IIT CS542: Computer Network Fundamentals
Final Project Running Environment

Require Programming Language:

Python3

Require Container:

VScode

The Information of Hosts:

HostA/Sender is Mac OS.

HostB/Receiver is Windows OS.

Name	OS	Role	Ip Address	Action/Function
HostA	Mac	Sender	192.168.50.133	Request(step1)
				Receive Reply(step4)
HostB	Windows	Receiver	192.168.50.202	Receive Request(step2)
				Reply(step3)

Step 1: Set Destination IP address, and you can rewrite other parameters.

```
# define the parameters
# 1. the bit length of payload data
payload_data_bit_length = 256
# 2. define the type of message
message_type = "ICMP"        .
# 3. reveiver ip address
rec_ip_address = "192.168.50.202"
```

Step 2: Receiver should listen all the time, to wait for ICMP message. Therefore, type "python reve_icmp.py" in the terminal(Windows, receiver host). The graph shows the result while receiving ICMP messages. (actually, after step 3)

```
S:\program_test\test_22_5_06_1\ping_fin>python reve_icmp.py
start to keep listening:

*******************************************receive icmp*********************************************
sequence_number:  1
id_address_reveiver:  192.168.50.133
content/payload:
578960446186580977117854925043439539266349923328202820197287920039566564819968
***************************************************************************************************


*******************************************receive icmp*********************************************
sequence_number:  2
id_address_reveiver:  192.168.50.133
content/payload:
578960446186580977117854925043439539266349923328202820197287920039566564819968
***************************************************************************************************


start to reply:
================================sending================================
start sending icmp,round:  1
=======================================================================
start sending, sequence number:  1
finish sending, sequence number:  1
start sending, sequence number:  2
finish sending, sequence number:  2
=======================================================================
```

Step 3: Sender should send 2 requests ICMP messages. Therefore, type "python send_icmp.py" in the terminal(Mac, sender host). The graph shows the sending messages, receiver replies and the statistics.

```
(base) elonchen@MacBook-Pro share_mac % sudo python3 send_icmp.py
======================================sending======================================
start sending icmp,round:  1
===================================================================================
start sending, sequence number:  1
finish sending, sequence number:  1
start sending, sequence number:  2
finish sending, sequence number:  2
===================================================================================

****************************************receive reply****************************************
sequence_number:  1
id_address_reveiver:  192.168.50.202
time_period:  6.2551  ms
content/payload:
57896044618658097711785492504343953926634992332820282019728792003956564819968
*********************************************************************************************


****************************************receive reply****************************************
sequence_number:  2
id_address_reveiver:  192.168.50.202
time_period:  73.2131  ms
content/payload:
57896044618658097711785492504343953926634992332820282019728792003956564819968
*********************************************************************************************

++++++++++++++++++++++++++++++++++++statistics++++++++++++++++++++++++++++++++++++
total sending number:  2
total reply number:  2
loss rate:  0.0
max pass time:  73.2131
min pass time:  6.2551
average pass time:  39.734
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```