

Jeffrey Chin  
jefchin  
113257669

Part A:

Localhost:127.0.0.1

```
PS C:\Users\Jeffr\Desktop\CSE310\chin-jeffrey-assignment3> py .\sample_pinger.py 127.0.0.1
⊗ Pinging 127.0.0.1 using Python:
 36 bytes from 127.0.0.1; time=0.00 ms
 36 bytes from 127.0.0.1; time=0.00 ms
 36 bytes from 127.0.0.1; time=0.00 ms
 36 bytes from 127.0.0.1; time=0.00 ms
 36 bytes from 127.0.0.1; time=0.00 ms
 --- 127.0.0.1 ping statistics ---
○ round-trip min/avg/max = 0.00/0.00/0.00 ms
```

cs.stonybrook.edu: 23.185.0.02

```
PS C:\Users\Jeffr\Desktop\CSE310\chin-jeffrey-assignment3> py .\sample_pinger.py cs.stonybrook.edu
⊗ Pinging 23.185.0.2 using Python:
 36 bytes from 23.185.0.2; time=4.00 ms
 36 bytes from 23.185.0.2; time=4.00 ms
 36 bytes from 23.185.0.2; time=3.00 ms
 36 bytes from 23.185.0.2; time=3.00 ms
 36 bytes from 23.185.0.2; time=4.00 ms
 --- cs.stonybrook.edu ping statistics ---
round-trip min/avg/max = 3.00/3.60/4.00 ms
```

I-Root server: 192.36.148.17

```
PS C:\Users\Jeffr\Desktop\CSE310\chin-jeffrey-assignment3> py .\sample_pinger.py i.root-servers.net
⊗ Pinging 192.36.148.17 using Python:
 36 bytes from 192.36.148.17; time=23.00 ms
 36 bytes from 192.36.148.17; time=23.00 ms
 36 bytes from 192.36.148.17; time=23.00 ms
 36 bytes from 192.36.148.17; time=23.00 ms
 36 bytes from 192.36.148.17; time=22.00 ms
 --- i.root-servers.net ping statistics ---
○ round-trip min/avg/max = 22.00/22.80/23.00 ms
```

K-Root server: 193.0.14.129

```
PS C:\Users\Jeffr\Desktop\CSE310\chin-jeffrey-assignment3> py .\sample_pinger.py k.root-servers.net
⊗ Pinging 193.0.14.129 using Python:
 36 bytes from 193.0.14.129; time=95.00 ms
 36 bytes from 193.0.14.129; time=95.00 ms
 36 bytes from 193.0.14.129; time=97.00 ms
 36 bytes from 193.0.14.129; time=103.00 ms
 36 bytes from 193.0.14.129; time=97.02 ms
 --- k.root-servers.net ping statistics ---
round-trip min/avg/max = 95.00/97.40/103.00 ms
```

M-Root server: 202.12.27.33

```
PS C:\Users\Jeffr\Desktop\CSE310\chin-jeffrey-assignment3> py .\sample_pinger.py m.root-servers.net
⊗ Pinging 202.12.27.33 using Python:
36 bytes from 202.12.27.33; time=77.02 ms
36 bytes from 202.12.27.33; time=76.00 ms
36 bytes from 202.12.27.33; time=76.00 ms
36 bytes from 202.12.27.33; time=77.00 ms
36 bytes from 202.12.27.33; time=76.00 ms
--- m.root-servers.net ping statistics ---
○ round-trip min/avg/max = 76.00/76.40/77.02 ms
```

The differences in minimum round trip time for all of these servers are different because it depends on where your computer is located compared to the root servers. The local host would be 0-1ms because you are pinging your own computer which should be instantaneous. Since I am currently in Stony Brook (US), I'm connecting to cs.stonybrook.edu much faster than the I, K, and M root servers. The reasons for differences between the I, K, and M root servers include network congestion, distance, the server being busy, and more.

Part B:

i. Check the code attached

ii. The IP address of my router is 172.24.196.160 and the MAC address is e0:2b:e9:d4:6f:89.

This is determined by checking the sender IP address and MAC address in the ARP reply packet. Also, routers send packets that have an "is at" operation in response to an ARP request.