

Network Programming - IV

4.1 Extend the client/server interaction to simulate a password dialogue. After receiving data from a client, the server returns access granted or access denied depending on whether the received data matches the password.

Server

```
import socket
import thread

def on_new_client(clientsocket,addr):
    f=1
    while (f==1):
        print addr, ' >> '
        while True:
            msg = clientsocket.recv(1024)
            #print msg
            if msg == 'speciallab1':
                msg = "Granted"
            else:
                msg="Denied"
                f=0
            clientsocket.send(msg)
        clientsocket.close()

s = socket.socket()
host = socket.gethostname()
port = 5000

print 'Server started!'
print 'Waiting for clients...'

s.bind((host, port))
s.listen(5)

while True:
    c, addr = s.accept()
    print 'Got connection from', addr
    thread.start_new_thread(on_new_client,(c,addr))
s.close()
```

Client

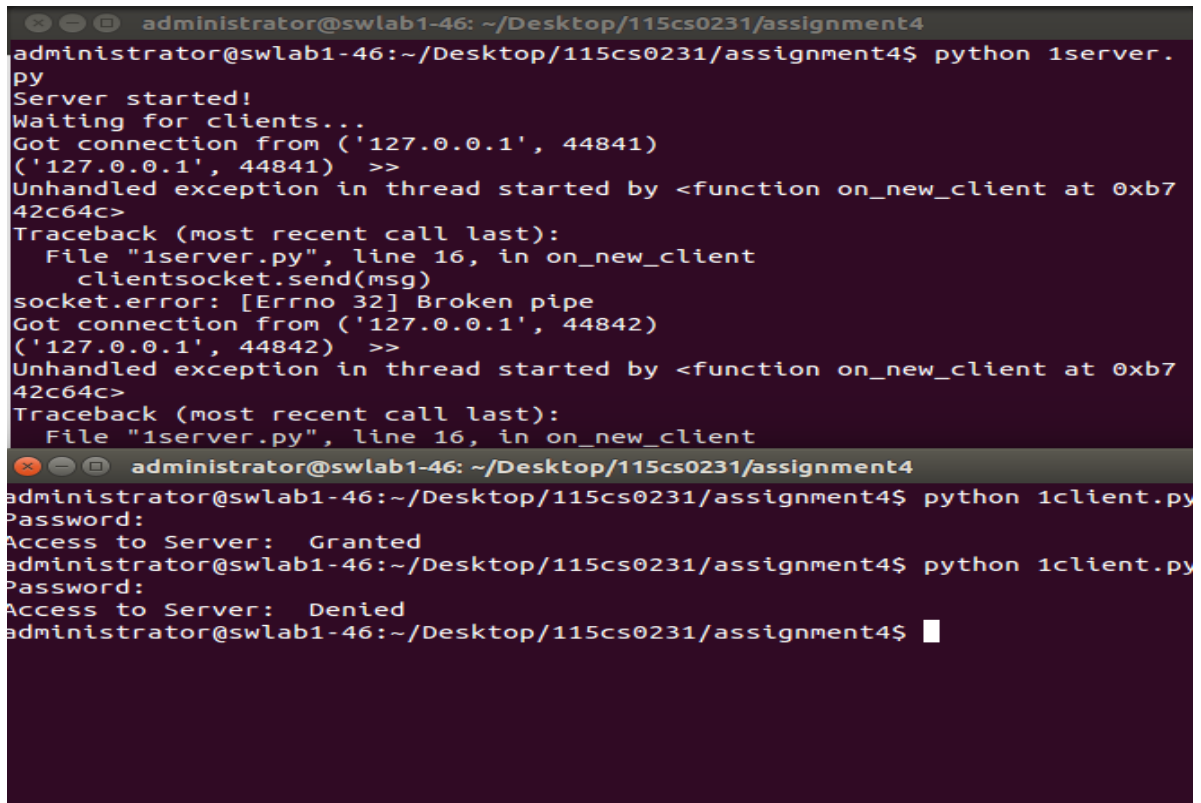
```
import socket
import getpass
s = socket.socket()
host = socket.gethostname()
port = 5000

msg = getpass.getpass('Password:')
```

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```
s.connect((host, port))
s.send(msg.encode())

print 'Access to Server: ',str(s.recv(1024).decode())
s.close()
```

A terminal window with a dark purple background and white text. The prompt is 'administrator@swlab1-46: ~/Desktop/115cs0231/assignment4'. The first part shows the execution of 'python 1server.py'. The output includes 'Server started!', 'Waiting for clients...', and two successful connections from '127.0.0.1' at ports 44841 and 44842. Each connection is followed by a traceback showing an 'Unhandled exception in thread started by <function on_new_client at 0xb742c64c>' and a 'socket.error: [Errno 32] Broken pipe' at line 16 of '1server.py'. The second part shows the execution of 'python 1client.py'. The first run prompts for a 'Password:' and returns 'Access to Server: Granted'. The second run prompts for a 'Password:' and returns 'Access to Server: Denied'.

```
administrator@swlab1-46: ~/Desktop/115cs0231/assignment4
administrator@swlab1-46:~/Desktop/115cs0231/assignment4$ python 1server.py
Server started!
Waiting for clients...
Got connection from ('127.0.0.1', 44841)
('127.0.0.1', 44841) >>
Unhandled exception in thread started by <function on_new_client at 0xb742c64c>
Traceback (most recent call last):
  File "1server.py", line 16, in on_new_client
    clientsocket.send(msg)
socket.error: [Errno 32] Broken pipe
Got connection from ('127.0.0.1', 44842)
('127.0.0.1', 44842) >>
Unhandled exception in thread started by <function on_new_client at 0xb742c64c>
Traceback (most recent call last):
  File "1server.py", line 16, in on_new_client
administrator@swlab1-46: ~/Desktop/115cs0231/assignment4
administrator@swlab1-46:~/Desktop/115cs0231/assignment4$ python 1client.py
Password:
Access to Server:  Granted
administrator@swlab1-46:~/Desktop/115cs0231/assignment4$ python 1client.py
Password:
Access to Server:  Denied
administrator@swlab1-46:~/Desktop/115cs0231/assignment4$
```

4.2 Write a program that compress your working directory and email to a specific address?

```
import os
import argparse
import smtplib
import zipfile
import tempfile
from email import encoders
from email.mime.base import MIMEBase
from email.mime.multipart import MIMEMultipart
```

```
sender='115cs0231@nitrkl.ac.in'
recipient='115cs0231@nitrkl.ac.in'
```

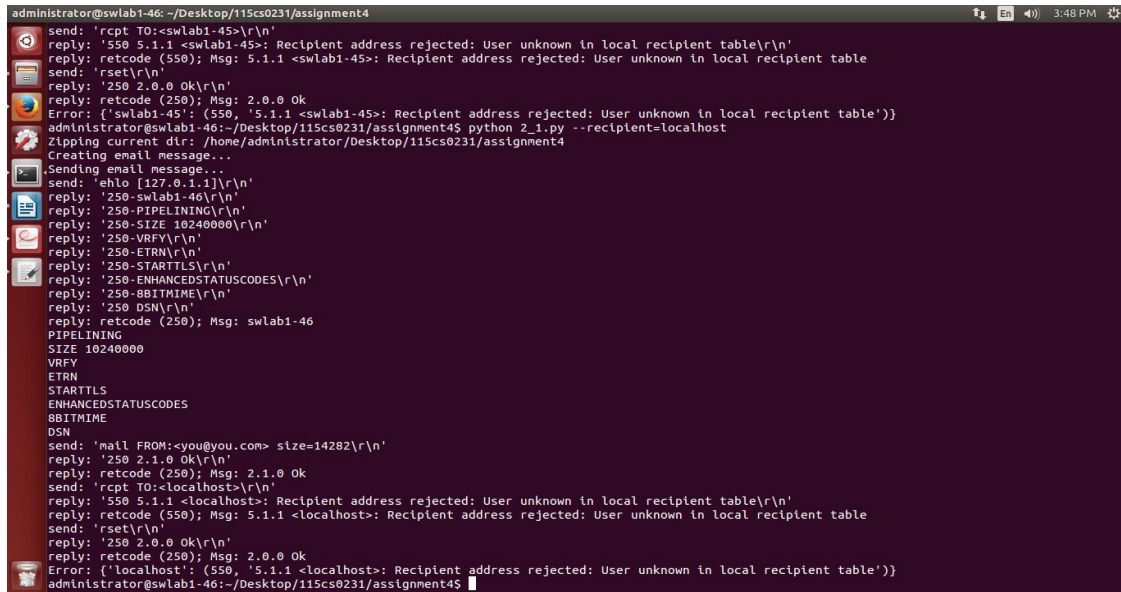
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```
zf = tempfile.TemporaryFile(prefix='mail', suffix='.zip')
zip = zipfile.ZipFile(zf, 'w')
#print ("Zipping current dir: %s" %os.getcwd())
for file_name in os.listdir(os.getcwd()):
    zip.write(file_name)
zip.close()
zf.seek(0)

print ("Creating email message...")
email_msg = MIMEMultipart()
email_msg['Subject'] = 'File from path %s' %os.getcwd()
email_msg['To'] = ', '.join(recipient)
email_msg['From'] = sender
email_msg.preamble = 'Testing email from Python.\n'
msg = MIMEBase('application', 'zip')
msg.set_payload(zf.read())
encoders.encode_base64(msg)
msg.add_header('Content-Disposition', 'attachment',
              filename=os.getcwd()[-1] + '.zip')
email_msg.attach(msg)
email_msg = email_msg.as_string()

print ("Sending email message...")
try:
    smtp = smtplib.SMTP('localhost')
    smtp.set_debuglevel(1)
    smtp.sendmail(sender, recipient, email_msg)
except Exception as e:
    print ("Error: %s" %str(e))
finally:
    smtp.close()
```

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```
administrator@swlab1-46: ~/Desktop/115cs0231/assignment4
send: 'rcpt TO:<swlab1-45>\r\n'
reply: '550 5.1.1 <swlab1-45>: Recipient address rejected: User unknown in local recipient table\r\n'
reply: retcode (550); Msg: 5.1.1 <swlab1-45>: Recipient address rejected: User unknown in local recipient table
send: 'reset\r\n'
reply: '250 2.0.0 Ok\r\n'
reply: retcode (250); Msg: 2.0.0 Ok
Error: {'swlab1-45': (550, '5.1.1 <swlab1-45>: Recipient address rejected: User unknown in local recipient table')}
administrator@swlab1-46: ~/Desktop/115cs0231/assignment4$ python 2.1.py --recipient=localhost
Zipping current dir: /home/administrator/Desktop/115cs0231/assignment4
Creating email message...
Sending email message...
send: 'ehlo [127.0.1.1]\r\n'
reply: '250-swlab1-46\r\n'
reply: '250-PIPELINING\r\n'
reply: '250-SIZE 10240000\r\n'
reply: '250-VERFY\r\n'
reply: '250-ETRN\r\n'
reply: '250-STARTTLS\r\n'
reply: '250-ENHANCEDSTATUSCODES\r\n'
reply: '250-8BITMIME\r\n'
reply: '250-DSN\r\n'
reply: retcode (250); Msg: swlab1-46
PIPELINING
SIZE 10240000
VERFY
ETRN
STARTTLS
ENHANCEDSTATUSCODES
8BITMIME
DSN
send: 'mail FROM:<you@you.com> size=14282\r\n'
reply: '250 2.1.0 Ok\r\n'
reply: retcode (250); Msg: 2.1.0 Ok
send: 'rcpt TO:<localhost>\r\n'
reply: '550 5.1.1 <localhost>: Recipient address rejected: User unknown in local recipient table\r\n'
reply: retcode (550); Msg: 5.1.1 <localhost>: Recipient address rejected: User unknown in local recipient table
send: 'reset\r\n'
reply: '250 2.0.0 Ok\r\n'
reply: retcode (250); Msg: 2.0.0 Ok
Error: {'localhost': (550, '5.1.1 <localhost>: Recipient address rejected: User unknown in local recipient table')}
administrator@swlab1-46: ~/Desktop/115cs0231/assignment4$
```

4.3 Write a python script to check email message from your Google account with Internet Message Access Protocol) IMAP.

```
import imapclient
imapObj = imapclient.IMAPClient('imap.gmail.com', ssl=True)
imapObj.login(' ayesha199718@gmail.com ', ' MY_SECRET_PASSWORD ')
'ayesha199218@gmail.com '
imapObj.select_folder('INBOX', readonly=True)
UIDs = imapObj.search(['SINCE 05-Jul-2014'])

rawMessages = imapObj.fetch([40041], ['BODY[]', 'FLAGS'])
import pyzmail
message = pyzmail.PyzMessage.factory(rawMessages[40041]['BODY[]'])
message.get_subject()

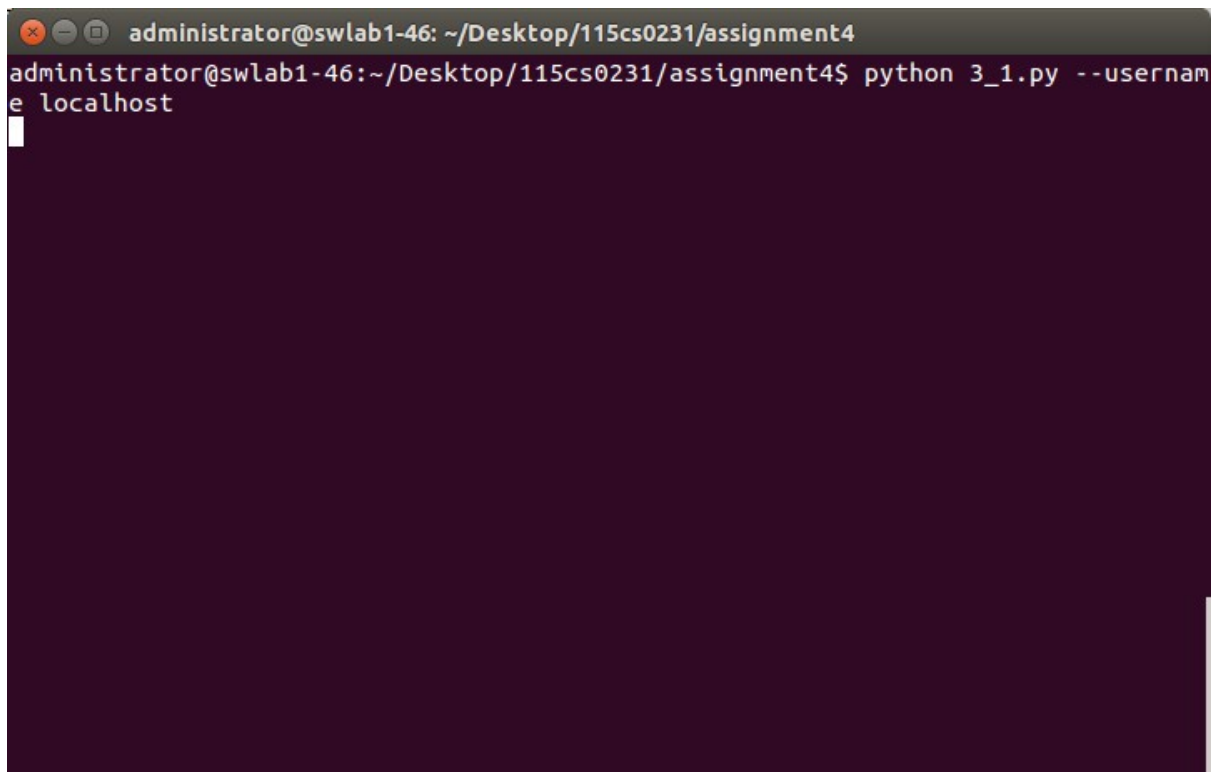
message.get_addresses('from')

message.get_addresses('to')
```

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```
message.get_addresses('cc')

message.get_addresses('bcc')
message.text_part != None
message.text_part.get_payload().decode(message.text_part.charset)
message.html_part != None
message.html_part.get_payload().decode(message.html_part.charset)
imapObj.logout()
```

A screenshot of a terminal window. The title bar shows 'administrator@swlab1-46: ~/Desktop/115cs0231/assignment4'. The terminal text shows the command 'python 3_1.py --username localhost' being entered at the prompt 'administrator@swlab1-46:~/Desktop/115cs0231/assignment4\$'.

```
administrator@swlab1-46: ~/Desktop/115cs0231/assignment4
administrator@swlab1-46:~/Desktop/115cs0231/assignment4$ python 3_1.py --username localhost
```

- 4.4 Write a program to send an email to one or multiple users with an attachment via Gmail with Simple Mail Transfer Protocol (**SMTP**) server.
- 4.5 Write a program that establish secure connection to email server as Google or Yahoo through SMTP client secured with **Transport layer security** (TLS).