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

Project Title	SmartFarmer – IoT Enabled Smart Farming Application
Team ID	PNT2022TMID06254
Content	Python Script

Python Code:

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


#Provide your IBM Watson Device Credentials
organization = "mipzq4" #replace the ORG ID
deviceType = "Testing"#replace the Device type wi
deviceId = "Testdevice1"#replace Device ID
authMethod = "token" authToken = "1234567890"

#Replace the authtoken  #
Initialize GPIO



#Receives Command from Node-red  def
myCommandCallback(cmd):
    print ("Command received: %s" %cmd.data['command'])
status=cmd.data['command']           if
status=="motoron":
        print ("motor is on")
elif status == "motoroff" :
    print ("motor is off")
elif status == "motor30" :

        print ("motor is on for 30 minutes")
try:

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

```python
    except Exception as e:
        print("Caught exception connecting device: %s" % str(e))     sys.exit()



# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type "greeting" 10 times
deviceCli.connect()
  whileTrue:
        #Get Sensor Data from DHT11


temp=random.randint(0,100)
Humid=random.randint(0,100)
soilmoisture=random.randint(0,100)
                        data = { 'temp' : temp, 'Humid': Humid,
'soilmoisture': soilmoisture}
        #print data                 def  myOnPublishCallback():             print ("Published Temperature =
%s C" % temp, "Humidity = %s %%" % Humid, "soilmoisture = %s %%"

%soilmoisture, "to IBM Watson")
                success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)                      if not success:
            print("Not connected to IoTF")
time.sleep(5)
                    deviceCli.commandCallback =
myCommandCallback
```
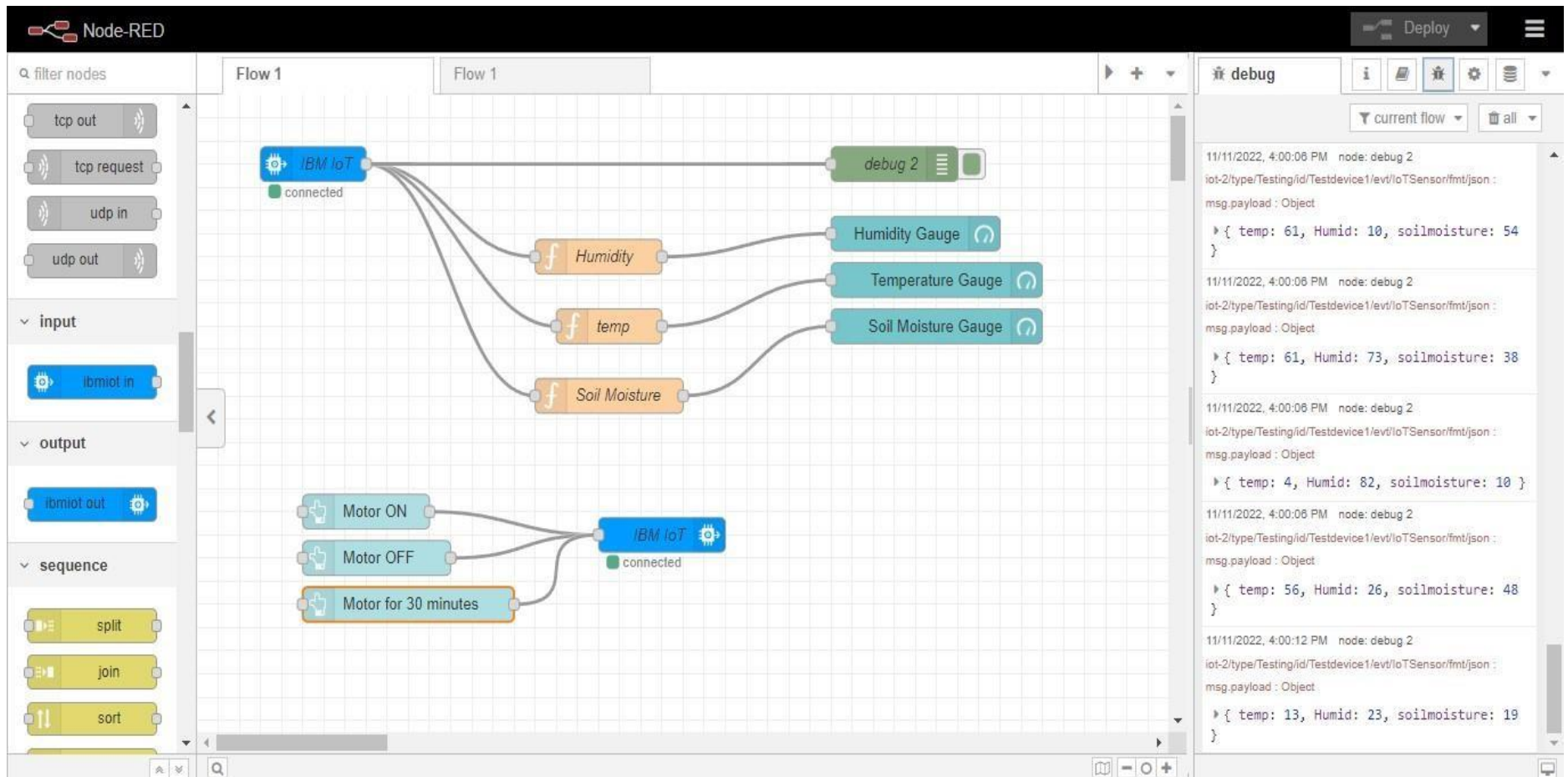
```python
# Disconnect the device and application from the cloud  deviceCli.disconnect()
```
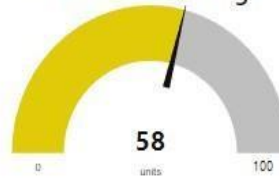
OUTPUT :

```
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
```

Add Device ⊕

		1234		Disconnected	Noder	Device	24 Oct 2022 09:50	
⌄	■	Testdevice1	●	Connected	Testing	Device	11 Nov 2022 15:08	→ ⋯

Identity   Device Information   **Recent Events**   State   Logs   ✕

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

Event	Value	Format	Last Received
IoTSensor	{"temp":59,"Humid":96,"soilmoisture":100}	json	a few seconds ago
IoTSensor	{"temp":26,"Humid":59,"soilmoisture":99}	json	a few seconds ago
IoTSensor	{"temp":74,"Humid":13,"soilmoisture":96}	json	a few seconds ago
IoTSensor	{"temp":79,"Humid":24,"soilmoisture":28}	json	a few seconds ago

☰ Testing Home

Default ▲

Soil Moisture Gauge

58
units
0   100

Temperature Gauge

38
units
0   100

Humidity Gauge

77
units
0   100

Group 2

MOTOR ON

MOTOR OFF

MOTOR FOR 30 MINUTES

```
Published Temperature = 25 C Humidity = 32 % soilmoisture = 86 % to IBM Watson
Published Temperature = 27 C Humidity = 16 % soilmoisture = 26 % to IBM Watson
Command received: motoron
motor is on
Command received: motoron
motor is on
Published Temperature = 10 C Humidity = 69 % soilmoisture = 82 % to IBM Watson
Published Temperature = 75 C Humidity = 37 % soilmoisture = 2 % to IBM Watson
Published Temperature = 63 C Humidity = 59 % soilmoisture = 11 % to IBM Watson
Published Temperature = 31 C Humidity = 20 % soilmoisture = 43 % to IBM Watson
Published Temperature = 47 C Humidity = 38 % soilmoisture = 95 % to IBM Watson
Published Temperature = 62 C Humidity = 5 % soilmoisture = 93 % to IBM Watson
Command received: motoroff
motor is off
Command received: motor30
motor is on for 30 minutes
Published Temperature = 19 C Humidity = 99 % soilmoisture = 96 % to IBM Watson
Published Temperature = 6 C Humidity = 56 % soilmoisture = 85 % to IBM Watson
```