Assignment 12

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```python
globals().clear() #clean the environment

from paho.mqtt import client as paho
import paho.mqtt.subscribe as subscribe
import random
import time

broker = 'inet-mqtt-broker.mpi-inf.mpg.de'
port = 1883
client_id = f'irem-gunduz-mqtt-{random.randint(0, 1000)}'
username = 'irgu00001@stud.uni-saarland.de'
password = '7026821'


def connect_broker(client):
  client.username_pw_set(username, password) #set the username and password
  client.connect(broker, port) #connect to the broker using the defined port
  client.loop_start()
  return client

def on_message(client, userdata, msg):  # The callback
    print("Topic: "+ msg.topic + " Message: " +   str(msg.payload.decode("utf-8")))
    # Print a received msg
    client.subscribe(str(msg.payload.decode("utf-8")))
    decoded_payload = str(msg.payload.decode("utf-8"))
    #send CMD specific reply messages
    if decoded_payload.startswith("CMD"):
      messg = ""
      if decoded_payload == "CMD1":
        messg = "Apple"
      elif decoded_payload == "CMD2":
        messg = "Cat"
      elif decoded_payload == "CMD3":
        messg = "Dog"
      elif decoded_payload == "CMD4":
        messg = "Rat"
      elif decoded_payload == "CMD5":
        messg = "Boy"
      elif decoded_payload == "CMD6":
        messg = "Girl"
      elif decoded_payload == "CMD7":
        messg = "Toy"
```

```python
        #create a new topic for CMD
        top = msg.topic + "/" + decoded_payload
        #subscribe the new topic
        client.subscribe(top)
        #send the message to the new topic
        client.publish(top,messg)


def run():
    client = paho.Client(client_id) #create new instance
    client.on_message = on_message
    client = connect_broker(client)
    topic = "login"
    msg = "7026821"
    print("Subscribed topic: " + topic)
    client.subscribe("7026821/UUID")
    print("Sent message: " + msg)
    client.publish(topic,msg) #send student id to the topic
    time.sleep(4)
    client.loop_stop() #stop the loop
    client.disconnect() #disconnect from the client


if __name__ == '__main__':
    run()
```

```
run()
```

```
## Subscribed topic: login
## Sent message: 7026821
## Topic: 7026821/UUID Message: daa548a0-1776-4d96-b360-c286d036b837
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD4
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD4 Message: Rat
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD3
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD3 Message: Dog
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD3
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD3 Message: Dog
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD2
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD4
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD4
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD2 Message: Cat
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD6
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD5
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD4 Message: Rat
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD4 Message: Rat
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD6 Message: Girl
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD5 Message: Boy
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD1
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD1 Message: Apple
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD4
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD4 Message: Rat
## Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: CMD6
## Topic: daa548a0-1776-4d96-b360-c286d036b837/CMD6 Message: Girl
```

Topic: daa548a0-1776-4d96-b360-c286d036b837 Message: Well done my IoT!