**CS 3873: Net-Centric Computing**

Lab 2: Socket Programming

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**[Mandatory]** Declaration: “I warrant that this is my own work.”

Signed by Mahmoud Moustafa

[Optional] “I hereby give my permission for this work to be used (with my name and identifying information removed) for UNB Faculty of Computer Science program accreditation purposes.”

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Report for Lab Exercise 2:

Socket Programming

**LAB ACTIVITIES:**

In this lab, a client and a server are written in Java to implement simple file transfer functions with sockets.

**PROGRAM RUNNING INSTRUCTIONS:**

Please compile and run the uploaded Java programs using the following commands:

Compile using “javac TCPFile\*.java”

Run the server first “java TCPFileServer”

Finally run the client “java TCPFileClient [Hostname]” In my case was java TCPFileClient id415m21

**APPENDIX A: CLIENT**

The following is the Java source code for the client:

import java.io.\*;

import java.net.\*;

import java.util.Scanner;

class TCPFileClient{

public static void main(String[] args) throws Exception {

String sentence;

String modifiedSentence;

File file = new File("PoemShakespeare.txt");

Scanner inFromUser = new Scanner (file);

Socket clientSocket = new Socket(args[0], 6789);

DataOutputStream outToServer = new DataOutputStream(

clientSocket.getOutputStream());

BufferedReader inFromServer = new BufferedReader(new InputStreamReader(

clientSocket.getInputStream()));

int x = 0;

long startTime = 0, endTime;

while(inFromUser.hasNextLine()){

sentence = inFromUser.nextLine();

if (x == 0){

startTime = System.currentTimeMillis();

x++;

}

outToServer.writeBytes(sentence + '\n');

modifiedSentence = inFromServer.readLine();

System.out.println("FROM SERVER: " + modifiedSentence);

}

outToServer.writeBytes("Done" + '\n');

modifiedSentence = inFromServer.readLine();

System.out.println("FROM SERVER: " + modifiedSentence);

if(modifiedSentence.equalsIgnoreCase("Bye")){

endTime = System.currentTimeMillis();

clientSocket.close();

System.out.println("Number of data sent in bytes: " + outToServer.size());

System.out.println("Total time: " + (endTime - startTime) + "ms");

}

}

}

**APPENDIX B: SERVER**

The following is the Java source code for the server:

import java.io.\*;

import java.net.\*;

class TCPFileServer {

public static void main(String args[]) throws Exception {

String capitalizedSentence;

ServerSocket welcomeSocket = new ServerSocket(6789);

System.out.println ("Waiting for connection.....");

Socket connectionSocket = welcomeSocket.accept();

BufferedReader inFromClient = new BufferedReader(

new InputStreamReader(connectionSocket.getInputStream()));

DataOutputStream outToClient = new DataOutputStream(

connectionSocket.getOutputStream());

String clientSentence = inFromClient.readLine();

while (clientSentence != null) {

System.out.println("From client at " + connectionSocket.getInetAddress()

+ ": " + clientSentence);

// System.out.println(clientSentence);

if (clientSentence.equalsIgnoreCase("Done")){

outToClient.writeBytes("Bye"+'\n');

}

else{

capitalizedSentence = clientSentence.toUpperCase() + '\n';

outToClient.writeBytes(capitalizedSentence);

}

clientSentence = inFromClient.readLine();

}

}

}