ECE 4436A Networking: Principles, Protocols and Architectures

Assignment # 2: SMTP

Python 3.x must be used

Release Date: October 26, 2018 - Due Date: November 16, 2018 at 5:00 pm

You are required to complete the assignment individually. Required files must be submitted on OWL. Do not show your code to any other class members code. Do not put your code in any public domain. TAs will be available at 3C+4435 during lab hours every week and next week to answer any question that you may have. *Please note that you can attend only the Lab section that you are registered in*. You may ask questions related to the Lab only during Lab hours and office hours.

Due to the large enrollment in this course we will not be able to answer questions by email. Instructor and TAs contact information are available on OWL

Report:

- Cover page including official name and Student ID
- File name: "LastNameMember_assignment2.pdf"
- Add screenshots to each question

When you complete your assignment, please submit the **source code & other required files using OWL**. Although this is a programming assignment, you must comment the code so that it can be read and understood by another programmer that is not necessarily experienced with Python.

Two files need to be submitted:

1. PDF file with the report that includes the discussion and results shown through screenshots.
2. Source code compressed into **.zip** format. Please **do not use** other compression formats.

Materials:

See Sections 2.7 of the textbook for an introduction to socket programming in Python.

Lab Description

By the end of this lab, you will have acquired a better understanding of SMTP protocol. You will also gain experience in implementing a standard protocol using Python.

Your task is to develop a simple mail client that sends email to any recipient. Your client will need to connect to a mail server, dialogue with the mail server using the SMTP protocol, and send an email message to the mail server. Python provides a module, called smtplib, which has built in methods to send mail using SMTP protocol. However, we will not be using this module in first part of this assignment, because it hide the details of SMTP and socket programming.

Code

Below you will find the skeleton code for the client. You are to complete the skeleton code. The places where you need to fill in code are marked with **#Fill in start** and **#Fill in end**. Each place may require one or more lines of code.

Additional Notes

In some cases, the receiving mail server might classify your e-mail as junk. Make sure you check the junk/spam folder when you look for the e-mail sent from your client.

Submissions in Python 2.x will receive Zero mark

Skeleton Python Code for the Mail Client

```
from socket import *

msg = "\r\n I love computer networks!"

endmsg = "\r\n.\r\n"


# Choose a mail server (e.g. Google mail server) and call it mailserver

mailserver = #Fill in start    #Fill in end


# Create socket called clientSocket and establish a TCP connection with mailserver

#Fill in start


#Fill in end

recv = clientSocket.recv(1024).decode()

print(recv)

if recv[:3] != '220':

       print('220 reply not received from server.')


# Send HELO command and print server response.

heloCommand = 'HELO Alice\r\n'

clientSocket.send(heloCommand.encode())

recv1 = clientSocket.recv(1024).decode()

print(recv1)

if recv1[:3] != '250':

    print('250 reply not received from server.')


# Send MAIL FROM command and print server response.
```

```
# Fill in start


# Fill in end
# Send RCPT TO command and print server response.
# Fill in start


# Fill in end


# Send DATA command and print server response.
# Fill in start


# Fill in end


# Send message data.
# Fill in start


# Fill in end
# Message ends with a single period.
# Fill in start
# Fill in end


# Send QUIT command and get server response.
# Fill in start


# Fill in end
```

Questions/What to Hand in:

a) Your task is to develop a simple mail client that sends email to any recipient. Your client will need to connect to a mail server, dialogue with the mail server using the SMTP protocol, and send an email message to the mail server. Python provides a module, called smtplib, which has built in methods to send mail using SMTP protocol. However, we will not be using this module in first part of this lab, because it hide the details of SMTP and socket programming. Mail servers like Google mail (address: smtp.gmail.com, port: 587) requires your client to add a Transport Layer Security (TLS) or Secure Sockets Layer (SSL) for authentication and security reasons, before you send MAIL FROM command. Please make sure to add TLS/SSL commands and implement your client using Google mail server at above address and port. *[70 Marks]*

You have to submit 2 files for this part:

- **Client code – use the following name structure: "lastname_ClientEmailPa.py"**
- Add **Screenshots to report - use the following name structure for the figure caption in the report: "lastname_ClientEmailPaScreenShot"**

b) Develop the mail client with the functionalities described in Parts (a) using the python smtplib module. *[30 Marks]*

You have to submit 2 files for this part:

- **Client code – use the following name structure: "lastname_ClientEmailPb.py"**
- Add **Screenshots to report - use the following name structure for the figure caption in the report: "lastname_ClientEmailPbScreenShot"**