**Team 21**

**Caleb Johnson, Garrett Scott**

**Dr. Biaz**

**10/4/2023**

**Comp-4320-002**

**Report on UDP Client-Server Project**

**Whether the programs work or not:** Yes, the programs work as expected.

**Directions to compile and execute the programs:**

Connect to two separate tux machines and run Client commands in one and Server commands in the other

To compile the client and server programs, run the following commands:

javac UDPClient.java

javac UDPServer.java

To execute the server program, run the following command:

java UDPServer <port\_number>

where <port\_number> is the port number that the server will listen on.

PLEASE ENSURE SERVER IS RUNNING BEFORE RUNNING THE CLIENT!

To execute the client program, run the following command:

java UDPClient <hostname> <port\_number>

where <hostname> is the hostname or IP address of the server, and <port\_number> is the port number that the server is listening on.

Follow the prompts given in the terminal to send a short number to the server.

To repeat this process, type ‘Y’ when prompted.

To close the client connection, type ‘N’ when prompted.

**Results:**

The following table shows the minimum, average, and maximum round trip times for 5 different numbers run 5 times:

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Minimum round trip time (ms)** | **Average round trip time (ms)** | **Maximum round trip time (ms)** |
| 1000 | 1.0 | 1.6 | 3.0 |
| 2000 | 2.0 | 2.2 | 3.0 |
| 3000 | 1.0 | 2.0 | 3.0 |
| 16735 | 1.0 | 1.4 | 2.0 |
| -16735 | 1.0 | 1.4 | 2.0 |

**Screenshots:**

The following screenshots show the client and server programs executing on Tux machines:

**Client:**

A screenshot of a computer

Description automatically generated

**Server:**

A screenshot of a computer program

Description automatically generated

**Conclusion:**

The UDP client-server programs were successfully implemented and executed on Tux machines. The screenshots show that the programs are running on Tux machines and that the username, date, and Tux machine name are clearly visible. The round-trip times for 5 different numbers were measured and the results are reported in the table given above.