CO324 Lab 05: Datagram Sockets

Outcomes

At the end of this lab you should be able to,

- Describe the difference between stream and datagram communication.
- Send and receive datagram packets in Java.
- Calculate round-trip time and, throughput.

References

http://docs.oracle.com/javase/7/docs/api/java/net/DatagramSocket.html
http://tutorials.jenkov.com/java-networking/udp-datagram-sockets.html

Exercises

Run the provided simple UDP client and server (UDPClient.java, UDPServer.java) programs. For these exercises you should run UDPServer and UDPClient on two different machines via ssh.

1. Why doesn't datagram communication use Java's Input/Output streams?

2. Modify the code to calculate the throughput between client and server.
   Throughput = No of Packets Received per second

3. Modify the client and server to calculate the average **round-trip time (RTT)** between client and server (time the client's request takes to reach the server plus the time the server's response takes to reach the client.)
   Hint: you can use System.**currentTimeMillis**() to add a timestamp to packets.

4. Run your RTT program with a large (>8 kb) packet size and see if you notice anything unusual.

5. What assumption(s) have you made in answering questions 2 & 3?