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Foundations of Computer Networks

Assignment 2: Report

my_ping.py

python3 my_ping.py google.com

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_ping.py google.com
PING google.com (142.251.176.138) 56 bytes of data.
 56 bytes from 142.251.176.138: icmp_seq=1 ttl=103 time=37.7 ms
 56 bytes from 142.251.176.138: icmp_seq=2 ttl=103 time=37.0 ms
 56 bytes from 142.251.176.138: icmp_seq=3 ttl=103 time=37.0 ms
 56 bytes from 142.251.176.138: icmp_seq=4 ttl=103 time=37.0 ms
 56 bytes from 142.251.176.138: icmp_seq=5 ttl=103 time=79.8 ms
 56 bytes from 142.251.176.138: icmp_seq=6 ttl=103 time=37.8 ms
 56 bytes from 142.251.176.138: icmp_seq=7 ttl=103 time=38.7 ms

--- google.com ping statistics ---
 7 packets transmitted, 7 received, 0% packet loss, time 6459ms
 rtt min/avg/max/stddev = 36.997/43.578/79.823/15.994 ms
```

python3 my_ping.py google.com -c 8

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_ping.py google.com -c 8
PING google.com (142.251.176.138) 56 bytes of data.
 56 bytes from 142.251.176.138: icmp_seq=1 ttl=103 time=38.0 ms
 56 bytes from 142.251.176.138: icmp_seq=2 ttl=103 time=38.9 ms
 56 bytes from 142.251.176.138: icmp_seq=3 ttl=103 time=38.9 ms
 56 bytes from 142.251.176.138: icmp_seq=4 ttl=103 time=38.3 ms
 56 bytes from 142.251.176.138: icmp_seq=5 ttl=103 time=38.2 ms
 56 bytes from 142.251.176.138: icmp_seq=6 ttl=103 time=37.9 ms
 56 bytes from 142.251.176.138: icmp_seq=7 ttl=103 time=41.0 ms
 56 bytes from 142.251.176.138: icmp_seq=8 ttl=103 time=37.9 ms

--- google.com ping statistics ---
 8 packets transmitted, 8 received, 0% packet loss, time 7318ms
 rtt min/avg/max/stddev = 37.875/38.633/40.997/1.034 ms
```

python3 my_ping.py google.com -i .5

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_ping.py google.com -i .5
PING google.com (142.251.176.138) 56 bytes of data.
 56 bytes from 142.251.176.138: icmp_seq=1 ttl=103 time=39.6 ms
 56 bytes from 142.251.176.138: icmp_seq=2 ttl=103 time=40.7 ms
 56 bytes from 142.251.176.138: icmp_seq=3 ttl=103 time=38.9 ms
 56 bytes from 142.251.176.138: icmp_seq=4 ttl=103 time=46.2 ms
 56 bytes from 142.251.176.138: icmp_seq=5 ttl=103 time=38.6 ms
 56 bytes from 142.251.176.138: icmp_seq=6 ttl=103 time=37.7 ms
 56 bytes from 142.251.176.138: icmp_seq=7 ttl=103 time=37.0 ms
 56 bytes from 142.251.176.138: icmp_seq=8 ttl=103 time=58.0 ms
 56 bytes from 142.251.176.138: icmp_seq=9 ttl=103 time=38.0 ms
 56 bytes from 142.251.176.138: icmp_seq=10 ttl=103 time=37.7 ms
 56 bytes from 142.251.176.138: icmp_seq=11 ttl=103 time=39.4 ms
 56 bytes from 142.251.176.138: icmp_seq=12 ttl=103 time=37.8 ms
 56 bytes from 142.251.176.138: icmp_seq=13 ttl=103 time=45.4 ms

--- google.com ping statistics ---
 13 packets transmitted, 13 received, 0% packet loss, time 6749ms
 rtt min/avg/max/stddev = 36.997/41.157/58.003/5.821 ms
```

python3 my_ping.py google.com -s 32

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_ping.py google.com -s 32
PING google.com (192.178.130.101) 32 bytes of data.
 32 bytes from 192.178.130.101: icmp_seq=1 ttl=102 time=38.5 ms
 32 bytes from 192.178.130.101: icmp_seq=2 ttl=102 time=41.0 ms
 32 bytes from 192.178.130.101: icmp_seq=3 ttl=102 time=46.0 ms
 32 bytes from 192.178.130.101: icmp_seq=4 ttl=102 time=40.3 ms
 32 bytes from 192.178.130.101: icmp_seq=5 ttl=102 time=40.0 ms
 32 bytes from 192.178.130.101: icmp_seq=6 ttl=102 time=43.2 ms
 32 bytes from 192.178.130.101: icmp_seq=7 ttl=102 time=38.4 ms

--- google.com ping statistics ---
 7 packets transmitted, 7 received, 0% packet loss, time 6339ms
 rtt min/avg/max/stddev = 38.409/41.061/45.999/2.717 ms
```

python3 my_ping.py google.com -t 5

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_ping.py google.com -t 5
PING google.com (192.178.130.101) 56 bytes of data.
 56 bytes from 192.178.130.101: icmp_seq=1 ttl=102 time=38.8 ms
 56 bytes from 192.178.130.101: icmp_seq=2 ttl=102 time=38.9 ms
 56 bytes from 192.178.130.101: icmp_seq=3 ttl=102 time=38.6 ms
 56 bytes from 192.178.130.101: icmp_seq=4 ttl=102 time=43.0 ms
 56 bytes from 192.178.130.101: icmp_seq=5 ttl=102 time=38.2 ms

--- google.com ping statistics ---
 5 packets transmitted, 5 received, 0% packet loss, time 5205ms
 rtt min/avg/max/stddev = 38.172/39.486/42.974/1.968 ms
```

my_traceroute.py

python3 my_traceroute.py yahoo.com

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_traceroute.py yahoo.com
Traceroute to 74.6.231.20 (74.6.231.20), 64 hops max, 40 byte packets
 1 10.200.193.129 (10.200.193.129) 2.888 ms 2.000 ms 2.009 ms
 2 10.5.153.1 (10.5.153.1) 15.000 ms 16.240 ms 16.222 ms
 3 e0-8.core1.cle1.he.net (216.66.39.65) 18.004 ms 19.894 ms 18.307 ms
 4 100ge0-35.core2.det1.he.net (184.104.192.201) 21.589 ms 20.095 ms 25.925 ms
 5 * * *
 6 208.115.136.16 (208.115.136.16) 46.084 ms 49.088 ms 40.926 ms
 7 ae-5.pat1.nez.yahoo.com (209.191.64.212) 45.039 ms 45.345 ms 40.391 ms
 8 et-17-0-1.msr2.ne1.yahoo.com (209.191.65.111) 40.454 ms 38.149 ms 45.035 ms
 9 et-0-1-0.clr1-a-gdc.ne1.yahoo.com (98.138.97.71) 57.598 ms 53.342 ms 49.256 ms
10 lo0.fab4-2-gdc.ne1.yahoo.com (98.138.51.3) 50.358 ms 50.176 ms 50.274 ms
11 usw2-1-lbd.ne1.yahoo.com (98.138.97.157) 50.817 ms 50.351 ms 52.216 ms
12 media-router-fp73.prod.media.vip.ne1.yahoo.com (74.6.231.20) 37.201 ms 38.554 ms 37.514 ms
```

python3 my_traceroute.py yahoo.com -n

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_traceroute.py yahoo.com -n
Traceroute to 74.6.231.20 (74.6.231.20), 64 hops max, 40 byte packets
 1 10.200.193.129 1.999 ms 11.001 ms 1.999 ms
 2 10.5.153.1 16.001 ms 15.996 ms 17.016 ms
 3 216.66.39.65 17.996 ms 15.993 ms 17.028 ms
 4 184.104.192.201 22.175 ms 22.876 ms 20.427 ms
 5 * * *
 6 208.115.136.16 39.443 ms 39.648 ms 49.303 ms
 7 209.191.64.212 46.332 ms 45.792 ms 44.602 ms
 8 209.191.65.111 38.287 ms 37.961 ms 38.686 ms
 9 98.138.97.71 55.817 ms 53.456 ms 57.754 ms
10 98.138.51.3 57.040 ms 53.576 ms 50.058 ms
11 98.138.97.157 49.223 ms 50.054 ms 53.390 ms
12 74.6.231.20 37.908 ms 37.809 ms 39.196 ms
```

python3 my_traceroute.py yahoo.com -q

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_traceroute.py yahoo.com -q 5
Traceroute to 74.6.231.20 (74.6.231.20), 64 hops max, 40 byte packets
 1 10.200.193.129 (10.200.193.129) 4.047 ms 6.994 ms 2.085 ms 1.920 ms 2.052 ms
 2 10.5.153.1 (10.5.153.1) 16.345 ms 19.216 ms 16.453 ms 16.402 ms 19.670 ms
 3 e0-8.core1.cle1.he.net (216.66.39.65) 16.084 ms 17.010 ms 18.173 ms 23.327 ms 18.807 ms
 4 100ge0-35.core2.det1.he.net (184.104.192.201) 21.152 ms 20.991 ms 20.534 ms 20.280 ms 23.053 ms
 5 * * * * *
 6 208.115.136.16 (208.115.136.16) 38.200 ms 43.075 ms 41.241 ms 38.782 ms 46.334 ms
 7 ae-5.pat1.nez.yahoo.com (209.191.64.212) 40.959 ms 48.513 ms 40.365 ms 40.565 ms 48.328 ms
 8 et-17-0-1.msr2.ne1.yahoo.com (209.191.65.111) 38.116 ms 45.673 ms 41.893 ms 37.942 ms 46.798 ms
 9 et-0-1-0.clr1-a-gdc.ne1.yahoo.com (98.138.97.71) 49.026 ms 49.202 ms 62.001 ms 49.191 ms 50.003 ms
10 lo0.fab4-2-gdc.ne1.yahoo.com (98.138.51.3) 49.999 ms 49.998 ms 49.224 ms 49.000 ms 49.169 ms
11 usw1-1-lbd.ne1.yahoo.com (98.138.97.156) 51.000 ms 49.003 ms 49.000 ms 49.342 ms 51.997 ms
12 media-router-fp73.prod.media.vip.ne1.yahoo.com (74.6.231.20) 37.003 ms 36.000 ms 37.000 ms 38.001 ms 38.216 ms
```

python3 my_traceroute.py yahoo.com -S

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_traceroute.py yahoo.com -S
Traceroute to 74.6.231.20 (74.6.231.20), 64 hops max, 40 byte packets
 1 10.200.193.129 (10.200.193.129) 1.999 ms 2.916 ms 2.004 ms (0% loss)
 2 10.5.153.1 (10.5.153.1) 16.151 ms 17.274 ms 16.634 ms (0% loss)
 3 e0-8.core1.cle1.he.net (216.66.39.65) 27.009 ms 18.325 ms 17.044 ms (0% loss)
 4 100ge0-35.core2.det1.he.net (184.104.192.201) 21.576 ms 21.067 ms 23.699 ms (0% loss)
 5 * * * (100% loss)
 6 208.115.136.16 (208.115.136.16) 43.315 ms 44.971 ms 41.997 ms (0% loss)
 7 ae-5.pat1.nez.yahoo.com (209.191.64.212) 43.000 ms 39.197 ms 39.971 ms (0% loss)
 8 et-17-0-1.msr2.ne1.yahoo.com (209.191.65.111) 41.824 ms 41.107 ms 37.796 ms (0% loss)
 9 et-0-1-0.clr1-a-gdc.ne1.yahoo.com (98.138.97.71) 52.934 ms 48.243 ms 50.738 ms (0% loss)
10 lo0.fab4-2-gdc.ne1.yahoo.com (98.138.51.3) 50.371 ms 51.026 ms 49.347 ms (0% loss)
11 usw1-1-lbd.ne1.yahoo.com (98.138.97.157) 49.530 ms 50.929 ms 50.974 ms (0% loss)
12 media-router-fp73.prod.media.vip.ne1.yahoo.com (74.6.231.20) 36.749 ms 37.331 ms 37.006 ms (0% loss)
```

Combination of args for traceroute

python3 my_traceroute.py 8.8.8.8 -S -q 5 -n

```
PS C:\Users\spitz\OneDrive\Desktop\Computer Networks Assignments\assignment2> python3 my_traceroute.py 8.8.8.8 -S -q 5 -n
● Traceroute to 8.8.8.8 (8.8.8.8), 64 hops max, 40 byte packets
 1 10.200.193.129 2.054 ms 2.067 ms 2.883 ms 3.997 ms 3.179 ms (0% loss)
 2 10.5.153.1 24.152 ms 15.873 ms 14.321 ms 17.792 ms 15.512 ms (0% loss)
 3 216.66.39.65 21.528 ms 29.809 ms 16.942 ms 16.998 ms 16.640 ms (0% loss)
 4 184.104.192.201 20.462 ms 22.040 ms 20.921 ms 21.291 ms 21.197 ms (0% loss)
 5 * * * * (100% loss)
 6 208.115.137.21 46.176 ms 46.335 ms 43.000 ms 41.165 ms 42.000 ms (0% loss)
 7 142.251.249.49 36.001 ms 34.027 ms 32.457 ms 29.181 ms 28.516 ms (0% loss)
 8 142.251.60.15 28.947 ms 27.411 ms 27.996 ms 31.209 ms 29.562 ms (0% loss)
 9 8.8.8.8 28.244 ms 30.364 ms 27.658 ms 27.717 ms 28.961 ms (0% loss)
```