IN2011 Computer Networks Coursework (RESIT)

07 July 2023

Overview

This coursework assesses your ability to use what you have learnt about networking to build functioning software that interacts with network services. This includes the following:

- Understanding the IP network layer and TCP transport layer.

- Being able to read and understand the specification of an application layer protocol.

- Using Java to implement the application layer protocol.

Task

Please read the instructions carefully. You will lose marks if you do not follow them.

Assume that you are recently hired by *Umail.com* to develop implementation of email server and client. The email service is based on SMTP/IMAP protocols and gives permission to registered users to send and receive emails with Java.

You are required to write Java program that can:

1. Act as an email client or email server.
2. Verify sender address and password.
3. Add additional headers. Except four standard header fields, From, To, Subject, and Date. Please add other header fields from RFC 822, e.g., Message-ID, Keywords. RFC 822 for the definitions of the different fields can be found via https://www.rfc-editor.org/rfc/rfc822.txt
4. Handle multiple clients simultaneously.

Submission

You are to submit a zip file containing:

1. The source code of the program (do not include class or binary files) and any project files needed to build and run it.

2. A README.txt file that clearly gives all the instructions needed to build and run the software. It must be able to be built and run on the course virtual machine.

Submission deadline: **Friday 11th August 2023, 16:00**

Mark Scheme

This is individual coursework. The program that you submit must be your work. Submissions will be marked out of a total of **50**.

Marks will be awarded for the following:

README.txt (**3**) Is there a README text file? Does it clearly describe how to build and use the system?

Compilation (**3**) Does the program compile without errors or warnings?

Running (**4**) Does the program run?

Email Client (**15**) Can the program connect to an Email server? Form and send email correctly.

Email Server (**15**) Can the program act as an Email server? Can it handle multiple clients at once?

Robustness (**5**) Does the program crash? Does the program handle error cases and incorrect input well?

Code Quality (**5**) Is the program well structure, well designed and adequately commented and documented?