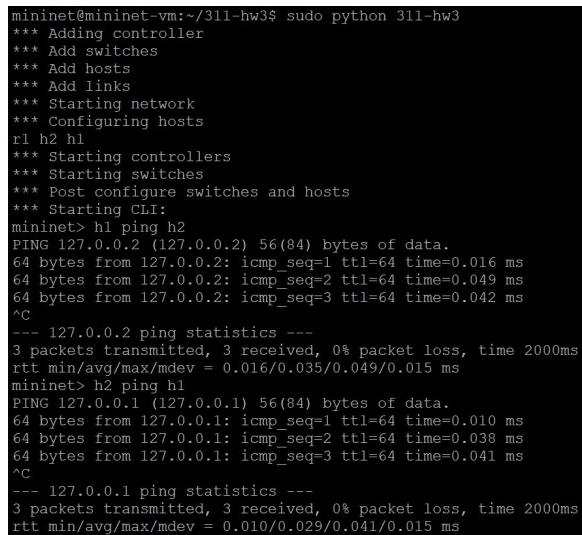


Programming Assignment 3

```
git init
git config user.name "Jane Student"
```

Grading Objectives and What to turn in:

1. (25 points) Screen capture of successful 'h1 ping h2' and 'h2 ping h1' commands at the mininet> prompt.

A terminal window showing the execution of a Mininet script. The script sets up a network with a controller, switches, and hosts. After starting the network, the user enters 'rl h2 h1' to start the hosts. Then, the user enters 'mininet> h1 ping h2' and 'mininet> h2 ping h1' to test connectivity. Both ping tests are successful, showing 3 packets transmitted and received with 0% packet loss.

```
mininet@mininet-vm:~/311-hw3$ sudo python 311-hw3
*** Adding controller
*** Add switches
*** Add hosts
*** Add links
*** Starting network
*** Configuring hosts
rl h2 h1
*** Starting controllers
*** Starting switches
*** Post configure switches and hosts
*** Starting CLI:
mininet> h1 ping h2
PING 127.0.0.2 (127.0.0.2) 56(84) bytes of data:
64 bytes from 127.0.0.2: icmp_seq=1 ttl=64 time=0.016 ms
64 bytes from 127.0.0.2: icmp_seq=2 ttl=64 time=0.049 ms
64 bytes from 127.0.0.2: icmp_seq=3 ttl=64 time=0.042 ms
^C
--- 127.0.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2000ms
rtt min/avg/max/mdev = 0.016/0.035/0.049/0.015 ms
mininet> h2 ping h1
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data:
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.010 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.038 ms
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.041 ms
^C
--- 127.0.0.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2000ms
rtt min/avg/max/mdev = 0.010/0.029/0.041/0.015 ms
```

2. (25 points) Your modified legacy_router.py program as a separate test file.(check)
3. (20 points) Output of 'git log' command, showing changes you made to the program above.

```

commit 99192ce426c1a5c598a6c5dfd983a0499e89788c
Author: None <None>
Date:   Sun Apr 19 17:14:36 2020 -0700

    fixed

commit 179c019086f4de01877fd752e1236bec9ab0ab19
Author: None <None>
Date:   Sun Apr 19 17:03:50 2020 -0700

    first
mininet@mininet-vm:~/311-hw3$ nano 311-hw3
mininet@mininet-vm:~/311-hw3$ git add .
mininet@mininet-vm:~/311-hw3$ git commit -m "fixed"
[master 275261f] fixed
 1 file changed, 2 insertions(+), 2 deletions(-)
mininet@mininet-vm:~/311-hw3$ git log
commit 275261fc41c5336f046cb454920e6257255c7bda
Author: None <None>
Date:   Sun Apr 19 17:17:34 2020 -0700

    fixed

commit 99192ce426c1a5c598a6c5dfd983a0499e89788c
Author: None <None>
Date:   Sun Apr 19 17:14:36 2020 -0700

    fixed

commit 179c019086f4de01877fd752e1236bec9ab0ab19
Author: None <None>
Date:   Sun Apr 19 17:03:50 2020 -0700

    first

```

4. (30 points) Answers to these questions:
 - a. Why didn't the original program forward packets between the hosts?
because it was using external IP address for other devices in the network that weren't accepting connections
 - b. Is the line ' r1.cmd('sysctl -w net.ipv4.ip_forward=1') ' required?
No
 - c. Intentionally break your working program, e.g.: change a subnet length, IP address, or default route for a host. Explain why your change caused the network to break.
changing the subnet length to 255 it cause the entire IP to be ignored and therefore can't be routed