

DEVELOP THE PYTHON SCRIPT

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Team ID	PNT2022TMID01100
Project Name	Project – Signs with smart connectivity for better safety.

Develop a python script:

The image shows a Python script in a code editor and its output in a terminal window. The script is named `pubsub.py` and is located in `D:\IBM\pubsub.py (3.7.0)`. The script imports `time`, `sys`, `ibmiotf.application`, `ibmiotf.device`, and `random`. It provides IBM Watson Device Credentials, initializes GPIO, and defines a `myCommandCallback` function. The script connects to the IBM Watson IoT Platform and publishes sensor data (Temperature and Humidity) to the cloud as events of type `deviceC1`.

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

# Provide your IBM Watson Device Credentials
organization = "p916a2"
deviceType = "Ibmcloud_1"
deviceId = "Ibmcloud_1id"
authMethod = "token"
authToken = "Iv1wM8F-Ms*in_EqF"

# Initialize GPIO

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status = cmd.data['command']
    if status == "lighton":
        print("led is on")
    else:
        print("led is off")
    # print(cmd)

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method": authMethod}
    deviceC1 = ibmiotf.device.Client(deviceOptions)
    # .....
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 deviceC1
deviceC1.connect()

while True:
    # Get Sensor Data from DHT11
    temp = random.randint(0, 100)
    humi = random.randint(0, 100)
```

The terminal window shows the output of the script, displaying a series of published temperature and humidity values to IBM Watson.

```
Published Temperature = 52 C Humidity = 25 % to IBM Watson
Published Temperature = 93 C Humidity = 75 % to IBM Watson
Published Temperature = 86 C Humidity = 12 % to IBM Watson
Published Temperature = 48 C Humidity = 90 % to IBM Watson
Published Temperature = 27 C Humidity = 12 % to IBM Watson
Published Temperature = 1 C Humidity = 27 % to IBM Watson
Published Temperature = 88 C Humidity = 42 % to IBM Watson
Published Temperature = 33 C Humidity = 38 % to IBM Watson
Published Temperature = 36 C Humidity = 91 % to IBM Watson
Published Temperature = 40 C Humidity = 80 % to IBM Watson
Published Temperature = 54 C Humidity = 74 % to IBM Watson
Published Temperature = 75 C Humidity = 79 % to IBM Watson
Published Temperature = 43 C Humidity = 94 % to IBM Watson
Published Temperature = 62 C Humidity = 22 % to IBM Watson
Published Temperature = 3 C Humidity = 95 % to IBM Watson
Published Temperature = 5 C Humidity = 8 % to IBM Watson
Published Temperature = 40 C Humidity = 93 % to IBM Watson
Published Temperature = 49 C Humidity = 99 % to IBM Watson
Published Temperature = 17 C Humidity = 64 % to IBM Watson
Published Temperature = 17 C Humidity = 80 % to IBM Watson
Published Temperature = 54 C Humidity = 27 % to IBM Watson
Published Temperature = 63 C Humidity = 60 % to IBM Watson
Published Temperature = 13 C Humidity = 54 % to IBM Watson
Published Temperature = 89 C Humidity = 24 % to IBM Watson
Published Temperature = 88 C Humidity = 75 % to IBM Watson
Published Temperature = 8 C Humidity = 1 % to IBM Watson
Published Temperature = 24 C Humidity = 0 % to IBM Watson
Published Temperature = 45 C Humidity = 26 % to IBM Watson
Published Temperature = 81 C Humidity = 71 % to IBM Watson
Published Temperature = 19 C Humidity = 80 % to IBM Watson
Published Temperature = 63 C Humidity = 60 % to IBM Watson
Published Temperature = 8 C Humidity = 11 % to IBM Watson
Published Temperature = 1 C Humidity = 71 % to IBM Watson
Published Temperature = 93 C Humidity = 10 % to IBM Watson
Published Temperature = 62 C Humidity = 61 % to IBM Watson
Published Temperature = 72 C Humidity = 17 % to IBM Watson
Published Temperature = 17 C Humidity = 12 % to IBM Watson
Published Temperature = 22 C Humidity = 35 % to IBM Watson
Published Temperature = 10 C Humidity = 15 % to IBM Watson
Published Temperature = 9 C Humidity = 4 % to IBM Watson
Published Temperature = 34 C Humidity = 54 % to IBM Watson
Published Temperature = 61 C Humidity = 28 % to IBM Watson
Published Temperature = 89 C Humidity = 4 % to IBM Watson
Published Temperature = 27 C Humidity = 30 % to IBM Watson
Published Temperature = 24 C Humidity = 69 % to IBM Watson
```

Publish data to the IBM cloud:

The image shows the IBM Watson IoT Platform dashboard. The dashboard displays the following information:

- Device ID:** Ibmcloud_1id
- Status:** Connected
- Device Type:** Ibmcloud_1
- Class ID:** Device
- Date Added:** 13 Oct 2022 14:20
- Descriptive Location:** (empty)

The dashboard also shows a table of recent events, which are listed below:

Event	Value	Format	Last Received
IoT Sensor	{ "temp": 56, "Humid": 7 }	json	a few seconds ago
IoT Sensor	{ "temp": 8, "Humid": 1 }	json	a few seconds ago
IoT Sensor	{ "temp": 88, "Humid": 75 }	json	a few seconds ago
IoT Sensor	{ "temp": 89, "Humid": 24 }	json	a few seconds ago
IoT Sensor	{ "temp": 13, "Humid": 54 }	json	a few seconds ago