SPRINT 2

Aim:

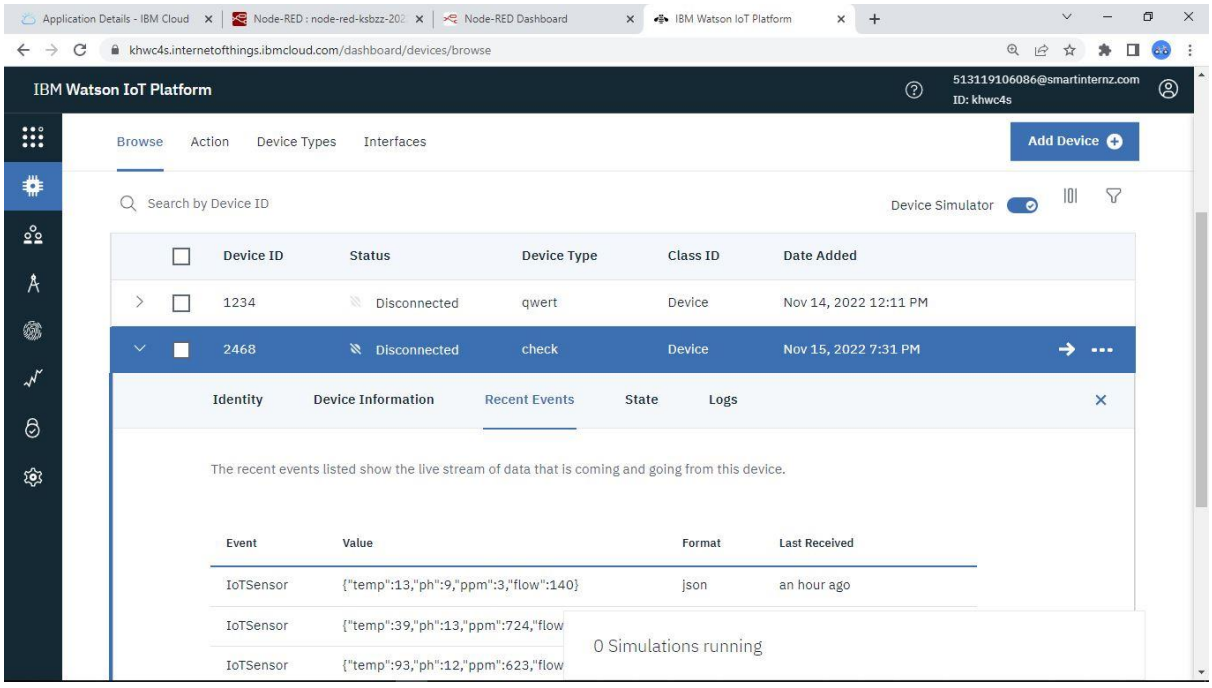
To create python script and establish Node-RED

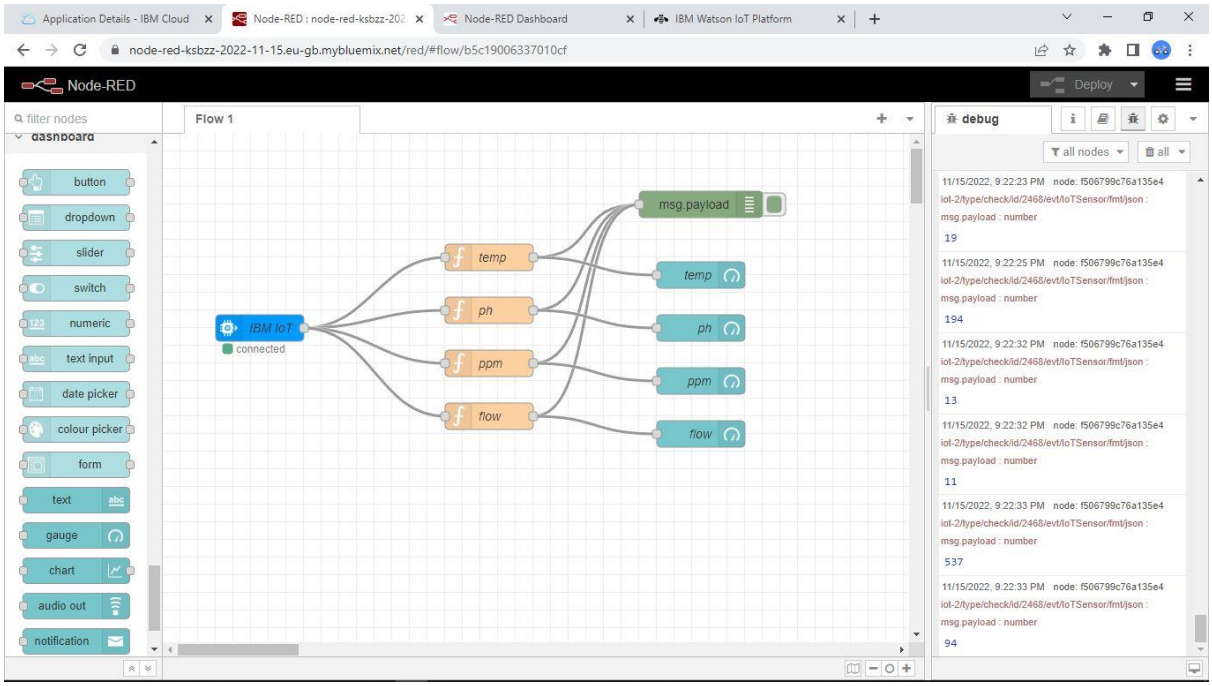
Requirements:

- Python 3.7
- IBM Cloud Account (**IoT Platform and Node RED App**)

Activities:

- Make sure IBM Watson IoT Platform and Node RED App is created in cloud account
- In IBM Watson IoT Platform, create device and cards
- Develop python script for generating water parameters
- In Node RED App, install necessary node
- To retrieve data from IoT Platform use IBMIoT node from node column on left and once double click select the necessary properties
- Place function nodes to get the values, then type code and connect them to IBMIoT node
- Place debug node and connect them to the function nodes to view the data in debug column

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Node-RED Dashboard
IBM Watson IoT Platform
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Node-RED
Deploy
filter nodes
dashboard
button
dropdown
slider
switch
numeric
text input
date picker
colour picker
form
text
gauge
chart
audio out
notification
Flow 1
IBM IoT
connected
temp
ph
ppm
flow
msg.payload
debug
all nodes
all
11/15/2022, 9:22:23 PM node: f506799c76a135e4
iot-2/type/check/id/2468/evt/IoTSensor/fmt/json : msg.payload : number
19
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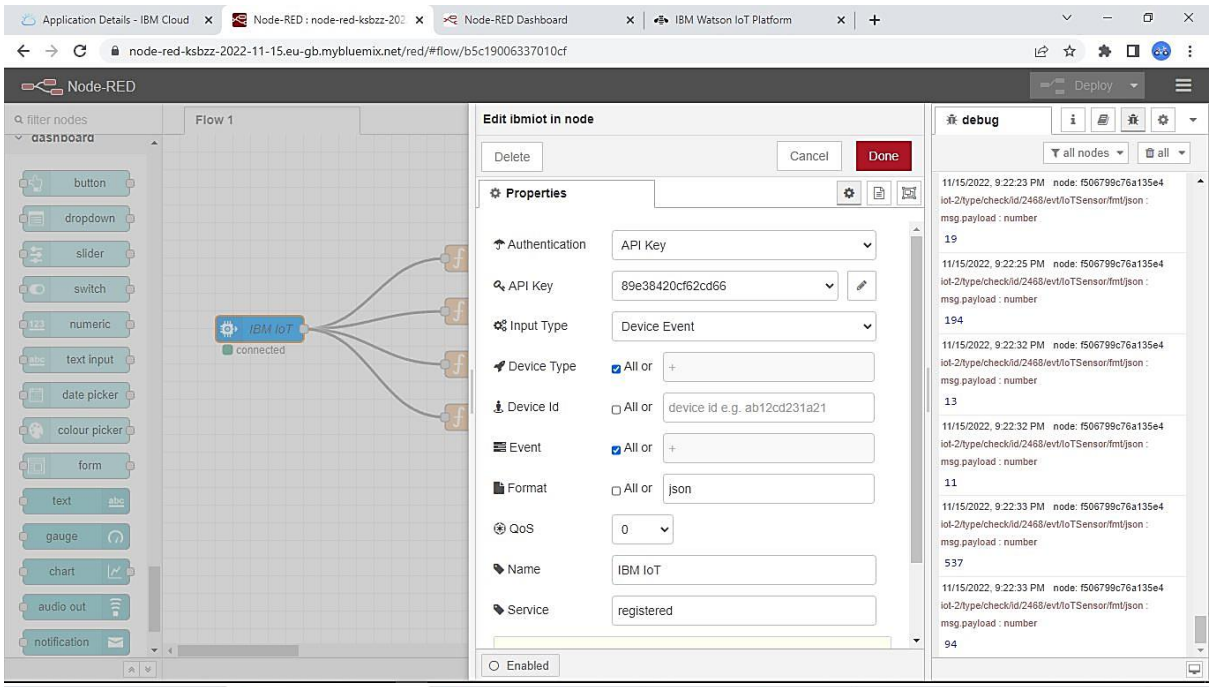
94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Node-RED
Deploy
Flow 1
IBM IoT
connected
Edit ibmiot in node
Delete
Cancel
Done
Properties
Authentication
API Key
API Key
89e38420cf62cd66
Input Type
Device Event
Device Type
All or
Device Id
All or
device id e.g. ab12cd231a21
Event
All or
Format
All or
json
QoS
0
Name
IBM IoT
Service
registered
Enabled
debug
all nodes
all
11/15/2022, 9:22:23 PM node: f506799c76a135e4
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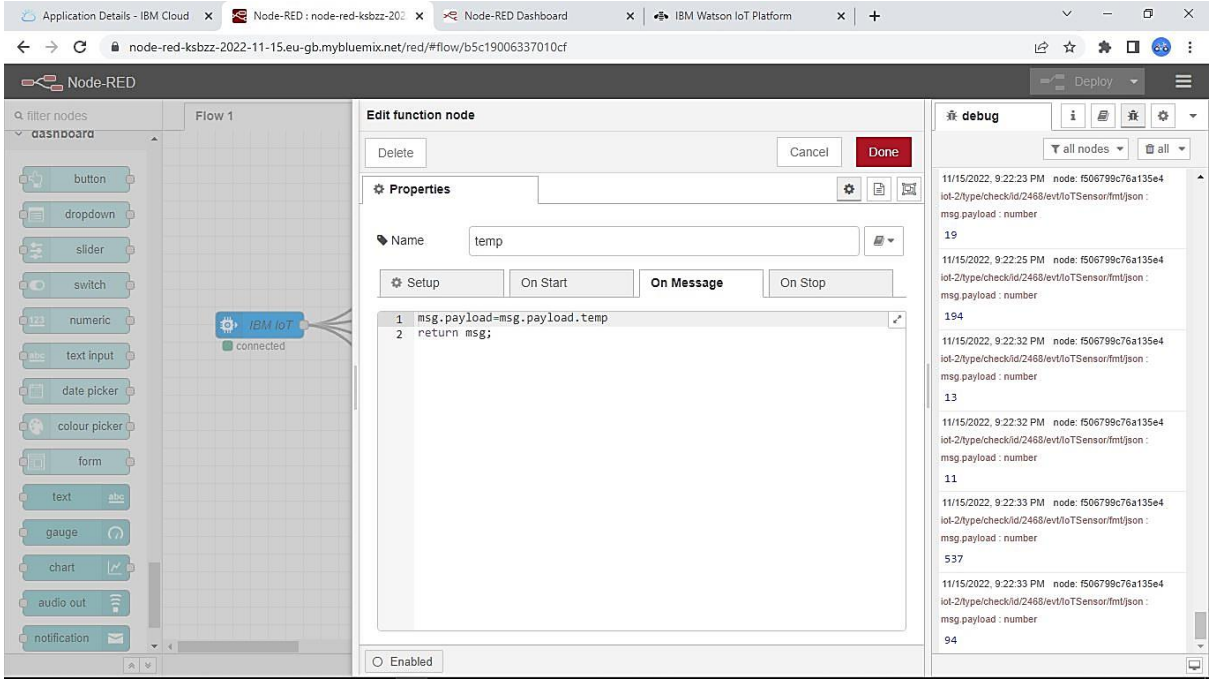
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Flow 1
IBM IoT
connected
Edit function node
Delete
Cancel
Done
Properties
Name
temp
Setup
On Start
On Message
On Stop
1 msg.payload=msg.payload.temp
2 return msg;
Enabled
debug
all nodes
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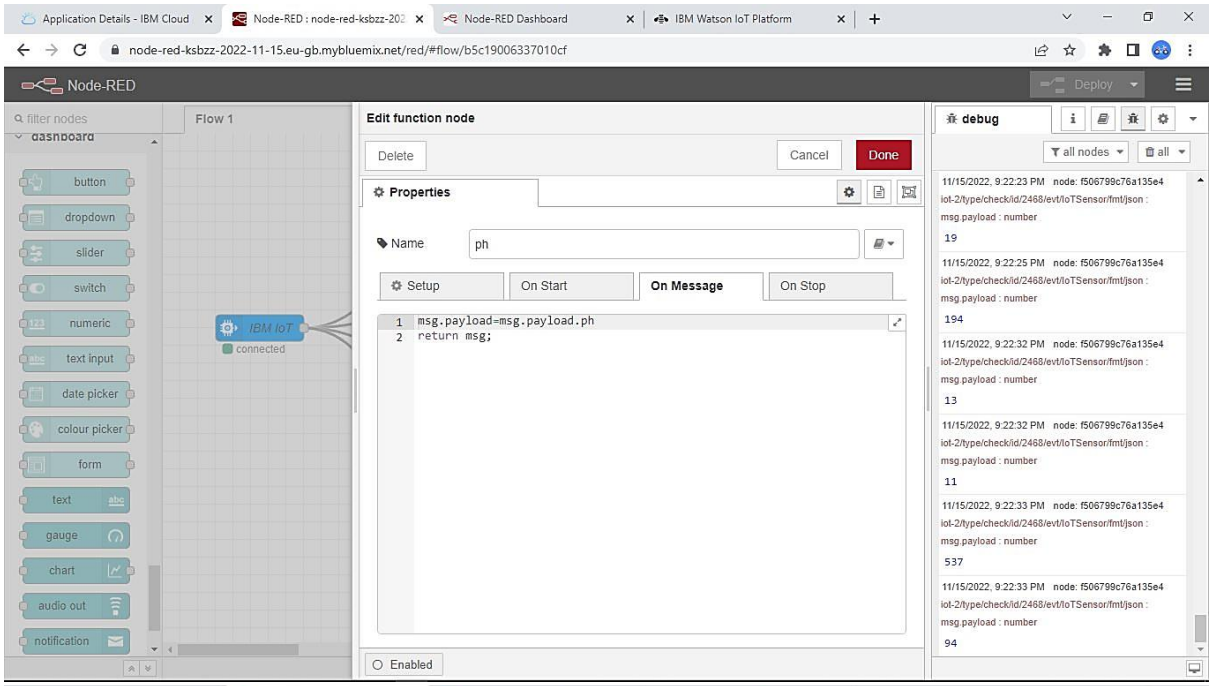
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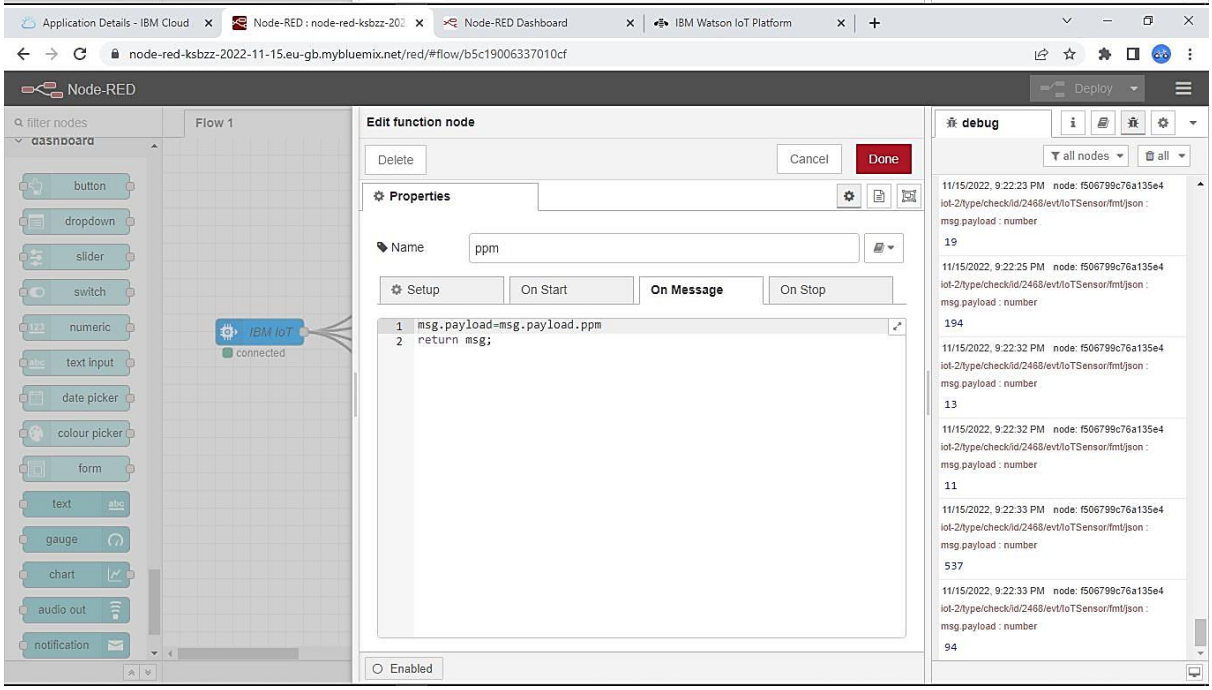
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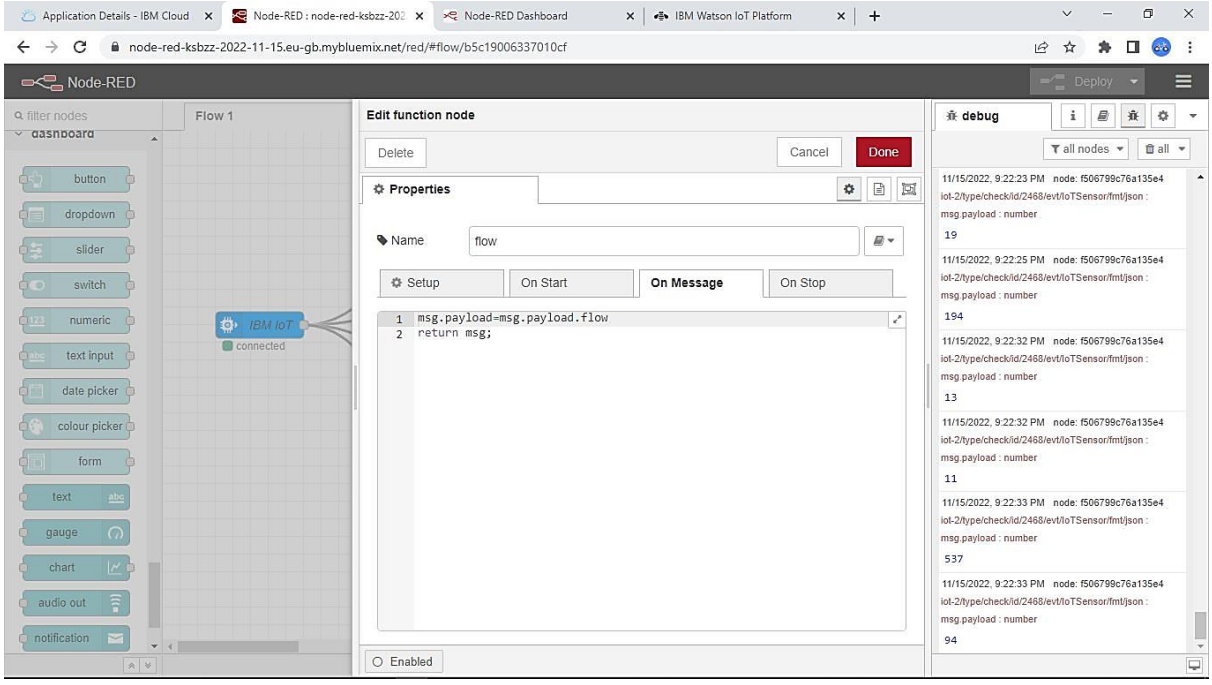
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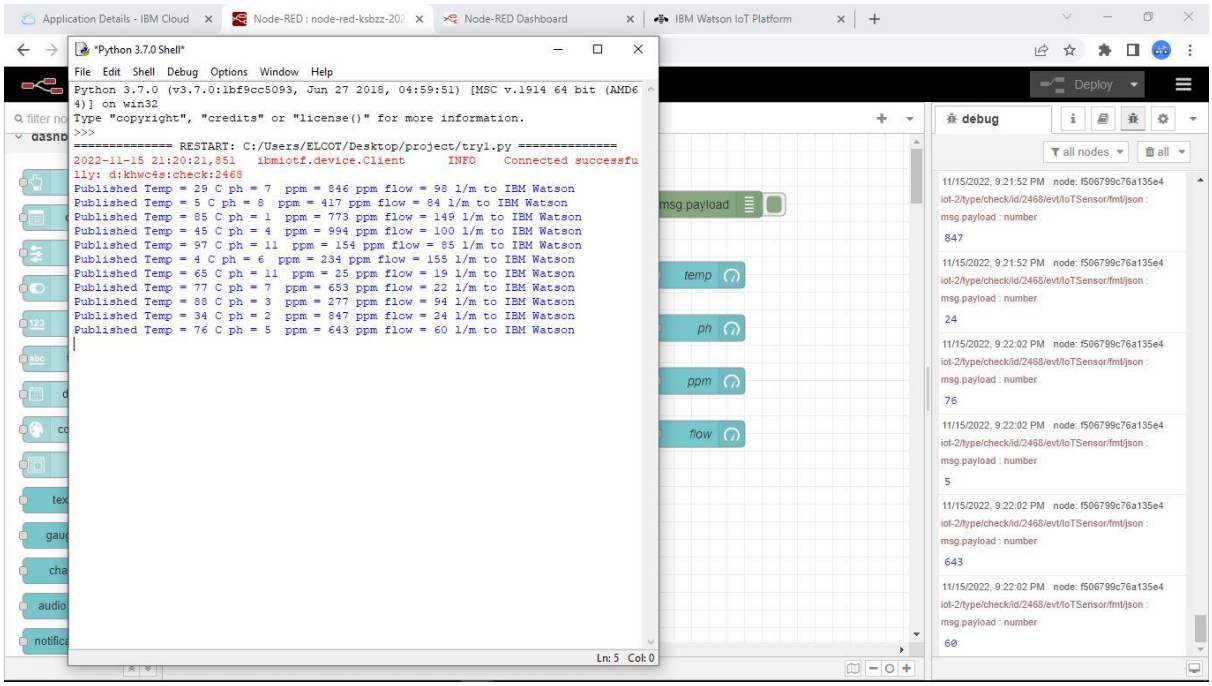

Python script:

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

#Provide your IBM Watson Device Credentials
organization = "khwc4s"
deviceType = "check"
deviceId = "2468"
authMethod = "token"
authToken = "09876543"

# 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}
  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" into the
cloud as an event of type "greeting" 10 times
deviceCli.connect()

while True:
        #Get Sensor Data from DHT11

        temp=random.randint(0,100)
        ph=random.randint(0,14)
        ppm=random.randint(0,1000)
        flow=random.randint(0,200)

        data = { 'temp' : temp, 'ph': ph,'ppm':ppm,'flow':flow }
        #print data
        def myOnPublishCallback():
            print ("Published Temp = %s C" % temp, "ph = %s " %
ph,"ppm = %s ppm" % ppm,"flow = %s l/m" % flow, "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)

        deviceCli.commandCallback = myCommandCallback

# Disconnect the device and application from the cloud
deviceCli.disconnect()
```