 ms    216 ms    585 ms  2001:4860:0:1::4878
 13      *        *        *      Request timed out.
 14     300 ms    307 ms    301 ms  2001:4860:0:1::55cb
 15     208 ms    218 ms    250 ms  maa03s40-in-x0e.1e100.net [2404:6800:4007:825::200e]

Trace complete.

```

Each hop has 1 second (1000ms) to reply before being marked as Request timed out.

If a router took longer than 1000ms, it wouldn't appear in the results.