National Institute of Technology Calicut
Department of Computer Science and Engineering

Winter Semester 2020 – 2021
CS3093D: Networks Laboratory

Experiment – 08

In this experiment, you will learn about the SMTP protocol and build a simple mail server and client to send mails. SMTP is used to send mails from a mail client to the mail server (More details of SMTP are available in RFC 821). You need to have an SMTP server and an SMTP client. The SMTP mail server will receive mails from another mail client/server using SMTP and store them.

SMTP Server:

Before proceeding, you need to set up a few things. In the directory from which you will run the program, create a file called **logincred.txt** with the following content. Each line of the file contains a one word user login name and a one word password, separated by comma.

logincred.txt file:

Stallings,network$ecurity
Fourouzan,d@t@comm
Andrew,@dministr@tor

Then, in the same directory, create one subdirectory for each of the users named after the users. **The mailboxes for each user will be stored in the respective subdirectories.** Each subdirectory contain ***mymailbox.mail*** file which stores the received mail corresponding to that user.

Now write a C program named ***smtpmail.c*** to act as an SMTP mail server to receive mails from another mail client/server using SMTP and store them. The program will take a command line integer argument ***my_port*** that will indicate the port on which the mail server will run. It should handle receive of incoming mail. It simply waits on a socket bound at port ***my_port***. When a connection is made from a sender, the process follows the SMTP protocol to receive the message.

The received message is then appended to the end of a file named ***mymailbox.mail*** that is stored in the user's subdirectory (remember that the subdirectories are created manually). The username for the mail will be in the mail address, so the program should redirect to the corresponding subdirectory. The mail is appended in the following format.

From: <username>@<domain_name>
To: <username>@<domain_name>
Subject: <subject string, max 100 characters>
Received: <time at which received, in date : hour : minute>
<Message body – one or more lines>
.

Thus, the mymailbox.mail file at any instant contains 0 or more such messages, each separated by a full stop character (only the full stop character in one line).

SMTP Client:

You have to create a C program named ***mailclient.c***. The program would first ask for the username and password. It will then ask for options from the user and wait for user input from the keyboard.

The program should support the following 2 options:

1. Send Mail : Allows the user to send a mail
2. Quit : Quits the program.

The ***mailclient.c***. program will open a connection to the server process in the MailServer machine. It will then use the SMTP protocol to communicate with server process and send the mail to the mail server machine.

In the Send_Mail function:

The user should enter the mail to be sent in exactly the following format:

> From: <username>@<domain name>
> To: <username>@<domain name>
> Subject: <subject string, max 50 characters>
> <Message body – one or more lines, terminated by a final line with only a fullstop character>

You can assume that no single line in the message body has more than 80 characters and the maximum no. of lines in the message is 50. Also, you can assume that the To line will not contain more than one email address.

An example typed by a user can be

> From: stallings@localhost
> To: andrew@localhost
> Subject: SMTP Experiment
> Next evaluation will be on 22 March 2021.
> Please be ready.
> .
>
> Note the single fullstop, immediately followed by an <Enter> at the last line.
> On getting the complete message, the process first checks the format of the message. The following checks must be done:
>
> 1. The From, To, and Subject field must be there, in that order and in proper format. The message body can be empty (just the fullstop at the last line).
> 2. The format for the From and To fields must be X@Y.

If the format is not correct, then “Incorrect format” is printed, and the two options are given again. The entire mail has to be entered again, there is no editing facility. If the format is correct, the process sends the mail to the SMTP Server and stores accordingly. If the mail is sent successfully, the client process prints the message “Mail sent successfully” on the screen.

Deadline : 29, Mar.'21 (1.00 pm)
Evaluation mode : Program will be given based on the experiment