CSCI-351 Project: SMTP Email Server

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SMTP implementation details:

My project aims to create a basic email server using the SMTP protocol. It uses nearly all of the same steps as seen in a real mail server that uses SMTP as its mail protocol of choice. First, The client and server must establish a connection with each other, and this is done through the HELO signal from the client with code 220. Next, the client tells the server who the mail is coming from, who the mail should go to, and the data associated with the email message. Each of these steps is followed up with an Ok with code 250. Finally, the client will send a period (.) on a line by itself to signal the end of the message data, which is interpreted as a message with code 354. Once the message content is sent, the server will send a Bye signal with code 221 to the client, which will then close its end of the connection. Here is a screenshot of the SMTP protocol from its Wikipedia page, for reference:

A screenshot of a computer program

AI-generated content may be incorrect.

My program matches the real SMTP protocol very closely. For simplicity, my program does not include a Cc or Bcc feature or a date. Each email is saved as a file in the mailbox, and the filename is the subject of the email. Each user gets their own subdirectory in the mailbox so that multiple users can receive an email with the same subject. Additionally, in the real SMTP, the server will close its own connection after the Bye signal is sent, but in my implementation, I allowed the server to keep the connection open so that it is easier to send multiple test emails without needing to restart the program or the connection every single time. In summary, my implementation matches the real protocol on these steps:

* HELO signal (220)
* MAIL FROM message
* RCPT TO message
* DATA message
* Ok signal (250)
* End data with . (354)

Minor changes for simplicity occur at these steps:

* No Cc, Bcc, or date
* Email subject is the filename when saved
* Server connection stays open after Bye (221)

1. Sending an email to the server

Client view:

A computer screen with white text

AI-generated content may be incorrect.

Server view:

A screen shot of a computer

AI-generated content may be incorrect.

1. Requesting all emails for a user

Client view:

A black screen with white text

AI-generated content may be incorrect.

Server view:



1. Reading an individual email

Client view:

A black screen with white text

AI-generated content may be incorrect.

Server view:

