**Group members**

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**How to run it:**

* Download the zipped files and unzip the folder
* Open in any JDK based IDE with JDK version of 1.8 or higher
* Open the Client.java file and in the line 191 update that directory to your own to create input files and in line 300 update the directory again to store output files of the program result.
* Find Main file which contain the main method which act as entry point for JDK

**Files in Messgaing simulation**

**Server.java file**

This file contain all the server based code which opens connection for clients at port 7778

locally hosted machine.It defines methods such as startWritting() , which start to dispatch messages to varuous clients.

It has startReading() method which gets the clients message and the destination of the message.

Server has got infinite thread creation feature implemented through for loop which is called to create a number of threads as per instructed

**Client.java file**

This file is responsible for creating clients or nodes which feeds from the server file through the TCP/IP sockets.

Client is multithreaded to optimize it functionalities.

Client create files (input files) and read its content to send it to its destination node

Client also automatically creates the ouput file with refernce to its name, then stores message it recieves here.

Client file also creates a Graphic User Interface which represents the number of nodes created graphically.

**Main.java file**

Its the beginning of programm execution. It instantiate single server object and numurous nodes or clients as prescribed through an input featiure in command line argument. The nodes ranges from 2 to 255.

**Node.java file**

It creates nodes and makes the communication happen between them using multithreading.

**Features implemented:**

| **Feature** | **Status of the feature** |
| --- | --- |
| **Project Compiles and Builds without warnings or errors** | **Completed** |
| **The server class** | **Completed** |
| **The server has a frame buffer and reads/writes appropriately** | **Completed** |
| **The server allows multiple connections** | **Completed** |
| **The server learns destinations and doesn't forward packets to any port except the one required** | **Incomplete** |
| **Node class** | **Completed** |
| **Nodes instantiate, and open connection to the server** | **Completed** |
| **Nodes open their input files and send data to the server** | **Completed** |
| **Nodes open their output files and save data that they received** | **Partially done** |

**Observed bugs:**

**When the server learns about the destinations, they are not able to transmit the packets to other ports except the required ones.**

**Once the input files are created for all the nodes that were created dynamically and after passing the information between clients, that data is not stored in the output files.**