

```
mahamud-nazif-assignment3 — Sonmar12133@MacBook-Pro — ..f-assignment3 — zsh — 110x24

[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgammigAssignments/mahamud-nazif-assignment3]> sudo python3 sample_pinger.py 127.0.0.1
Pinging 127.0.0.1 using Python:
36 bytes from 127.0.0.1: time=0.0ms
36 bytes from 127.0.0.1: time=0.1ms
36 bytes from 127.0.0.1: time=0.1ms
36 bytes from 127.0.0.1: time=0.0ms
36 bytes from 127.0.0.1: time=0.1ms
36 bytes from 127.0.0.1: time=0.0ms
36 bytes from 127.0.0.1: time=0.0ms
36 bytes from 127.0.0.1: time=0.0ms
36 bytes from 127.0.0.1: time=0.0ms
36 bytes from 127.0.0.1: time=0.0ms
^C--- 127.0.0.1 ping statistics ---
round-trip min/avg/max 0.0/0.0/0.1 ms
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgammigAssignments/mahamud-nazif-assignment3]> |
```

This is showing the output of the ping program on the localhost IP or 127.0.0.1. As you can see, the pings are very low. This is because since you are pinging itself, it does not need much time to send and receive packets.

```
mahamud-nazif-assignment3 — Sonmar12133@MacBook-Pro — ..f-assignment3 — zsh — 110x24

[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgammigAssignments/mahamud-nazif-assignment3]> sudo python3 sample_pinger.py cs.stonybr
ook.edu
>Password:
Pinging 23.185.0.2 using Python:
36 bytes from 23.185.0.2: time=9.7ms
36 bytes from 23.185.0.2: time=7.1ms
36 bytes from 23.185.0.2: time=10.7ms
36 bytes from 23.185.0.2: time=7.7ms
36 bytes from 23.185.0.2: time=13.4ms
36 bytes from 23.185.0.2: time=11.0ms
36 bytes from 23.185.0.2: time=6.8ms
36 bytes from 23.185.0.2: time=11.5ms
36 bytes from 23.185.0.2: time=6.5ms
36 bytes from 23.185.0.2: time=10.6ms
36 bytes from 23.185.0.2: time=18.5ms
36 bytes from 23.185.0.2: time=10.1ms
36 bytes from 23.185.0.2: time=8.4ms
36 bytes from 23.185.0.2: time=6.9ms
36 bytes from 23.185.0.2: time=8.9ms
^C--- 23.185.0.2 ping statistics ---
round-trip min/avg/max 6.5/9.8/18.5 ms
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgammigAssignments/mahamud-nazif-assignment3]> |
```

This is the program is pinging cs.stonybrook.edu. Since this server is very close to my location, the time packets take to travel is very low.

Sweden

```
mahamud-nazif-assignment3 — Sonmar12133@MacBook-Pro — ..f-assignment3 — -zsh — 110x24
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgammigAssignments/mahamud-nazif-assignment3] sudo python3 sample_pinger.py 192.36.148.
.17
Password:
Pinging 192.36.148.17 using Python:
36 bytes from 192.36.148.17; time=170.3ms
36 bytes from 192.36.148.17; time=171.4ms
36 bytes from 192.36.148.17; time=171.8ms
36 bytes from 192.36.148.17; time=172.8ms
36 bytes from 192.36.148.17; time=180.5ms
36 bytes from 192.36.148.17; time=172.5ms
36 bytes from 192.36.148.17; time=170.0ms
36 bytes from 192.36.148.17; time=172.5ms
36 bytes from 192.36.148.17; time=180.1ms
36 bytes from 192.36.148.17; time=171.4ms
36 bytes from 192.36.148.17; time=172.5ms
36 bytes from 192.36.148.17; time=177.9ms
36 bytes from 192.36.148.17; time=178.3ms
36 bytes from 192.36.148.17; time=167.9ms
^C--- 192.36.148.17 ping statistics ---
round-trip min/avg/max 167.9/173.6/180.5 ms
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgammigAssignments/mahamud-nazif-assignment3]>
```

Netherlands

```
mahamud-nazif-assignment3 — Sonmar12133@MacBook-Pro — ..f-assignment3 — -zsh — 110x24
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgammigAssignments/mahamud-nazif-assignment3] sudo python3 sample_pinger.py 193.0.14.1
29
Pinging 193.0.14.129 using Python:
36 bytes from 193.0.14.129; time=37.2ms
36 bytes from 193.0.14.129; time=36.1ms
36 bytes from 193.0.14.129; time=40.9ms
36 bytes from 193.0.14.129; time=39.2ms
36 bytes from 193.0.14.129; time=37.1ms
36 bytes from 193.0.14.129; time=44.6ms
36 bytes from 193.0.14.129; time=33.6ms
36 bytes from 193.0.14.129; time=39.0ms
36 bytes from 193.0.14.129; time=37.7ms
36 bytes from 193.0.14.129; time=33.7ms
36 bytes from 193.0.14.129; time=40.9ms
36 bytes from 193.0.14.129; time=45.9ms
36 bytes from 193.0.14.129; time=41.6ms
36 bytes from 193.0.14.129; time=38.9ms
36 bytes from 193.0.14.129; time=41.7ms
^C--- 193.0.14.129 ping statistics ---
round-trip min/avg/max 33.6/39.2/45.9 ms
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgammigAssignments/mahamud-nazif-assignment3]> |
```

Japan

```
mahamud-nazif-assignment3 — Sonmar12133@MacBook-Pro — ..f-assignment3 — -zsh — 110x24
[~/Documents/cse310ProgrammingAssignments/mahamud-nazif-assignment3]> sudo python3 sample_pinger.py 202.12.27.33
33
Pinging 202.12.27.33 using Python:
36 bytes from 202.12.27.33: time=175.9ms
36 bytes from 202.12.27.33: time=175.3ms
36 bytes from 202.12.27.33: time=172.0ms
36 bytes from 202.12.27.33: time=178.7ms
36 bytes from 202.12.27.33: time=181.2ms
36 bytes from 202.12.27.33: time=173.5ms
36 bytes from 202.12.27.33: time=176.1ms
36 bytes from 202.12.27.33: time=169.3ms
36 bytes from 202.12.27.33: time=174.8ms
36 bytes from 202.12.27.33: time=175.2ms
36 bytes from 202.12.27.33: time=166.9ms
36 bytes from 202.12.27.33: time=173.7ms
36 bytes from 202.12.27.33: time=171.3ms
36 bytes from 202.12.27.33: time=172.3ms
36 bytes from 202.12.27.33: time=166.3ms
36 bytes from 202.12.27.33: time=166.5ms
36 bytes from 202.12.27.33: time=178.7ms
36 bytes from 202.12.27.33: time=174.5ms
^C--- 202.12.27.33 ping statistics ---
round-trip min/avg/max 166.3/173.5/181.2 ms
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
```

Virginia

```
mahamud-nazif-assignment3 — Sonmar12133@MacBook-Pro — ..f-assignment3 — -zsh — 110x24
[~/Documents/cse310ProgrammingAssignments/mahamud-nazif-assignment3]> sudo python3 sample_pinger.py 198.41.0.4
Pinging 198.41.0.4 using Python:
36 bytes from 198.41.0.4: time=22.7ms
36 bytes from 198.41.0.4: time=19.3ms
36 bytes from 198.41.0.4: time=17.5ms
36 bytes from 198.41.0.4: time=22.7ms
36 bytes from 198.41.0.4: time=12.2ms
36 bytes from 198.41.0.4: time=13.6ms
36 bytes from 198.41.0.4: time=16.2ms
36 bytes from 198.41.0.4: time=12.9ms
36 bytes from 198.41.0.4: time=21.8ms
36 bytes from 198.41.0.4: time=14.9ms
36 bytes from 198.41.0.4: time=15.8ms
36 bytes from 198.41.0.4: time=14.1ms
36 bytes from 198.41.0.4: time=70.5ms
^C--- 198.41.0.4 ping statistics ---
round-trip min/avg/max 12.2/21.1/70.5 ms
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgrammingAssignments/mahamud-nazif-assignment3]>
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgrammingAssignments/mahamud-nazif-assignment3]>
[Sonmar12133@MacBook-Pro] [/dev/ttys001] [main ✕ ]
[~/Documents/cse310ProgrammingAssignments/mahamud-nazif-assignment3]>
```

In these 4 root servers, you can see that Virginia has the smallest time required to send packets. This is because compared to the other 3 root servers, it's the closest in position and will take less time to transfer packets. It's still greater than both cs.stonybrook.edu and localhost but those are closer in proximity. Both Japan and Sweden have long ping times due to their distance from my location. Since they are on opposite sides of the eastern hemisphere, it is possible to see why they have the same ping time. However, what is surprising in the Netherlands ping time. It is quite fast, almost reaching the same time as Virginia, a server local to my country. However, the same sentiment follows. Since it's farther away from my location, it will have longer ping times.