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Programming language and version: Python (version 3.6.4)

Testing environment:  
 OS: Windows 7 Professional

IDE with entrance file: Python 3.6.4 (Run Module – F5)

Command lines: N/A

Purpose: The two scripts demonstrate a basic network ping emulation where a client sends encoded data to a server, the server receives and unpack the data and returns a new packaged data to which the client receives and unpacks. Additionally, the client checks the round trip time from when the client sends and receives data to/from the server. Moreover, the server is programmed to randomly ignore a return packet and as such the client handles this as a failed packet/time out, and calculates the statistics of packets sent and lost.

References used:

String formatting => <https://www.learnpython.org/en/String_Formatting>

Socket timeout => <https://docs.python.org/3/library/socket.html>

Handling exception => <https://docs.python.org/3/tutorial/errors.html#handling-exceptions>

Handling all timeout and socket error => <https://forum.micropython.org/viewtopic.php?t=2688>

Escape % => <https://stackoverflow.com/questions/10678229/how-can-i-selectively-escape-percent-in-python-strings>

Import random => <https://docs.python.org/3/library/random.html>

Packing data in for networking 4-bytes order => <https://docs.python.org/3/library/struct.html>

No. of decimals in float => <https://stackoverflow.com/questions/8568233/print-float-to-n-decimal-places-including-trailing-0s>

Time function => <https://docs.python.org/3/library/time.html>