NETWORK SECURITY LAB 3 REPORT

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Assignment 1: Simple UDP socket programming

In this assignment, you will be implementing a simple UDP client and server. The client sends a message to the client (the message can be whatever you want). The server after receiving the message from the client (which is "Hello" as in the example below) will sends a message "ACK" back to the client.

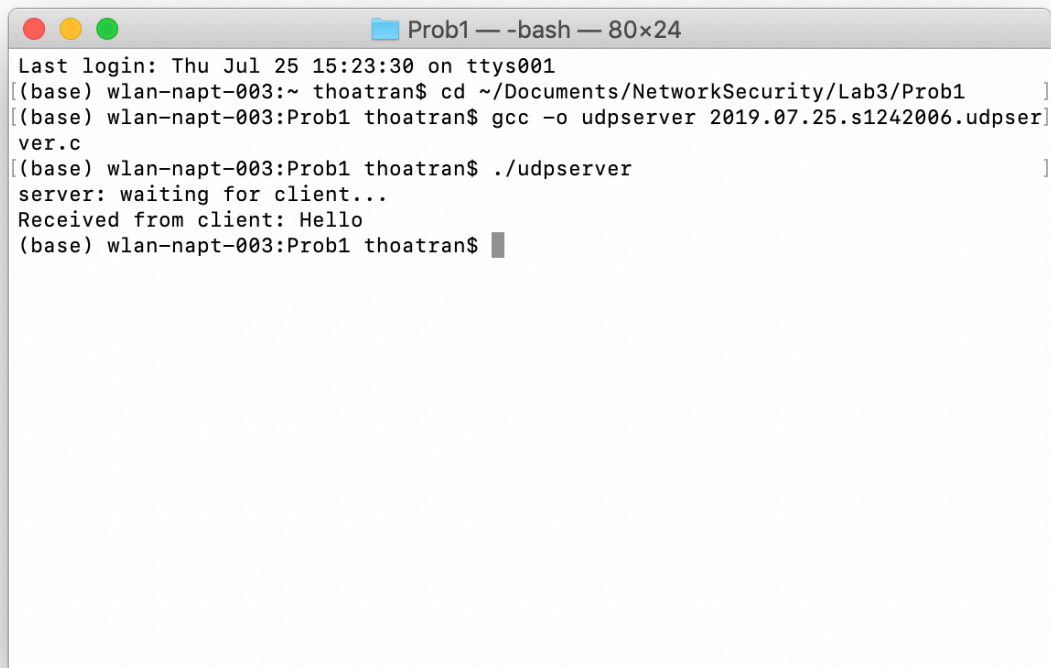To compile and run the server program, run the following command lines:
    gcc -o udpserver 2019.07.25.s1242006.updserver.c
    ./udpserver

To compile and run the client program, open new terminal, run the following command lines:
    gcc -o udpclient 2019.07.25.s1242006.udpclient.c
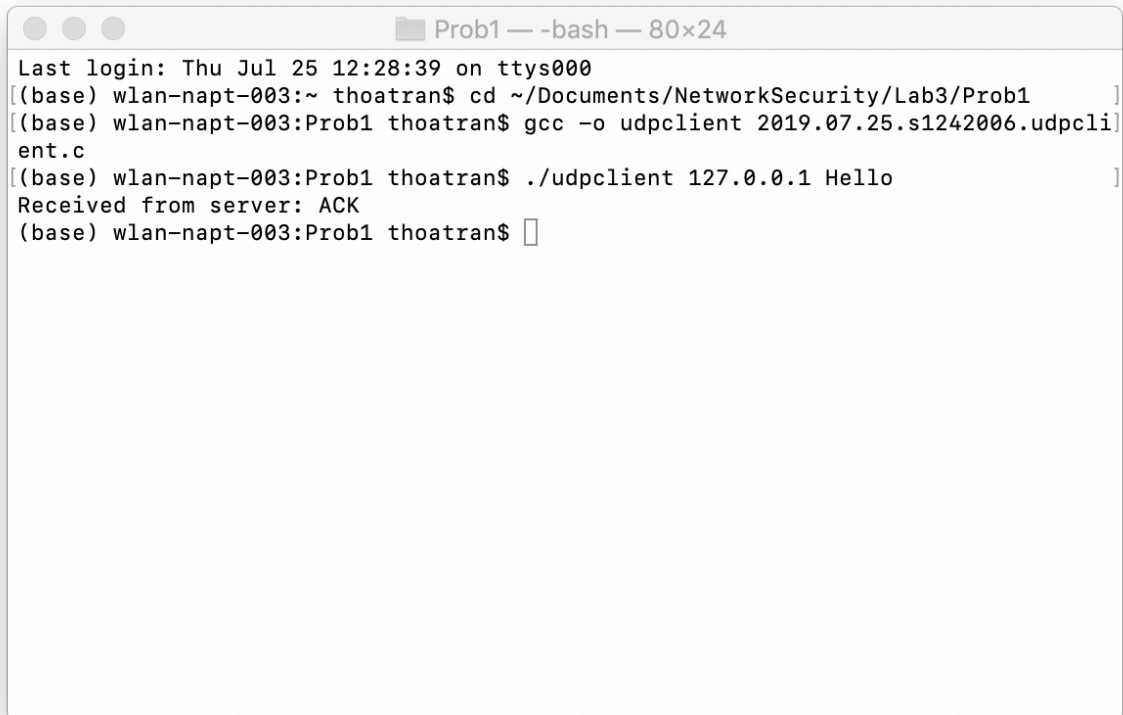   ./udpclient 127.0.0.1 Hello

The output will be:
(+) Server side:

```
● ● ●              📁 Prob1 — -bash — 80×24
Last login: Thu Jul 25 15:23:30 on ttys001
[(base) wlan-napt-003:~ thoatran$ cd ~/Documents/NetworkSecurity/Lab3/Prob1      ]
[(base) wlan-napt-003:Prob1 thoatran$ gcc -o udpserver 2019.07.25.s1242006.udpser]
ver.c
[(base) wlan-napt-003:Prob1 thoatran$ ./udpserver                                ]
server: waiting for client...
Received from client: Hello
(base) wlan-napt-003:Prob1 thoatran$ ▊
```

(+) The client side:

```
● ● ●                   📁 Prob1 — -bash — 80×24
Last login: Thu Jul 25 12:28:39 on ttys000
[(base) wlan-napt-003:~ thoatran$ cd ~/Documents/NetworkSecurity/Lab3/Prob1      ]
[(base) wlan-napt-003:Prob1 thoatran$ gcc -o udpclient 2019.07.25.s1242006.udpcli]
 ent.c
[(base) wlan-napt-003:Prob1 thoatran$ ./udpclient 127.0.0.1 Hello                ]
 Received from server: ACK
 (base) wlan-napt-003:Prob1 thoatran$ []
```

Assignment2: Secured Client/Server Implementation:

The implementation for the server side is in the file 2019.07.25.s_udpserver.c
To compile and run the server program, run the following command lines:
gcc -o s_udpserver 2019.07.19.s1242006.s_udpserver.c -lssl -lcrypto -L/usr/local/opt/openssl/lib -I/usr/local/opt/openssl/include
./s_udpserver [server port] [password] [filename]

For example:
Using the program udpclient_mac.dms to test the implemented server program,
        chmod +x udpclient_mac.dms
        ./udpclient_mac.dms [server IP address] [server port] [clientpwd1] [clientpwd2] [clientpwd3] [output filename]
We have the following output:
The first run with the true password, we get the output file "out.txt" and in the second run with the 3 wrong passwords, we can not download the file test.txt

(+) The server side:

```
● ● ●                    📁 udp_server — -bash — 80×24
Last login: Thu Jul 25 16:01:56 on ttys000
[(base) wlan-napt-003:~ thoatran$ cd ~/Documents/NetworkSecurity/Lab3/Prob2/Skele]
ton/udpserver/
-bash: cd: /Users/thoatran/Documents/NetworkSecurity/Lab3/Prob2/Skeleton/udpserv
er/: No such file or directory
[(base) wlan-napt-003:~ thoatran$ cd ~/Documents/NetworkSecurity/Lab3/Prob2/Skele]
ton/
[(base) wlan-napt-003:Skeleton thoatran$ ls                                      ]
udp_client      udp_server
[(base) wlan-napt-003:Skeleton thoatran$ cd udp_server/                          ]
[(base) wlan-napt-003:udp_server thoatran$ gcc -o s_udpserver 2019.07.19.s1242006]
.s_udpserver.c -lssl -lcrypto -L/usr/local/opt/openssl/lib -I/usr/local/opt/open
ssl/include
[(base) wlan-napt-003:udp_server thoatran$ ./s_udpserver 5555 mango test.txt     ]
Waiting for download...
SHA1-Digest: 65d5db19c76b678674358eba2019e0f38cac8f4d
Download Completed Sucessfully!
[(base) wlan-napt-003:udp_server thoatran$ ./s_udpserver 5555 mango test.txt     ]
Waiting for download...
ABORT!
(base) wlan-napt-003:udp_server thoatran$ ▮
```

(+) The client side:

```
● ● ●                    📁 udpclient — -bash — 80×24
Last login: Thu Jul 25 16:01:21 on ttys000
[(base) wlan-napt-003:~ thoatran$ cd ~/Documents/NetworkSecurity/Lab3/Prob2/Binar]
y/udpclient/
[(base) wlan-napt-003:udpclient thoatran$ chmod +x udpclient_mac.dms             ]
[(base) wlan-napt-003:udpclient thoatran$ ./udpclient_mac.dms 127.0.0.1 5555 bana]
na mango apple out.txt
DATA HAS BEEN ALTERED!
Download Completed Succesfully!
[(base) wlan-napt-003:udpclient thoatran$ ./udpclient_mac.dms 127.0.0.1 5555 bana]
na lime apple output.txt
Wrong password 3 times!
ABORT!
(base) wlan-napt-003:udpclient thoatran$ ▮
```

The implementation for the client side is in the file 2019.07.25.s_udpclient.c
To compile and run the server program, run the following command lines:
gcc -o s_udpclient 2019.07.19.s1242006.s_udpclient.c -lssl -lcrypto -L/usr/local/opt/openssl/lib -I/usr/local/opt/openssl/include
./s_udpclient [server IP address] [server port] [clientpwd1] [clientpwd2][clientpwd3] [output filename]

For example:
Using the program udpserver _mac.dms to test the implemented server program,
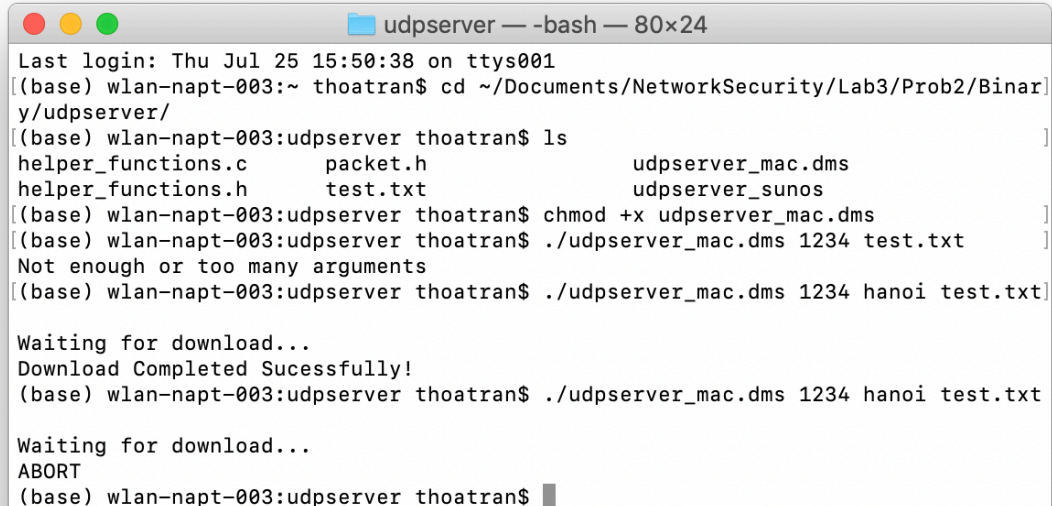   chmod +x udpserver_mac.dms
          ./udpserver_mac.dms [server port] [password] [filename]
We have the following output:
The first run with the true password, we get the output file "out.txt" and in the second run with the 3 wrong passwords, we can not download the file test.txt

(+) The server side:

```
Last login: Thu Jul 25 15:50:38 on ttys001
[(base) wlan-napt-003:~ thoatran$ cd ~/Documents/NetworkSecurity/Lab3/Prob2/Binar]
y/udpserver/
[(base) wlan-napt-003:udpserver thoatran$ ls                                      ]
helper_functions.c      packet.h                udpserver_mac.dms
helper_functions.h      test.txt                udpserver_sunos
[(base) wlan-napt-003:udpserver thoatran$ chmod +x udpserver_mac.dms              ]
[(base) wlan-napt-003:udpserver thoatran$ ./udpserver_mac.dms 1234 test.txt       ]
Not enough or too many arguments
[(base) wlan-napt-003:udpserver thoatran$ ./udpserver_mac.dms 1234 hanoi test.txt]

Waiting for download...
Download Completed Sucessfully!
(base) wlan-napt-003:udpserver thoatran$ ./udpserver_mac.dms 1234 hanoi test.txt

Waiting for download...
ABORT
(base) wlan-napt-003:udpserver thoatran$ ▊
```

(+) The client side:

```
                    📁  udp_client — -bash — 80×24
Last login: Thu Jul 25 15:53:27 on ttys000
[(base) wlan-napt-003:~ thoatran$ cd ~/Documents/NetworkSecurity/Lab3/Prob2/Skele]
ton/
[(base) wlan-napt-003:Skeleton thoatran$ cd udp_client/                           ]
[(base) wlan-napt-003:udp_client thoatran$ ls                                     ]
2019.07.19.s1242006.s_udpclient.c          packet.h
helper_functions.c                         s_udpclient
out.txt
[(base) wlan-napt-003:udp_client thoatran$ gcc -o s_udpclient 2019.07.19.s1242006]
.s_udpclient.c -lssl -lcrypto -L/usr/local/opt/openssl/lib -I/usr/local/opt/open
ssl/include
[(base) wlan-napt-003:udp_client thoatran$ ./s_udpclient 127.0.0.1 1234 hello han]
oi cat out.txt
PASS_ACCEPTED!!!
DATA HAS BEEN ALTERED!
Download Completed Succesfully!
[(base) wlan-napt-003:udp_client thoatran$ ./s_udpclient 127.0.0.1 1234 hello uni]
versity cat output.txt
Wrong password 3 times!
ABORT!
(base) wlan-napt-003:udp_client thoatran$ ▌
```