CSE 283: Data Communication and Networks – FS 2014
Lab 1: Hello, network world!
Due date: 9/3/2014

Description In this lab, you will write a simple UDP client that exchanges one packet with a remote server. The client is to first send a UDP packet containing a single integer of your choosing to the server, and the server will return a packet containing a second, different integer. The lab material on *niihka* contains a compiled server and a template Lab1Client.java file that you may start with.

Grading This lab is credit/no credit. You must demo the following to me or the TA:

- Client sends one packet containing a single integer to the server.
- Server correctly interprets this packet.
- Client correctly interprets the response from the server.

These must be demoed both on your machine (that is, you run the provided Lab1Server locally) and against a Lab1Server elsewhere on the network (e.g., the instructor's or TA's machine).

Learning objectives By the end of this lab, you should:

- . . . be able to develop, build, and run Java code in Eclipse on your machine.
- . . . understand basic UDP communication.

Questions You should be able to answer these questions (e.g., if they were to appear on an exam):

- What is the difference between big-endian and little-endian, and which is typical of a network?
- Is UDP communication reliable? Is it efficient?

Reference material Here are a few references you may find useful:

- Java API: http://docs.oracle.com/javase/7/docs/api/
- Java networking tutorial: http://docs.oracle.com/javase/tutorial/networking/datagrams/clientServer.html

On Eclipse This lab is distributed as a zipped Eclipse project (they call it an "archive"). To import this project into your workspace, select File → Import, then under "General," select "Existing Projects into Workspace." Click "Select archive file," and then browse to locate the lab1.zip archive file. Finally, click "Finish" to start the import.

Running the server The server for lab 1 has been provided as a runnable JAR file. It can be executed on the command line like so: `java -jar lab1server.jar`. It can also be run as Lab1HandoutServer from inside Eclipse (click the small triangle next to the green "Run" arrow in the toolbar, and select Lab1HandoutServer).

Running the client A template client Java file has been provided in the lab1handout project. You are free to modify this however you like. A run/debug configuration has also been provided. It is currently configured to send `localhost 42` to the client's command line.