

SPRINT 1

PYTHON SCRIPT TO MONITOR TEMPERATURE, PH, TURBIDITY IN RIVER WATER

PROGRAM:

```
import time

import sys

import ibmiotf.application
import ibmiotf.device

import random


#provide Your IBM Watson Device Credentials

organization = "m89nt2"

deviceType = "arduino"

deviceId = "123"

authMethod = "token"

authToken = "87654321"


#Initialize GPIO

def myCommandCallback(cmd):

    print ("command received: %s" %cmd.data['command'])

    status=cmd.data['command']

    if status=="lighton":

        print ("led is on")

    elif status == "lightoff":

        print ("led is off")

    else:

        print ("please send proper command")

try:

    deviceOptions = {'org':organization,'type':deviceType,'id':deviceId,'auth-

method':authMethod, 'auth-token': authToken}
```

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```
deviceCli = 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" info the cloud as an event of
type"greetings"10 times
deviceCli.connect()

while True:

    #Get sensor Data from DHT11

    temp=random.randint(90,110)

    pH=random.randint(0,14)

    turbidity=random.randint(0,100)

    data = { 'Temperature' : temp, 'pH': pH, 'Turbidity':turbidity }

    #print data

    def myOnPublishCallback():

        print ("published Temperature = %s C" % temp, "pH = is %s %" % pH, "Turbidity= is
%s %" % turbidity,"to IBM Watson")

    success = deviceCli.publishEvent("IOTSensor",
"json",data,qos=0,on_publish=myOnPublishCallback)

    if not success:

        print("Not connected to IOTF")

    time.sleep(10)
```

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WATER

deviceCli.commandCallback = myCommandCallback

deviceCli.disconnect()

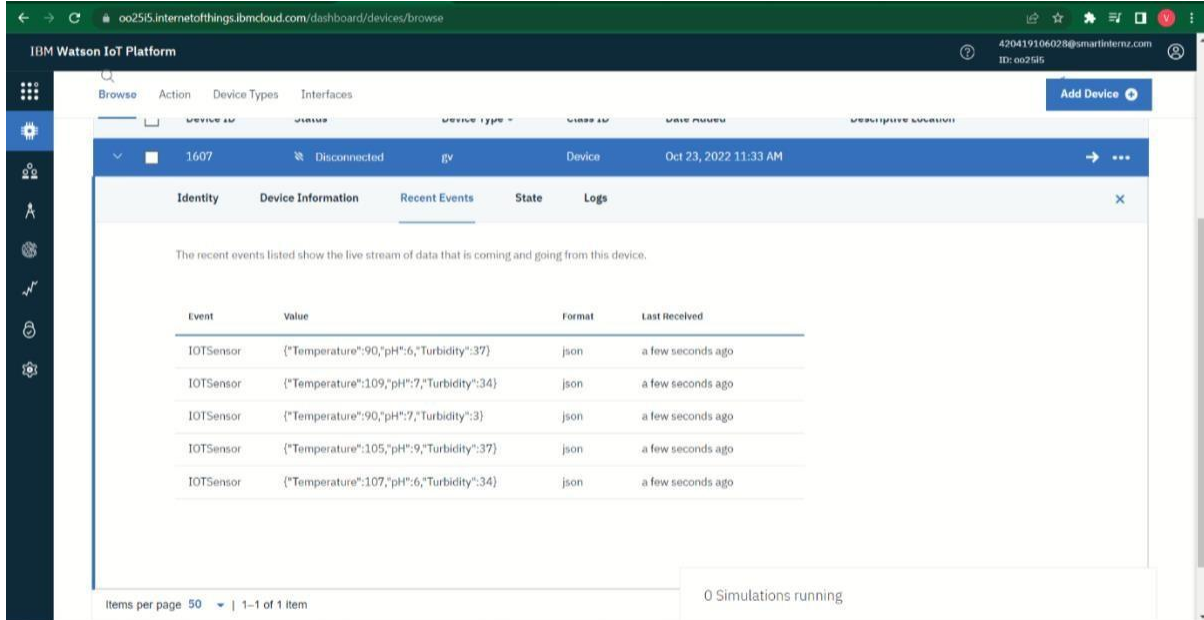
OUTPUT:

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (tags/v3.7.0:1bf5cc5093, 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/vaishnavi/G/AppData/Local/Programs/python/python37/python_script.py
2022-11-05 19:59:06.719 IBMiot.DeviceClient INFO Connected successfully: d:002515:gv:1607
published Temperature = 90 C pH = is 7 % Turbidity= is 2 % to IBM Watson
published Temperature = 100 C pH = is 6 % Turbidity= is 17 % to IBM Watson
published Temperature = 95 C pH = is 3 % Turbidity= is 66 % to IBM Watson
published Temperature = 100 C pH = is 9 % Turbidity= is 93 % to IBM Watson
published Temperature = 95 C pH = is 4 % Turbidity= is 34 % to IBM Watson
published Temperature = 92 C pH = is 1 % Turbidity= is 27 % to IBM Watson
published Temperature = 104 C pH = is 2 % Turbidity= is 18 % to IBM Watson
published Temperature = 102 C pH = is 9 % Turbidity= is 38 % to IBM Watson
published Temperature = 94 C pH = is 10 % Turbidity= is 74 % to IBM Watson
published Temperature = 94 C pH = is 5 % Turbidity= is 71 % to IBM Watson
published Temperature = 102 C pH = is 12 % Turbidity= is 100 % to IBM Watson
published Temperature = 91 C pH = is 12 % Turbidity= is 72 % to IBM Watson
published Temperature = 92 C pH = is 0 % Turbidity= is 71 % to IBM Watson
published Temperature = 99 C pH = is 10 % Turbidity= is 31 % to IBM Watson
published Temperature = 106 C pH = is 4 % Turbidity= is 17 % to IBM Watson
published Temperature = 109 C pH = is 0 % Turbidity= is 22 % to IBM Watson
published Temperature = 102 C pH = is 8 % Turbidity= is 20 % to IBM Watson
published Temperature = 90 C pH = is 1 % Turbidity= is 87 % to IBM Watson
published Temperature = 93 C pH = is 9 % Turbidity= is 56 % to IBM Watson
published Temperature = 107 C pH = is 14 % Turbidity= is 73 % to IBM Watson
published Temperature = 98 C pH = is 0 % Turbidity= is 28 % to IBM Watson
published Temperature = 101 C pH = is 11 % Turbidity= is 22 % to IBM Watson
published Temperature = 100 C pH = is 0 % Turbidity= is 90 % to IBM Watson
published Temperature = 90 C pH = is 8 % Turbidity= is 37 % to IBM Watson
published Temperature = 104 C pH = is 9 % Turbidity= is 52 % to IBM Watson
published Temperature = 103 C pH = is 2 % Turbidity= is 88 % to IBM Watson
published Temperature = 102 C pH = is 0 % Turbidity= is 60 % to IBM Watson
published Temperature = 98 C pH = is 4 % Turbidity= is 1 % to IBM Watson
published Temperature = 97 C pH = is 10 % Turbidity= is 58 % to IBM Watson
published Temperature = 101 C pH = is 3 % Turbidity= is 66 % to IBM Watson
published Temperature = 107 C pH = is 6 % Turbidity= is 44 % to IBM Watson
published Temperature = 109 C pH = is 11 % Turbidity= is 47 % to IBM Watson
published Temperature = 102 C pH = is 14 % Turbidity= is 32 % to IBM Watson
published Temperature = 90 C pH = is 10 % Turbidity= is 26 % to IBM Watson
published Temperature = 91 C pH = is 11 % Turbidity= is 77 % to IBM Watson
published Temperature = 96 C pH = is 12 % Turbidity= is 86 % to IBM Watson
published Temperature = 95 C pH = is 6 % Turbidity= is 20 % to IBM Watson
published Temperature = 92 C pH = is 0 % Turbidity= is 51 % to IBM Watson
published Temperature = 95 C pH = is 3 % Turbidity= is 70 % to IBM Watson
published Temperature = 104 C pH = is 11 % Turbidity= is 98 % to IBM Watson
published Temperature = 91 C pH = is 8 % Turbidity= is 39 % to IBM Watson
published Temperature = 103 C pH = is 1 % Turbidity= is 99 % to IBM Watson
published Temperature = 101 C pH = is 6 % Turbidity= is 56 % to IBM Watson
published Temperature = 94 C pH = is 7 % Turbidity= is 27 % to IBM Watson
published Temperature = 90 C pH = is 4 % Turbidity= is 52 % to IBM Watson
published Temperature = 107 C pH = is 10 % Turbidity= is 73 % to IBM Watson
published Temperature = 110 C pH = is 9 % Turbidity= is 22 % to IBM Watson
published Temperature = 92 C pH = is 3 % Turbidity= is 80 % to IBM Watson
```

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PUBLISHING DATA TO IBM CLOUD:



The screenshot displays the IBM Watson IoT Platform dashboard. The top navigation bar includes the IBM logo and the text "IBM Watson IoT Platform". The main content area shows a list of devices, with the first device, "1607", selected. The device status is "Disconnected". The "Recent Events" tab is active, showing a table of events. The table has four columns: "Event", "Value", "Format", and "Last Received". The events are JSON objects containing temperature, pH, and turbidity data. The bottom of the dashboard shows "Items per page 50" and "1-1 of 1 item". A status bar at the bottom right indicates "0 Simulations running".

Event	Value	Format	Last Received
IOTSensor	{"Temperature":90,"pH":6,"Turbidity":37}	json	a few seconds ago
IOTSensor	{"Temperature":109,"pH":7,"Turbidity":34}	json	a few seconds ago
IOTSensor	{"Temperature":90,"pH":7,"Turbidity":3}	json	a few seconds ago
IOTSensor	{"Temperature":105,"pH":9,"Turbidity":37}	json	a few seconds ago
IOTSensor	{"Temperature":107,"pH":6,"Turbidity":34}	json	a few seconds ago