Develop A Python Script To Publish And Subscribe To IBM IoT Platform

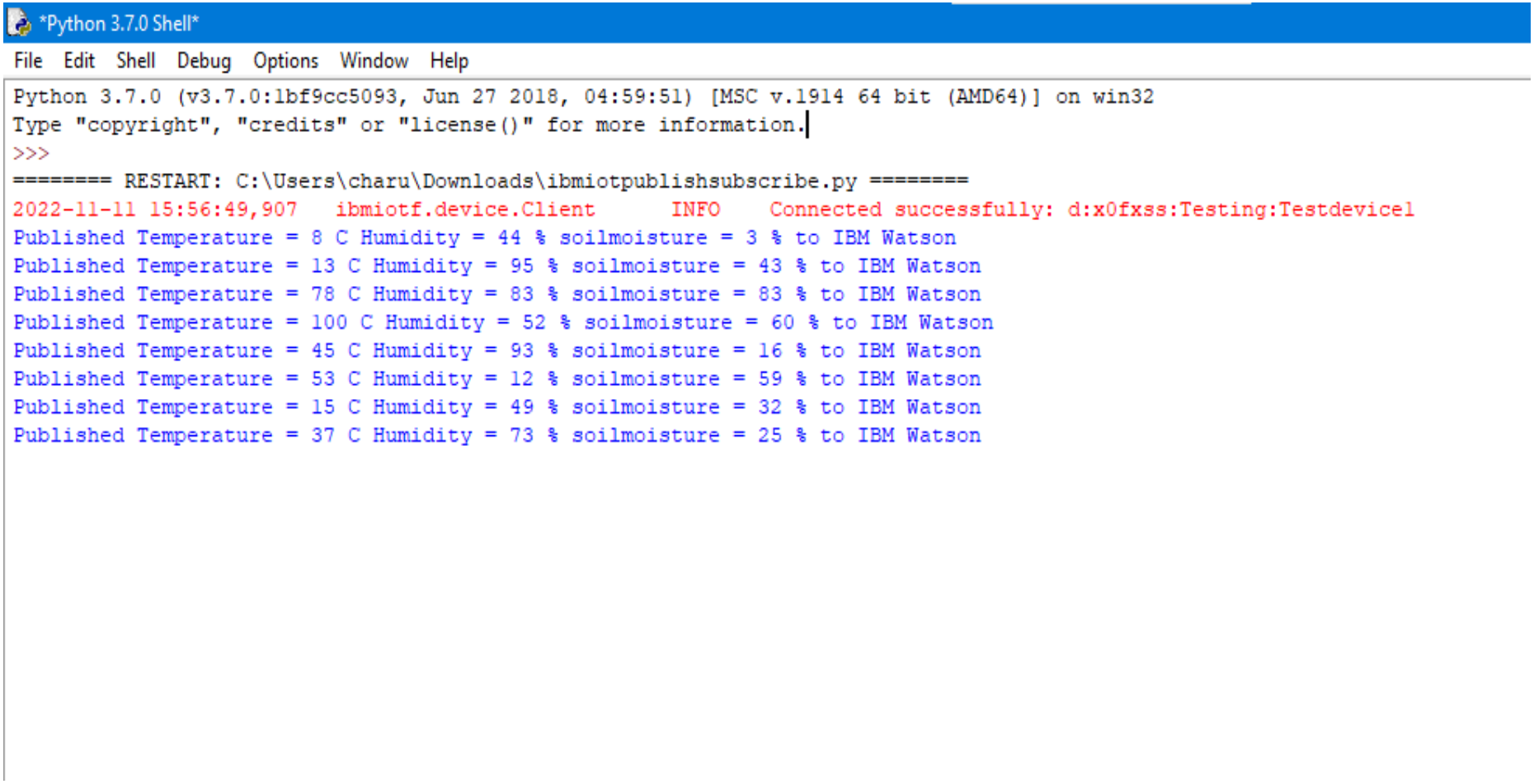
Project Title	SmartFarmer – IoT Enabled Smart Farming Application
Team ID	PNT2022TMID47167
Content	Python Script

Python Code:

```
import time
import sys
importibmiotf.application
importibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization="x0fxss"#replacetheORGID deviceType =
"Testing"#replace the Device type wi
deviceId="Testdevice1"#replaceDeviceID authMethod =
"token"
authToken="123456789"#Replacetheauthtoken #
Initialize GPIO

#ReceivesCommandfromNode-
reddefmyCommandCallback(cmd):
    print("Commandreceived:%s"%cmd.data['command'])
    status=cmd.data['command']
    ifstatus=="motoron":
        print("motorison")
    elifstatus=="motoroff":
        print("motorisoff")
    elifstatus=="motor30":
        print("motorisonfor30minutes")

try:
    deviceOptions={"org":organization,"type":deviceType,"id":deviceId,"auth-method":authMethod,"auth-token": authToken}
    deviceCli=ibmiotf.device.Client(deviceOptions)
```

```
exceptExceptionase:
    print("Caughtexceptionconnectingdevice:%s"%str(e)) sys.exit()

#Connectandsendadatapoint"hello"withvalue"world"intothecloudasaneventoftype"greeting"10times deviceCli.connect()

while True:
        #GetSensorDatafromDHT11

        temp=random.randint(0,100)
        Humid=random.randint(0,100)
        soilmoisture=random.randint(0,100)

        data={'temp':temp,'Humid':Humid,'soilmoisture':soilmoisture} #printdata
        defmyOnPublishCallback():
            print("PublishedTemperature=%sC"%temp,"Humidity=%s%%"%Humid,"soilmoisture=%s%%"
%soilmoisture,"toIBMWatson")

        success=deviceCli.publishEvent("IoTSensor","json",data,qos=0,on_publish=myOnPublishCallback)
        ifnotsuccess:
            print("NotconnectedtoIoTF") time.sleep(5)

        deviceCli.commandCallback=myCommandCallback

#Disconnectthedeviceandapplicationfromthecloud deviceCli.disconnect()
```

OUTPUT :


Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
======== RESTART: C:\Users\charu\Downloads\ibmiotpublishsubscribe.py ========
2022-11-11 15:56:49,907 ibmiotf.device.Client INFO Connected successfully: d:x0fxss:Testing:Testdevice1
Published Temperature = 8 C Humidity = 44 % soilmoisture = 3 % to IBM Watson
Published Temperature = 13 C Humidity = 95 % soilmoisture = 43 % to IBM Watson
Published Temperature = 78 C Humidity = 83 % soilmoisture = 83 % to IBM Watson
Published Temperature = 100 C Humidity = 52 % soilmoisture = 60 % to IBM Watson
Published Temperature = 45 C Humidity = 93 % soilmoisture = 16 % to IBM Watson
Published Temperature = 53 C Humidity = 12 % soilmoisture = 59 % to IBM Watson
Published Temperature = 15 C Humidity = 49 % soilmoisture = 32 % to IBM Watson
Published Temperature = 37 C Humidity = 73 % soilmoisture = 25 % to IBM Watson

Brnwse fiction OeviceTypes Interfaces

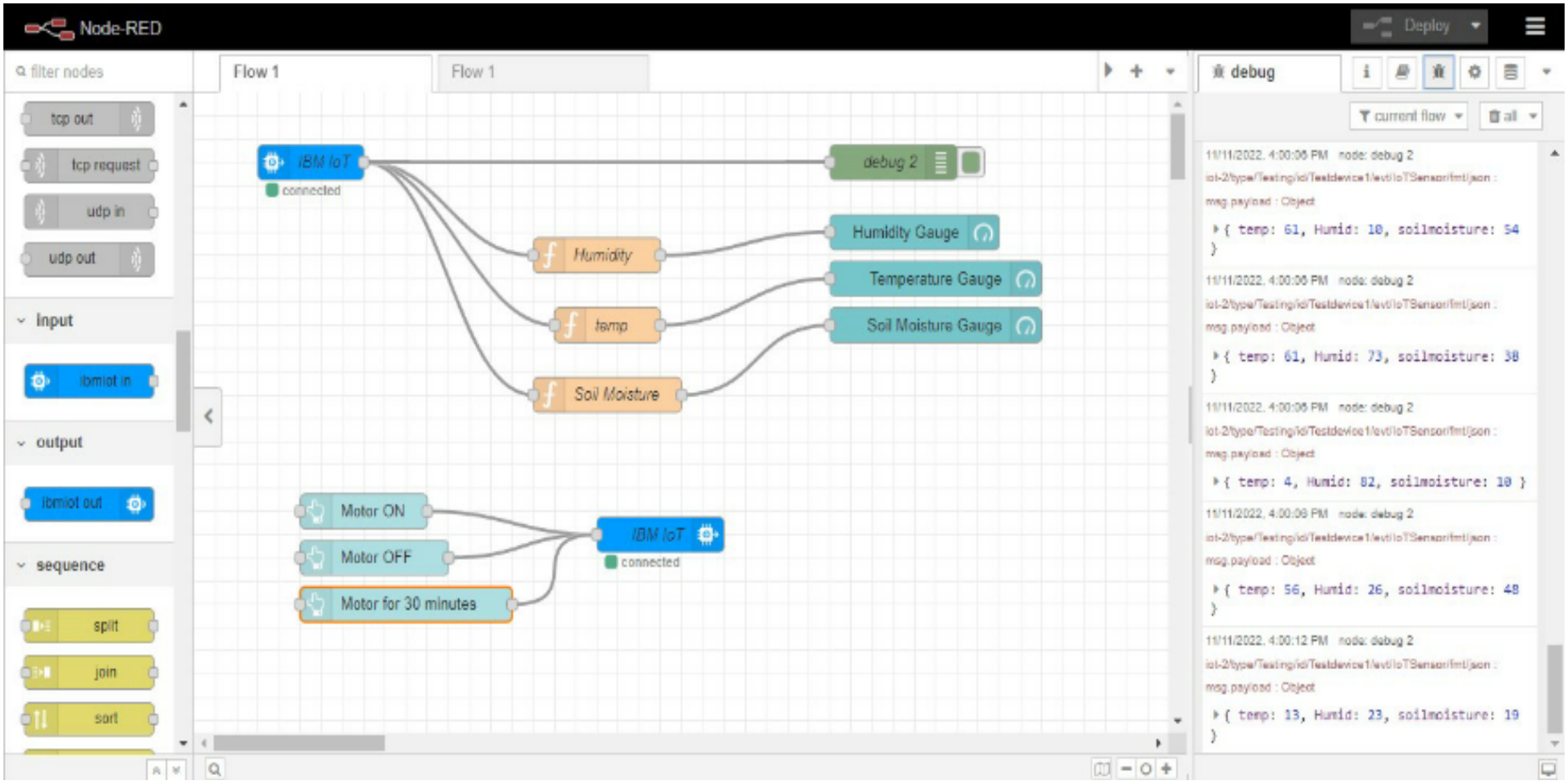
Add Device

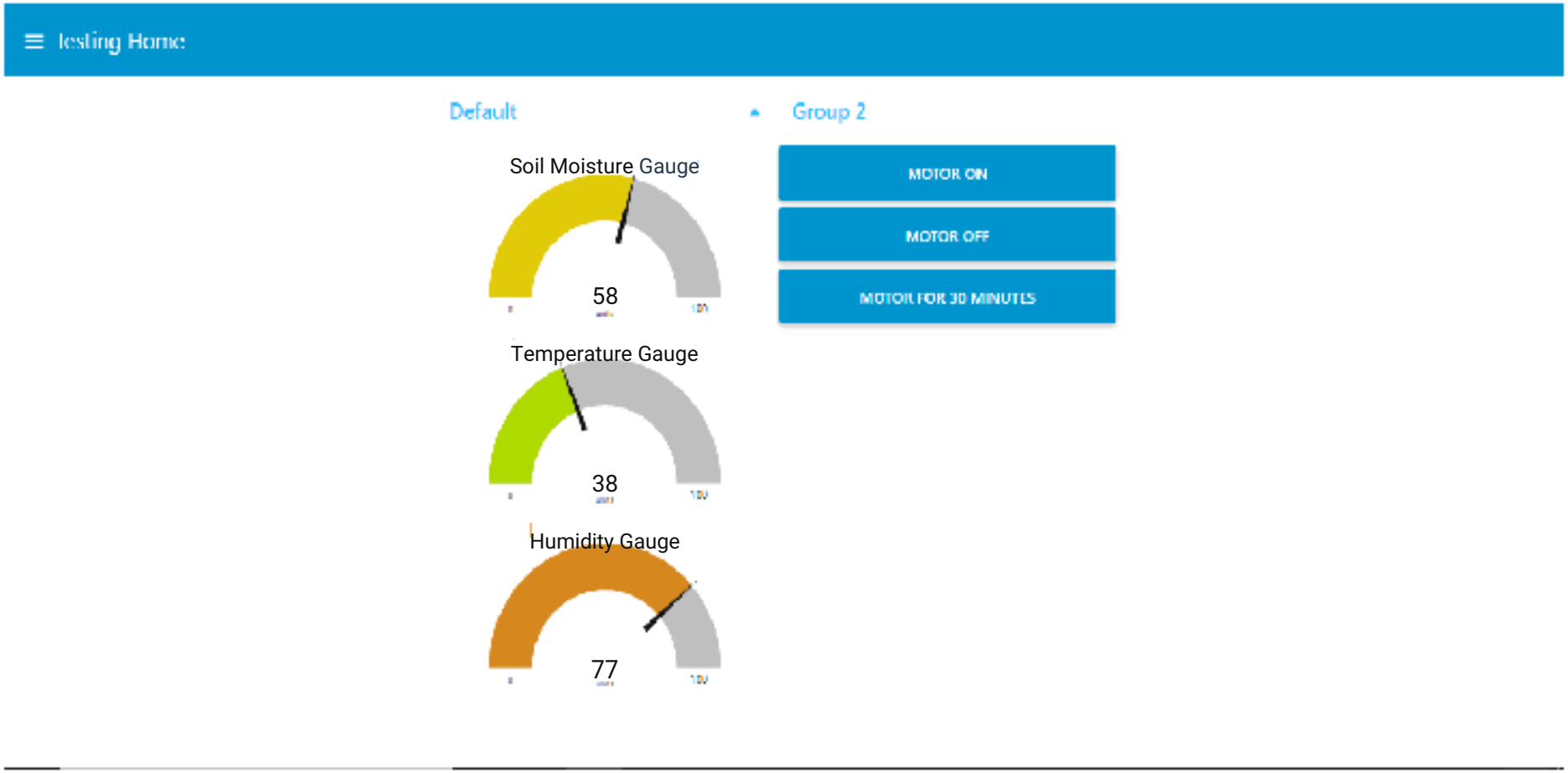
1234 Disconnected Nuder Omit 24OmZ02209:B0

Identity Device Information Recent Events State Logs

The recent events listed shaw the live stream of data that is coming and going from this device.

Ewent	Vahie	Formet	Last Reue?ued
loTSénsor	{"temp":59,"Humid":96,"soilmoisture":100}	jso	a few seconds
loTSénsor	{"temp":Z6,"Humid":59,"soilmoisture":99)	n	ago a few
loTSenso	{"temp":74,"Humid":13,"soilmoisture":96)	jsn	seconds ago
r	{"temp":79,"Humid":24,"soilmoisture":2B)	n	afewsecondsa
loTSénsor		jsn	go
		n	a few secondsago
		jsn	
		n	


Node-RED
Deploy
filter nodes
Flow 1
Flow 1
debug
tcp out
tcp request
udp in
udp out
Input
ibmiot in
output
ibmiot out
sequence
split
join
sort
IBM IoT
connected
debug 2
Humidity
Humidity Gauge
temp
Temperature Gauge
Soil Moisture
Soil Moisture Gauge
Motor ON
Motor OFF
Motor for 30 minutes
IBM IoT
connected
current flow
all
11/11/2022, 4:00:06 PM node: debug 2
iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json : msg.payload : Object
{ temp: 61, Humid: 10, soilmoisture: 54 }
11/11/2022, 4:00:06 PM node: debug 2
iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json : msg.payload : Object
{ temp: 61, Humid: 73, soilmoisture: 38 }
11/11/2022, 4:00:06 PM node: debug 2
iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json : msg.payload : Object
{ temp: 4, Humid: 82, soilmoisture: 10 }
11/11/2022, 4:00:09 PM node: debug 2
iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json : msg.payload : Object
{ temp: 56, Humid: 26, soilmoisture: 48 }
11/11/2022, 4:00:12 PM node: debug 2
iot-2/type/Testing/id/Testdevice1/evt/IoTSensor/fmt/json : msg.payload : Object
{ temp: 13, Humid: 23, soilmoisture: 19 }


Testing Home
Default
Group 2
Soil Moisture Gauge
58
MOTOR ON
MOTOR OFF
MOTOR FOR 30 MINUTES
Temperature Gauge
38
Humidity Gauge
77

Published Temperature = 25 CHumidity = 32 % soilmoistuze = 86 % to IBM Ratson
Published Temperature = 27 CHumidity = 16 % soilmoistuze = 26 % to IBM Ratson
Command received: motozon
motoz is on
Command received: motozon
motoz is on
lished Tempezatuze = 10 CHumidity = 69 4 soilmoistuze = 82 6 to IBM Ratson

Published Tempezatuze = 75 C Humidity = 37 4 soilmoistuze = 2 1 to IBM Ratson
Published Tempezatuze = 63 C Humidity = 59 4 soilmoistuze = 11 1 to IBMRatson
Published Tempezatuze = 31 C Humidity = 20 4 soilmoistuze = 93 1 to IBMRatson
Pub11sheet Terape z acuz e = 47 C Humidity = 38 4 soilmoistuze = 95 1 to IBMRatson
Pub11sheet Terape z acuz e = 62 C Humidity = 5 4 soilmoistuze = 93 1 to IBM Ratson
Command received: motozoff
motoz is off
Command received: motoz30
motoz is on foz 30minutes

Put.I i she d Terrine zacuz e = 19 K Humi di c y = 99 1 s oi lmoi s buze = 96 £ c o I BN Ctac s on
Put.I i she d Terrine zacuz e = 6 G Humi di c y = 66 1 soi lmoi s buze = 85 £ c o I BN Ctac s on