COSC 350 Assignment 2 Spring 2020

Due Friday Tuesday May 12 11:59 pm. Please submit your solutions (one per group) in a single zip file named GroupNameA2 via Blackboard. The zip file should only include 2 files: the modified client and the modified server files (no others). Name them as follows: GroupNameClientA2.java, GroupNameServerA2.java

1. Get the code for SntpClient.java and NtpMessage.java from: http://support.ntp.org/bin/view/Support/JavaSntpClient (click on Attachments at the bottom of the page).

Read the comments in the code and the documentation on NTP at http://ntp.org as needed.

1. Get the code for NTPServer.java t

http://read.pudn.com/downloads55/sourcecode/windows/network/189149/NTPServer/NTPServer.java\_\_.htm

Modify the SntpClient.java code (client) above and UDPServerThreads (server) Java UDP socket code posted on BB so that the modified client and server work as specified below. Use the code in NTPServer.java and UDPServerThreads making modifications as needed to write the server code. Do not modify NtpMessage.java.

1.1 The modified server (localhost) does the following:

1.1.1 Listens on UDP port 1000 for clients

1.1.2 Starts a client handler CH (new thread) to handle the client

1.1.3 The client handler CH reads the NTP request from the client and sends the response (note that the exisiting NTPServer.java already reads the NTP request and sends the response so don’t change that part of the code)

1.2 The modified client does the following (note that modified client does not use threads):

1.2.1 Stores the current local time startTime by using the system clock

1.2.2 Sends the NTP request to the localhost server listening on port 1000 (note that the exisiting SntpClient.java already does this so don’t change that part of the code)

1.2.3 Counts the number of bytes numBytes in the NTP request sent over the socket to the server

1.2.4 Receives the NTP response, stores the current local time in destinationTimestamp and prints relevant time values (note that the exisiting SntpClient.java already does this so don’t change that part of the code)

1.2.5 Prints “delay=” followed by the value destinationTimestamp-startTime in milliseconds

1.2.6 Prints “datarate=” followed by the value numBytes/(destinationTimestamp-startTime) in bits per second.