

# **Network Programming Project**

## **Project Design/Implementation**

A network-based chat application was written in Java, using the Java Socket API, to fulfil the requirements of the project.

The application is launched from the command line. When the server and client(s) are connected the clients are able to use text-based chat to communicate with each other.

The application contains the two classes: ChatServer and ChatClient. Each class has a main method and can run independent of the other.

ChatServer creates a server socket, listens for incoming client requests and handles each request in a separate thread. This facilitates multiple clients at the same time. When a client connects to the server the client name is stored for the chat session.

ChatClient creates a socket connection to the server, when the connection is created, the user is asked to enter a username and the chat session can begin.

## **Instructions for running the application**

### **ChatServer**

1. From the command line type:  
java ChatServer 4444 i.e. java classname port number
2. The message, 'Listening for connection on port 4444', should be displayed.

### **ChatClient**

1. From the command line type:  
java ChatClient localhost 4444 i.e. java classname localhost port number
2. The message, 'Connected to server on host localhost', should be displayed.

### **Once connected**

1. Enter your username when prompted
2. Chat
3. To quit, type '\q'

## **References**

French, J. (2021) 'Introduction to the Socket API' [Lecture]. *46372: Network Technologies*. GMIT. 18 November.

French, J. (2021) 'Socket Programming Examples' [Lecture + Labs]. *46372: Network Technologies*. GMIT. 19 November.

Java T Point, n.d. *Java Socket Programming*. Available from:  
<https://www.javatpoint.com/socket-programming> [Accessed 04/01/2022].

Oracle, n.d. *Class InetAddress*. Available from:  
<https://docs.oracle.com/en/java/javase/11/docs/api/java.base/java/net/InetAddress.html>  
[Accessed 03/01/2022].

Oracle, n.d. *All About Sockets*. Available from:  
<https://docs.oracle.com/javase/tutorial/networking/sockets/index.html> [Accessed 06/01/2022].

Tutorials Point, n.d. *Java-Networking*. Available from:  
[https://www.tutorialspoint.com/java/java\\_networking.htm](https://www.tutorialspoint.com/java/java_networking.htm) [Accessed 06/01/2022].