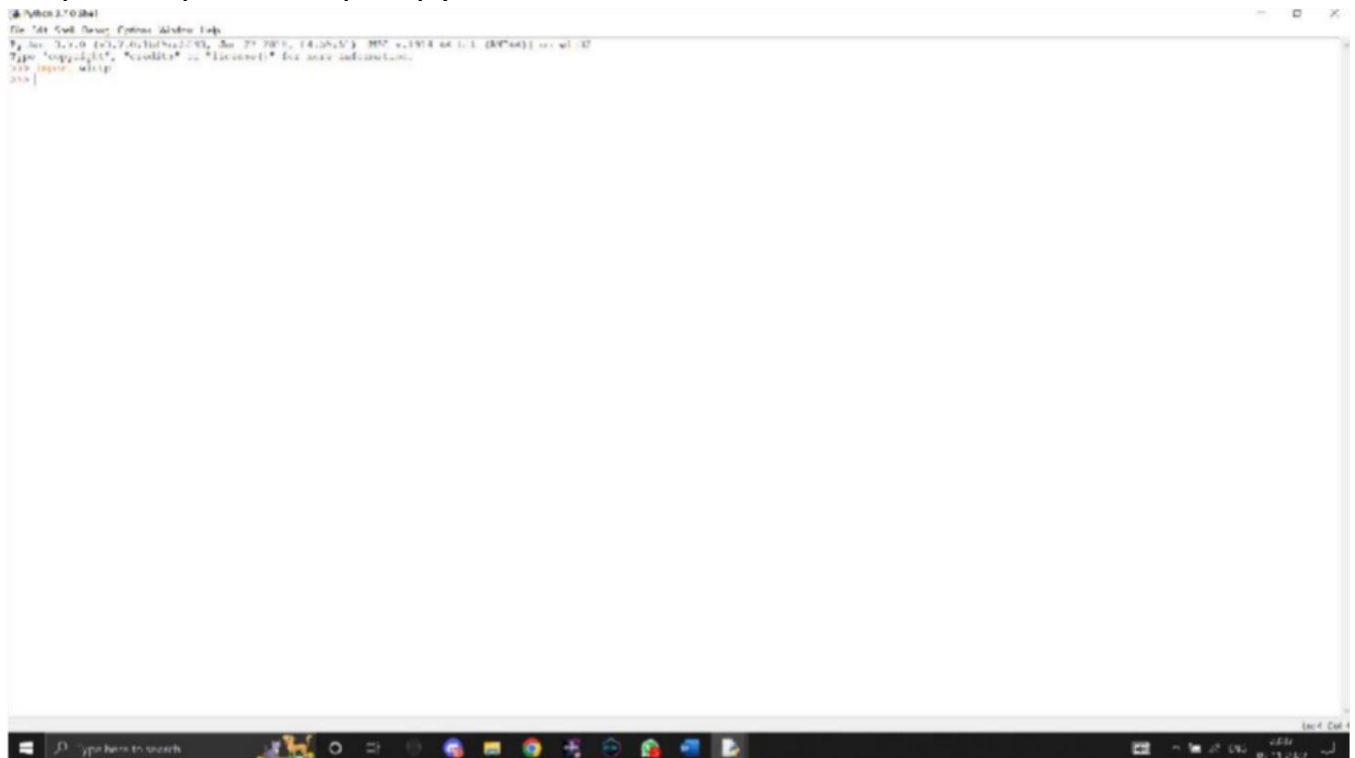


Develop the python code and subscribe to IBM IoT Platform

Date	25 October 2022
Team ID	PNT2022TMID20124
Project Name	Smart Farmer - IoT Enabled Smart Farming Application

Step 1: Import wiotp in python shell



```
Python 3.7.0 Shell
File Edit Shell Debug Console Window Help
Python 3.7.0 (tags/v3.7.0:1336e8d, Aug 20 2019, 14:05:15) [AMD64] on win32
Type "copyright", "credits" or "license()" for more
>>> import wiotp
>>>
```

Step 2 : write the code to connect with IBM Watson platform

```
File Edit Format Run Options Window Help
IBM Watson IoT Platform
$ pip install ibmpython
import ibmpython
import time
import random

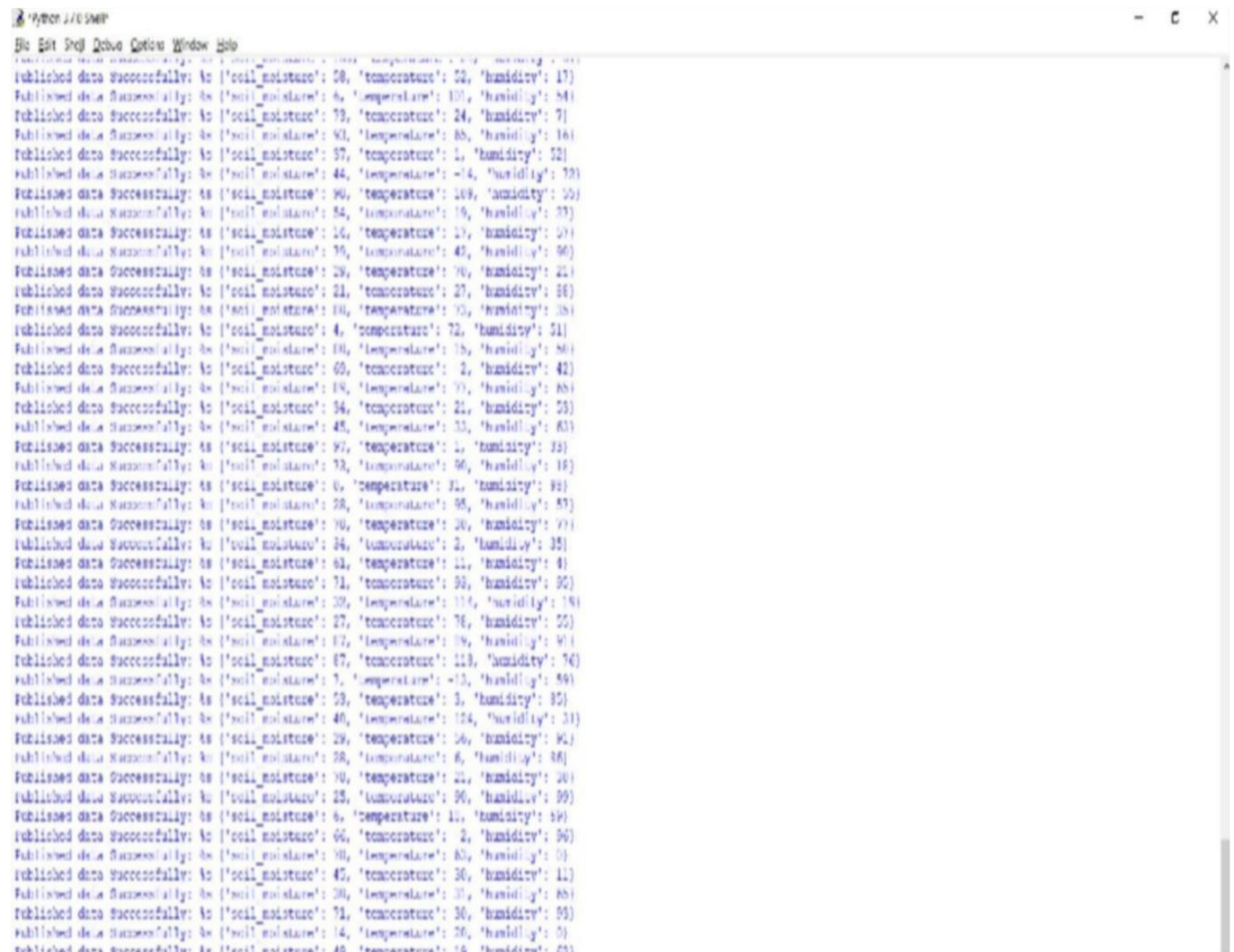
myData = {
    "humidity": {
        "orgId": "111111",
        "typeId": "TestDeviceType",
        "deviceId": "12345"
    },
    "temp": {
        "orgId": "111111"
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m = cmd.data['command']
    if m == "on":
        print("Motor is switched on")
    elif m == "off":
        print("Motor is switched off")
    print(" ")

client = ibmpython.DeviceClient(orgId="111111", deviceId="12345")
client.connect()

while True:
    soil = random.randint(0,100)
    temp = random.randint(20,120)
    hum = random.randint(0,100)
    myData = {"soil_moisture":soil,"temperature":temp,"humidity":hum}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    print("Published data Successfully: %s" % myData)
    client.commandCallback = myCommandCallback
    time.sleep(2)
client.disconnect()
```

Step 3 : Python is connected with IBM watson and the result is shown in the console



```
Python 2.7.10 Shell
File Edit Shell Debug Console Window Help

Published data Successfully: 10 ['soil_moisture': 58, 'temperature': 52, 'humidity': 17]
Published data Successfully: 20 ['soil_moisture': 6, 'temperature': 100, 'humidity': 54]
Published data Successfully: 30 ['soil_moisture': 72, 'temperature': 24, 'humidity': 7]
Published data Successfully: 40 ['soil_moisture': 93, 'temperature': 85, 'humidity': 16]
Published data Successfully: 50 ['soil_moisture': 37, 'temperature': 1, 'humidity': 52]
Published data Successfully: 60 ['soil_moisture': 44, 'temperature': -14, 'humidity': 72]
Published data Successfully: 70 ['soil_moisture': 90, 'temperature': 109, 'humidity': 10]
Published data Successfully: 80 ['soil_moisture': 34, 'temperature': 19, 'humidity': 37]
Published data Successfully: 90 ['soil_moisture': 16, 'temperature': 17, 'humidity': 57]
Published data Successfully: 100 ['soil_moisture': 76, 'temperature': 42, 'humidity': 90]
Published data Successfully: 110 ['soil_moisture': 29, 'temperature': 70, 'humidity': 21]
Published data Successfully: 120 ['soil_moisture': 21, 'temperature': 27, 'humidity': 56]
Published data Successfully: 130 ['soil_moisture': 18, 'temperature': 73, 'humidity': 18]
Published data Successfully: 140 ['soil_moisture': 4, 'temperature': 72, 'humidity': 51]
Published data Successfully: 150 ['soil_moisture': 18, 'temperature': 15, 'humidity': 80]
Published data Successfully: 160 ['soil_moisture': 60, 'temperature': 2, 'humidity': 42]
Published data Successfully: 170 ['soil_moisture': 18, 'temperature': 73, 'humidity': 86]
Published data Successfully: 180 ['soil_moisture': 34, 'temperature': 21, 'humidity': 53]
Published data Successfully: 190 ['soil_moisture': 45, 'temperature': 33, 'humidity': 83]
Published data Successfully: 200 ['soil_moisture': 97, 'temperature': 1, 'humidity': 33]
Published data Successfully: 210 ['soil_moisture': 73, 'temperature': 96, 'humidity': 18]
Published data Successfully: 220 ['soil_moisture': 0, 'temperature': 31, 'humidity': 8]
Published data Successfully: 230 ['soil_moisture': 28, 'temperature': 95, 'humidity': 57]
Published data Successfully: 240 ['soil_moisture': 70, 'temperature': 20, 'humidity': 77]
Published data Successfully: 250 ['soil_moisture': 34, 'temperature': 2, 'humidity': 35]
Published data Successfully: 260 ['soil_moisture': 61, 'temperature': 11, 'humidity': 4]
Published data Successfully: 270 ['soil_moisture': 71, 'temperature': 93, 'humidity': 95]
Published data Successfully: 280 ['soil_moisture': 30, 'temperature': 114, 'humidity': 18]
Published data Successfully: 290 ['soil_moisture': 27, 'temperature': 76, 'humidity': 55]
Published data Successfully: 300 ['soil_moisture': 17, 'temperature': 19, 'humidity': 91]
Published data Successfully: 310 ['soil_moisture': 67, 'temperature': 113, 'humidity': 74]
Published data Successfully: 320 ['soil_moisture': 7, 'temperature': -13, 'humidity': 59]
Published data Successfully: 330 ['soil_moisture': 53, 'temperature': 3, 'humidity': 85]
Published data Successfully: 340 ['soil_moisture': 40, 'temperature': 124, 'humidity': 31]
Published data Successfully: 350 ['soil_moisture': 29, 'temperature': 56, 'humidity': 91]
Published data Successfully: 360 ['soil_moisture': 28, 'temperature': 6, 'humidity': 86]
Published data Successfully: 370 ['soil_moisture': 70, 'temperature': 21, 'humidity': 30]
Published data Successfully: 380 ['soil_moisture': 25, 'temperature': 96, 'humidity': 99]
Published data Successfully: 390 ['soil_moisture': 6, 'temperature': 11, 'humidity': 59]
Published data Successfully: 400 ['soil_moisture': 66, 'temperature': 2, 'humidity': 96]
Published data Successfully: 410 ['soil_moisture': 90, 'temperature': 83, 'humidity': 0]
Published data Successfully: 420 ['soil_moisture': 42, 'temperature': 36, 'humidity': 11]
Published data Successfully: 430 ['soil_moisture': 30, 'temperature': 37, 'humidity': 86]
Published data Successfully: 440 ['soil_moisture': 71, 'temperature': 30, 'humidity': 95]
Published data Successfully: 450 ['soil_moisture': 14, 'temperature': 20, 'humidity': 0]
Published data Successfully: 460 ['soil_moisture': 40, 'temperature': 16, 'humidity': 55]
```

Step 4 : As the python code is connected to IBM IoT platform ,then run the program.

The screenshot displays the IBM IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons. The main content area shows the 'Recent Events' tab for a device. The events are listed in a table with columns: Event, Value, Format, and Last Received. The events are as follows:

Event	Value	Format	Last Received
event_test	{"soil":27,"temp":27,"hum":60}	json	a few seconds ago
event_test	{"soil":50,"temp":46,"hum":58}	json	a few seconds ago
status	{"soil_moisture":63,"temperature":41,"humidity":...	json	a few seconds ago
event_test	{"soil":31,"temp":14,"hum":20}	json	a few seconds ago
event_test	{"soil":14,"temp":12,"hum":70}	json	a few seconds ago

At the bottom of the interface, a status bar indicates '1 Simulation running'.

Result : The Python Code is developed and Subscribed to IBM IoT Platform successfully.