Assignment – 4

Develop a simple mail client and server system, which run SMTP. Your client needs to connect to a mail server (*mymailserver*), dialogue with the mail server using the SMTP protocol, and send an email message to the mail server.

Before using the service, users (clients) have to register with the email server. You can use the client file descriptor to identify a client. Email address assigned to each client by the mail server is: <client's_socketfd>@*mymailserver.*

A conventional sequence of messages exchanged between the client and the server, is as follows, where the sender A sends one email to three different recipients B, C, D:

Client establishes a TCP connection to the server (Port 25)
S: 220 Service Ready
C: HELO
S: 250 OK
C: MAIL FROM: <A's client socket fd>@*mymailserver*
S: 250 OK
C: RCPT TO: <B's client socket fd>@*mymailserver*
S: 250 OK
C: RCPT TO: <C's client socket fd>@*mymailserver*
S: 550 No such user here
C: RCPT TO:< D's client socket fd>@*mymailserver*
S: 250 OK
C: DATA
S: 354 Start mail input; end with <CRLF>.<CRLF>
C: ...email body...
C: ...email body continues…
C: <CRLF>.<CRLF>
S: 250 OK
C: QUIT
S: 221 Connection Closed

(For more detail about SMTP, refer to RFC 821/ 5321.)

Note that, in the above, users A, B and D are registered with the mail server, but not C.

From time to time, a user can send a command to the mail server to retrieve all incoming emails. (The server needs to maintain a mailbox for every registered user, which stores his/her emails temporarily until those are retrieved by the user.)

On receiving this email retrieve command from a user, the mail server sends his/her unread emails, after prepending the following header:

```
*************************************
From: <sender's client sock fd>@mymailserver
To: <receiver's client sock fd>@mymailserver
MIME-Version: 1.0
Content-Type: text

*************************************
```

The received email(s) along with the header is(are) displayed at the receiver's end (at client site).

All emails are flushed out of the user's mailbox (maintained at the server site) after those are retrieved by the client.