CN LAB REPORT

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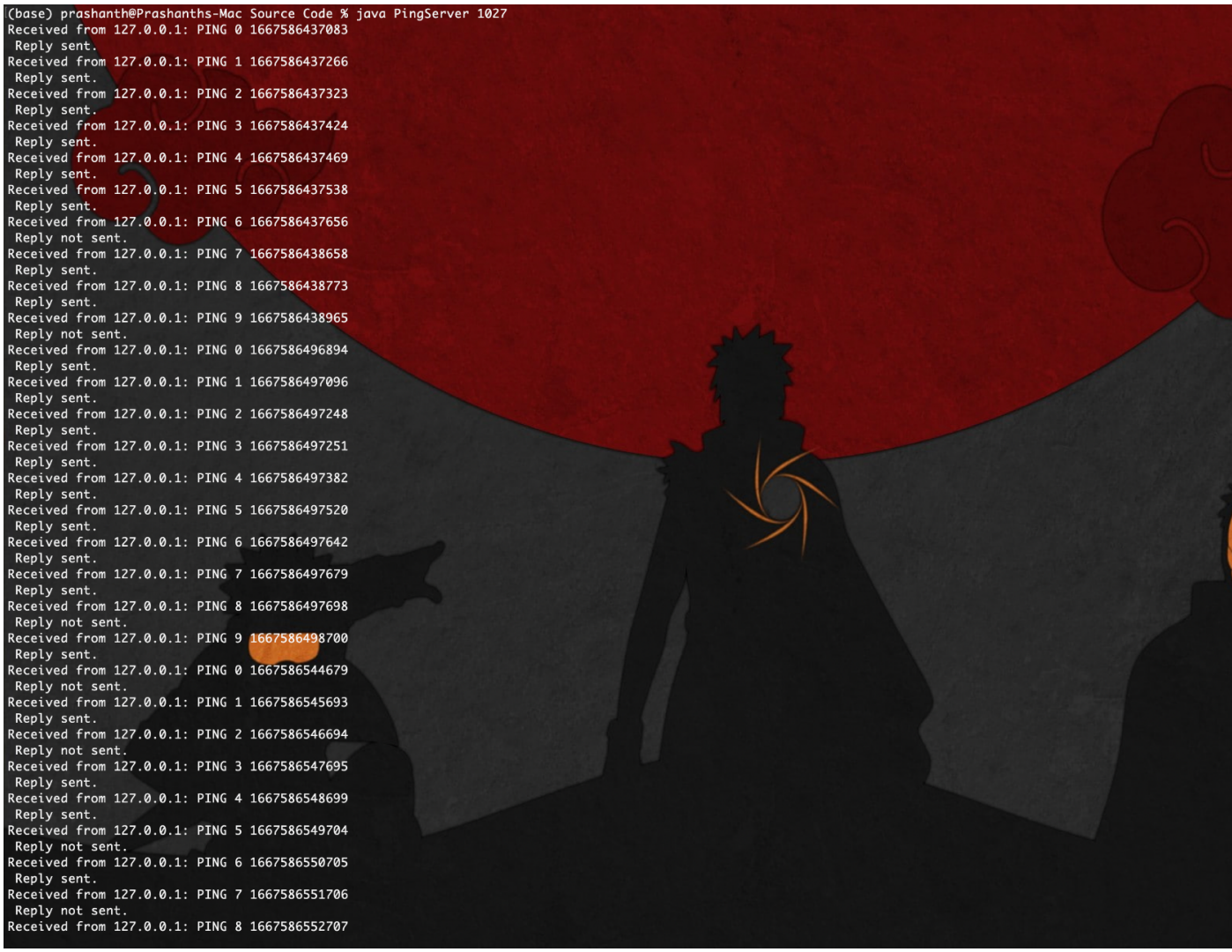
UDP Server

1. Class with PingServer.
2. A UDP server needs to be aware of the client port on which to send messages to the client so a private static final field is used.
3. A socket is needed to be created for receiving and sending UDP packets through the port. To generate the messages that need to be sent to clients are stringed by the loop.
4. Since we use UDP, datagram packets are used for communication so all these messages need to be wrapped in a datagram packet
5. Datagram packet needs to know the message that will be sent (the message will be in byte type) the length of the message, the IP address of the client (hostname), and the port where the client can receive it.

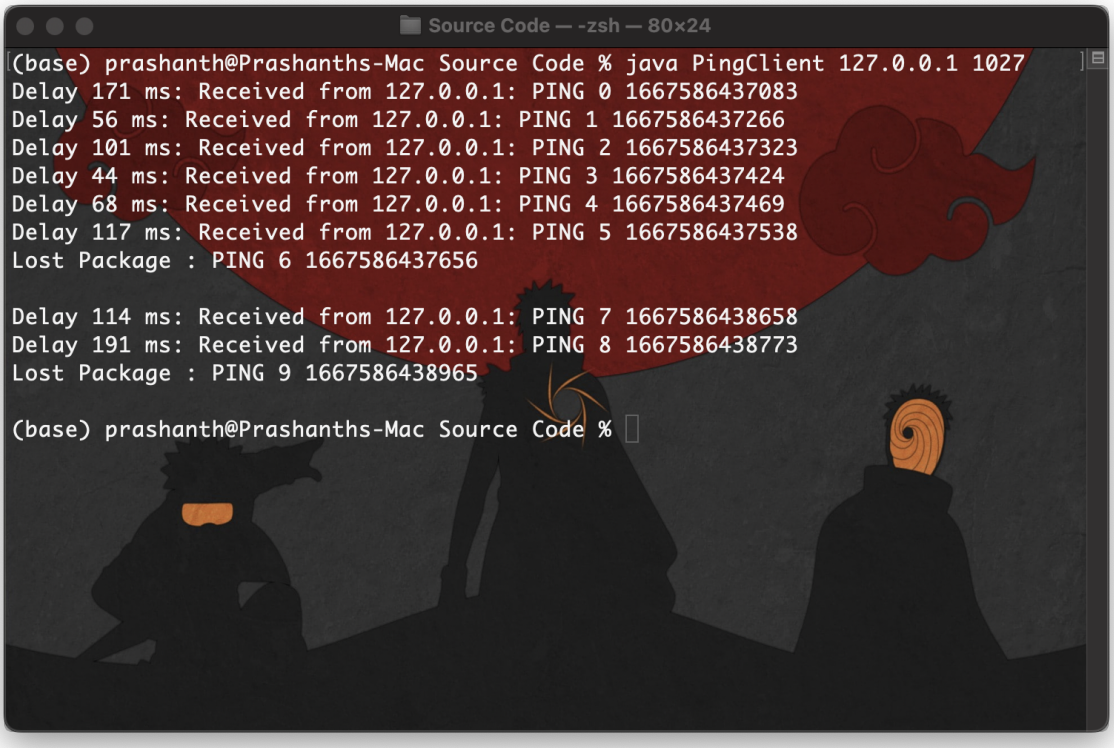
UDP Client

1. Create a class with PingClient.
2. Define the port on which the client will receive the message.
3. Create a socket and give a host IP address and a port number which is the same as the server port number, then set up a connection socket so that we can send and receive UDP packets.
4. A loop is set up to send out 10 UDP packets the packets will contain the host address, the number of the packets and the time in milliseconds to receive the packet.
5. If the pack is not received in one second or a thousand milliseconds then the packet is assumed lost.
6. The bytes are then wrapped into an array stream so they can be read.

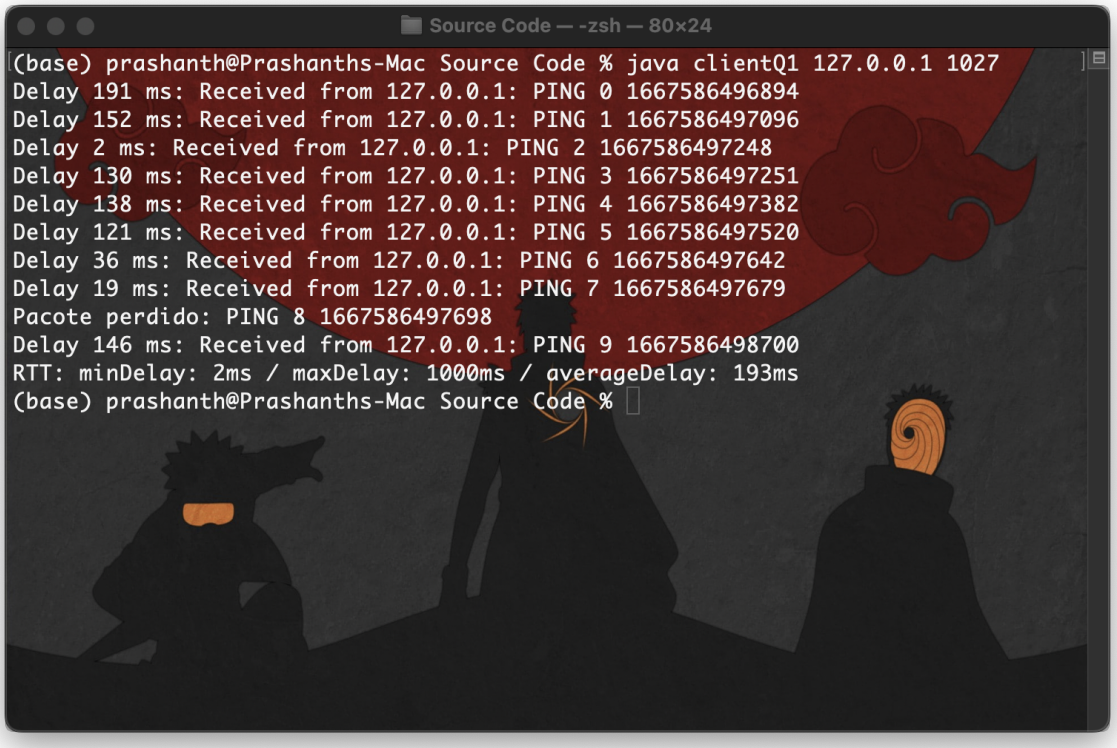
Server : PingServer.java contains the source code



Client : PingClient.java contains the source code.

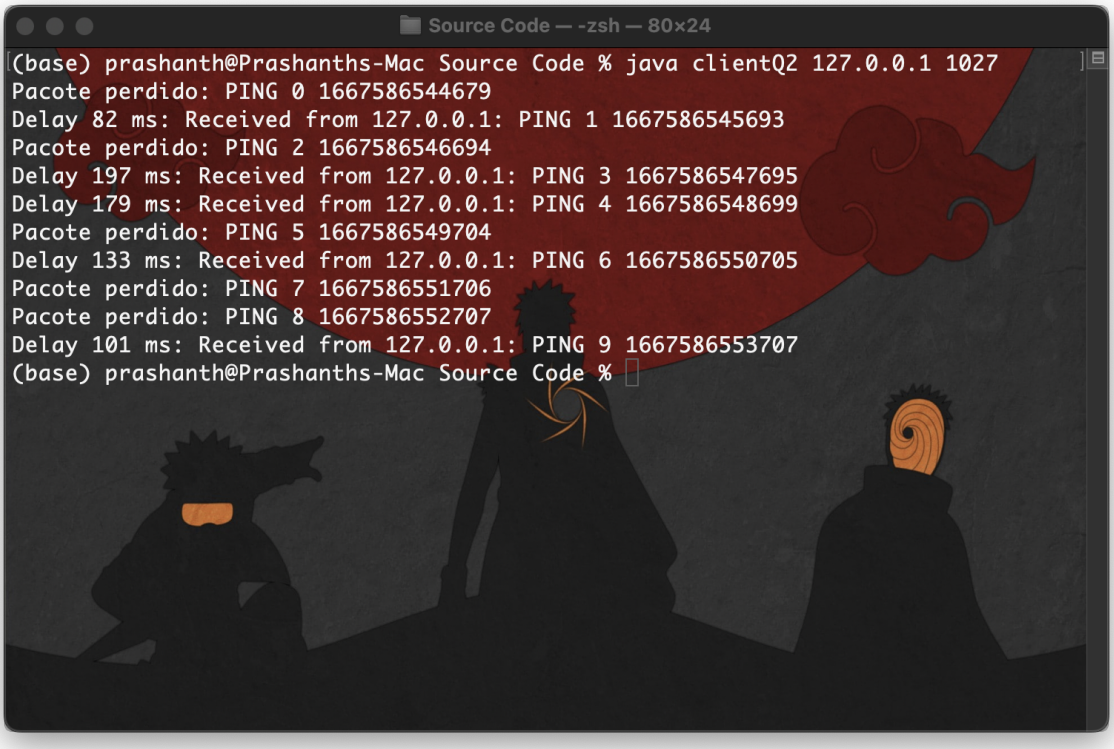


1) Currently the program calculates the round-trip time for each packet and prints them out individually. Modify this to correspond to the way the standard ping program works. You will need to report the minimum, maximum, and average RTTs. (easy)



clientQ1.java contains the source code

2) The basic program sends a new ping immediately when it receives a reply. Modify the program so that it sends exactly 1 ping per second, similar to how the standard ping program works. Hint: Use the Timer and TimerTask classes in java.util. (difficult)



clientQ2.java contains the source code