

# Algorithm Design and Analysis

## Assignment One

The purpose of this assignment is to develop a client/server chat system where clients can connect to the server and use it to send each other messages.

The system should include the following components:

**Project Design and Documentation** which is a document describing the software project, its components and any additional features, details of the client/server protocol, user documentation, and includes an accurate and clear UML diagram. **(10 marks)**

**Server** which maintains a list of clients that are currently connected (each with a unique name) and passes messages from one client to another. It should provide some mechanism for notifying clients when the server will be terminating connections or when a client disconnects. **(15 marks)**

**Client Interface** which is a GUI used to connect to the server and obtain a list of other currently connected clients. It should enable a client to send a text message to another chosen client via the server and display the messages received from other clients. Ideally the list should be updated on the GUI whenever a new client connects to or disconnects from the server. **(15 marks)**

**One Other Feature** such as sending and receiving images, utilising UDP for some communication, hidden connections via a password whose presence is only known to the other hidden clients, or when the server starts having it send e-mails to a list of addresses notifying them of the IP address and port of the server. **(10 marks)**

Optional