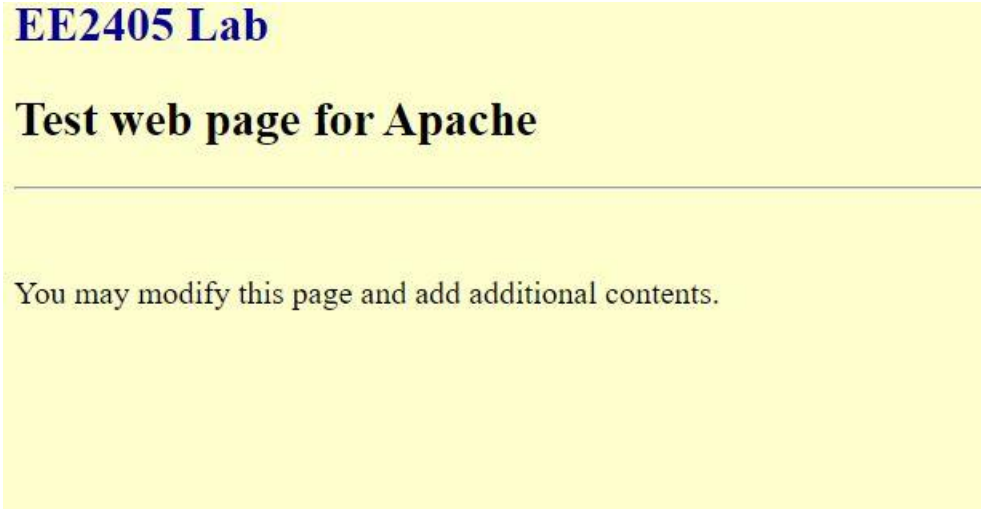
In this lab, we learn how to use WIFI and MQTT in mbed.

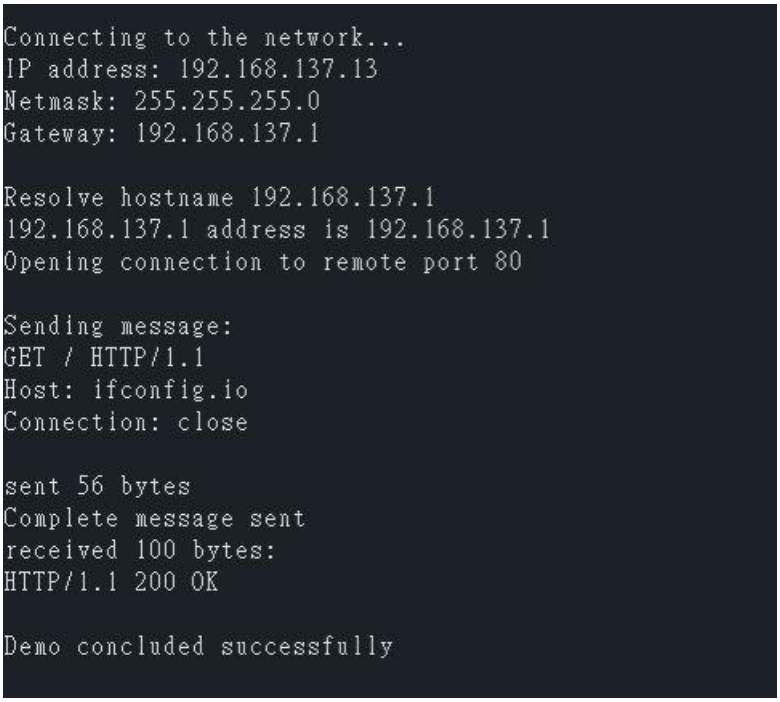
(1) Apache server

In this part, we set up the environment, we set up apache server and set configuration to firewall.



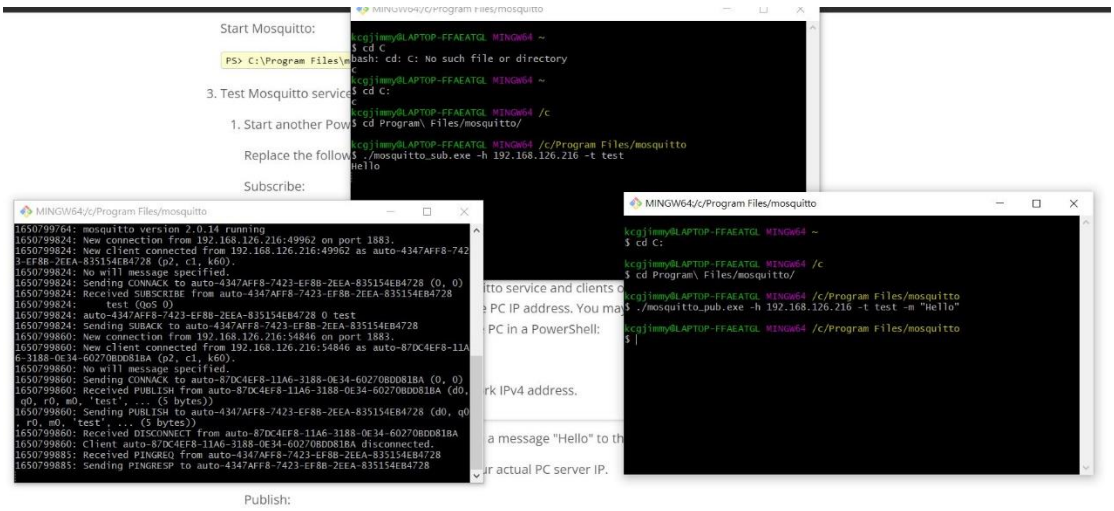
(2) Mbed ehernet sample

In this part we I use phone as a hotspot, then connected laptop through WIFI. And set up some configuration in main.cpp and mbed_app.json to make mbed connected to WIFI.



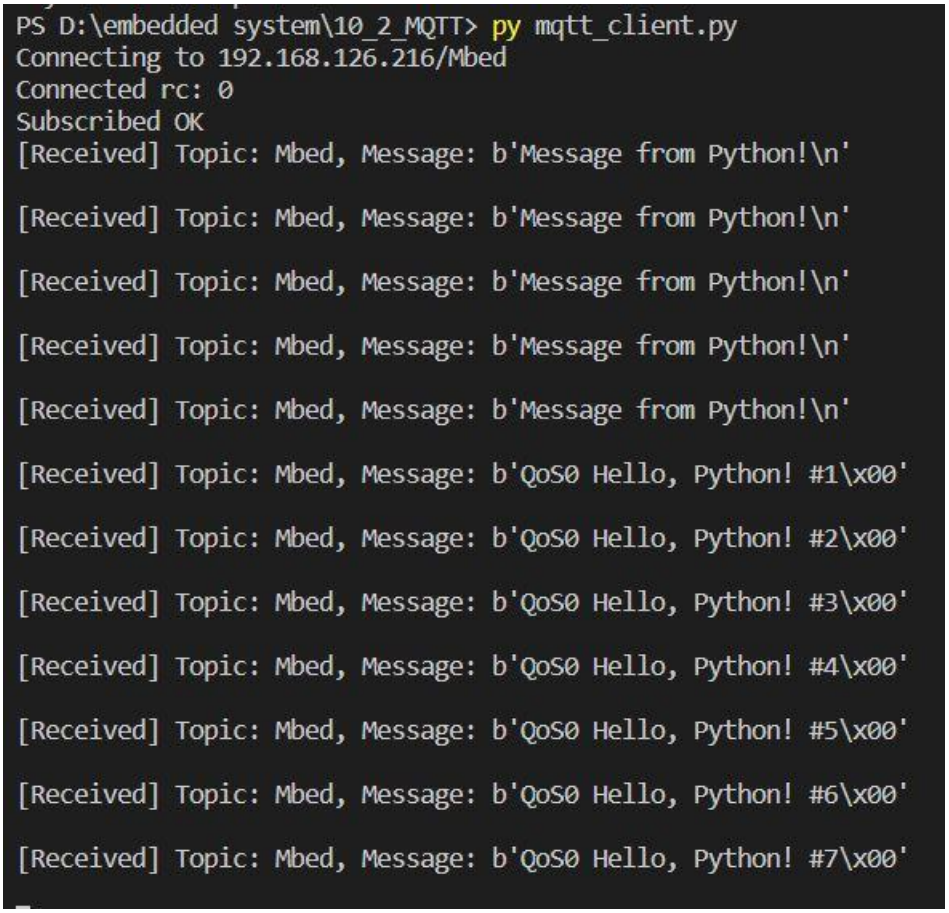
(3) MQTT

In this part we use both mbed and Python code to implement MQTT. First, we set configuration to firewall and mosquito. Next, we test whether mosquito works.



Next we implement mbed as a MQTT client, send data to Python MQTT client. By setting up configuration, we can see the result

```
Connecting to kcgjimmy_phone...
Connecting to TCP network...
address is 192.168.126.216/1883
Successfully connected!
Message arrived: QoS0, retained 0, dup 0, packetID 816
Payload Message from Python!

Message arrived: QoS0, retained 0, dup 0, packetID 816
Payload Message from Python!

Message arrived: QoS0, retained 0, dup 0, packetID 816
Payload Message from Python!

Message arrived: QoS0, retained 0, dup 0, packetID 816
Payload Message from Python!

Message arrived: QoS0, retained 0, dup 0, packetID 816
Payload Message from Python!

rc:  0
Puslish message: QoS0 Hello, Python! #1
Message arrived: QoS0, retained 0, dup 0, packetID 816
rc:  0
Puslish message: QoS0 Hello, Python! #2
Payload QoS0 Hello, Python! #1
rc:  0
Puslish message: QoS0 Hello, Python! #3
Message arrived: QoS0, retained 0, dup 0, packetID 816
rc:  0
Puslish message: QoS0 Hello, Python! #4
rc:  0
Puslish message: QoS0 Hello, Python! #5
Payload QoS0 Hello, Python! #2
rc:  0
```



When pressing to the button, mbed will send the message to Python and mbed will soon receive the reply.

(4) Discussion

Though wireless communication seen fun to me, but I found it more difficult to find out what's going on when I confront some problems. For me, when I first time try to connect to mbed through WIFI, I tried my laptop as a hotspot, my phone, even my reserved phone as hotspot. At the end I figured out that I had to pasted the whole code on website, not using demo one when I apply the library. It took quite a lot of time to do so. Moreover, the code in this lab are much harder to understand than before, hope I can figure out how to use them…