Average UDP-based ping (between lab machines): 0.2833ms
Average TCP-based ping (between lab machines): 0.2395ms
Overall, the TCP-based ping is slightly faster than the UDP-based one.
From the coding aspect, TCP is faster because before client sends anything to the server, they create a connection first. Then send message. Message will be delivered to the server unless connection fails.
On the other hand, UDP is connectionless protocol, the server just keep receiving. Even packet gets lost, it wouldn't know.