Sprint Delivery – 3

Project	IoT Enabled Smart Farming Application
Team ID	PNT2022TMID43402
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In the last sprint phase(sprint - 2), a node-MCU device is created in Watson IOT Platform and randomly generated .

Now, using PYTHON CODE , we need to generate random values for Temperature, Humidity and Soil moisture sensors. For that we need Python 3.7.0 IDLE.

First of all, required ibmiotf package using this command in the command prompt :
pip install ibmiotf

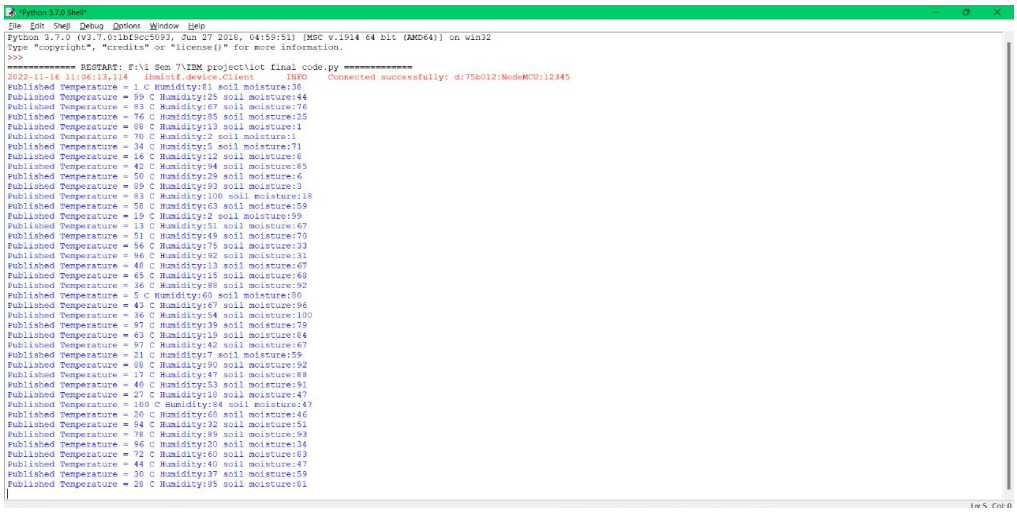
The required library files are included in the code ,then functions are written

CODE:

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

#Provide your IBM Watson Device Credentials
organization = "75b0l2"
deviceType = "NodeMCU"
deviceId = "12345"
authMethod = "token"
authToken = "12345678"

# Initialize GPIO

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

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

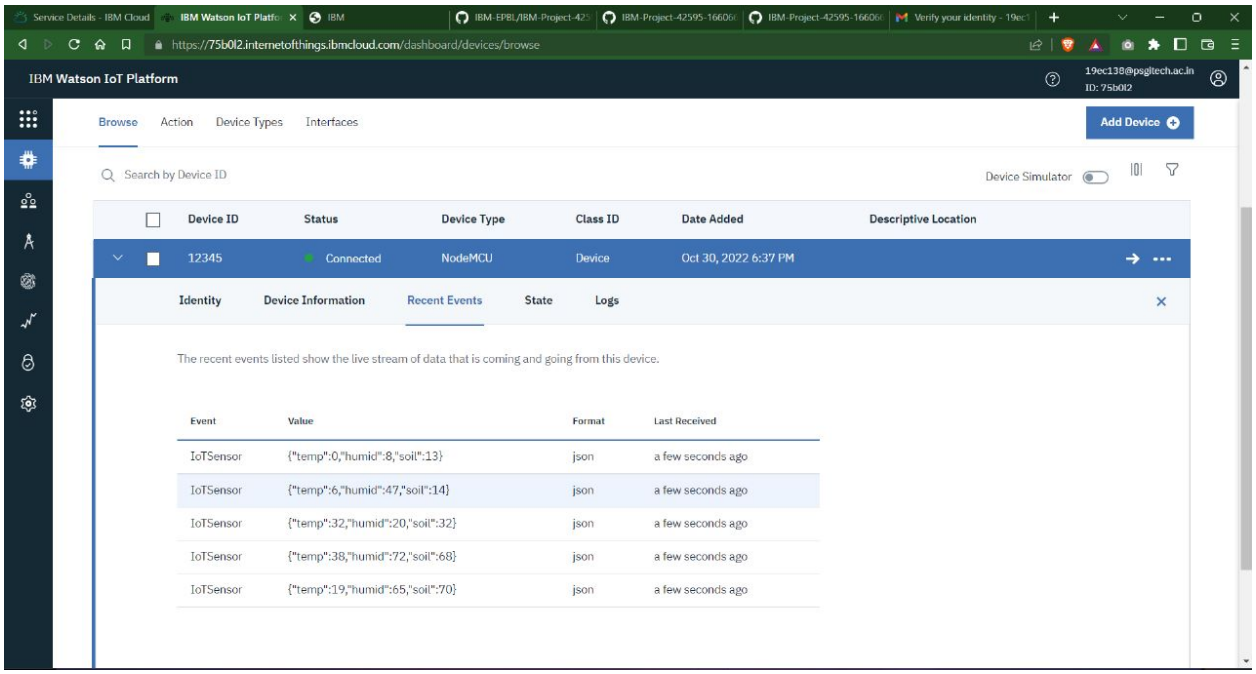
```
except Exception as e:
        print("Caught exception connecting device: %s" % str(e))
        sys.exit()

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

    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
    if not success:
        print("Not connected to IoTF")
    time.sleep(1)
    deviceCli.commandCallback = myCommandCallback

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

OUTPUT:



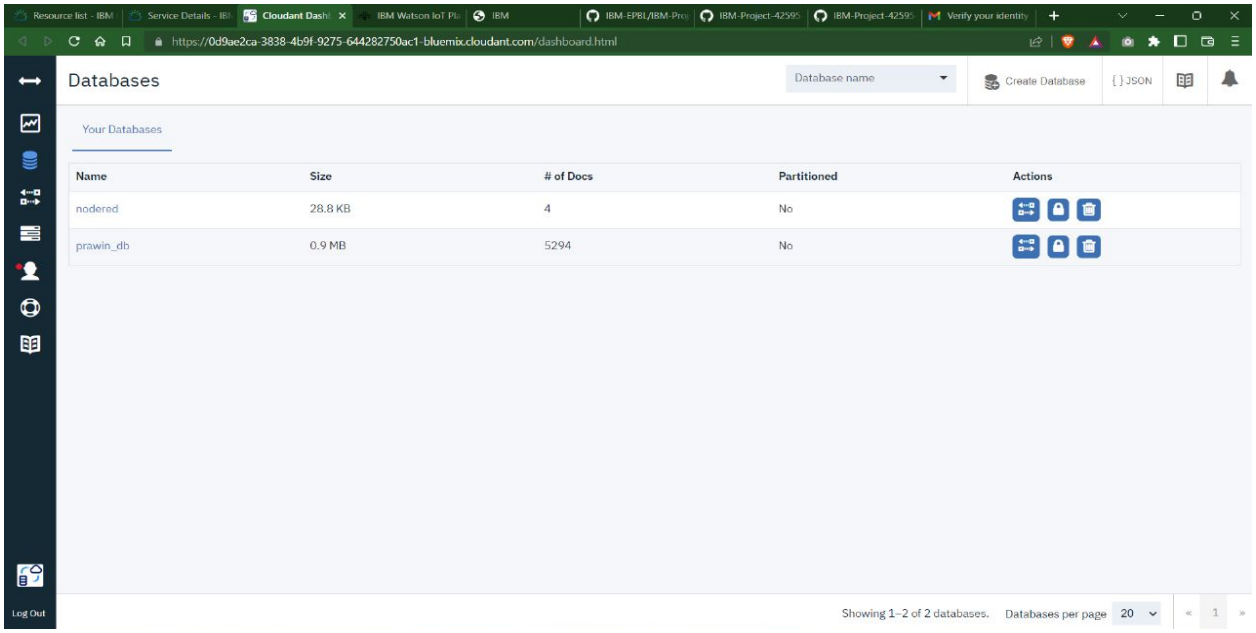
```
```

These randomly generated values can be seen in the IBM Watson IOT Platform which is the IBM Cloud in the area of device recent events with the help of IBM **ibmiotf** package and the device credentials.

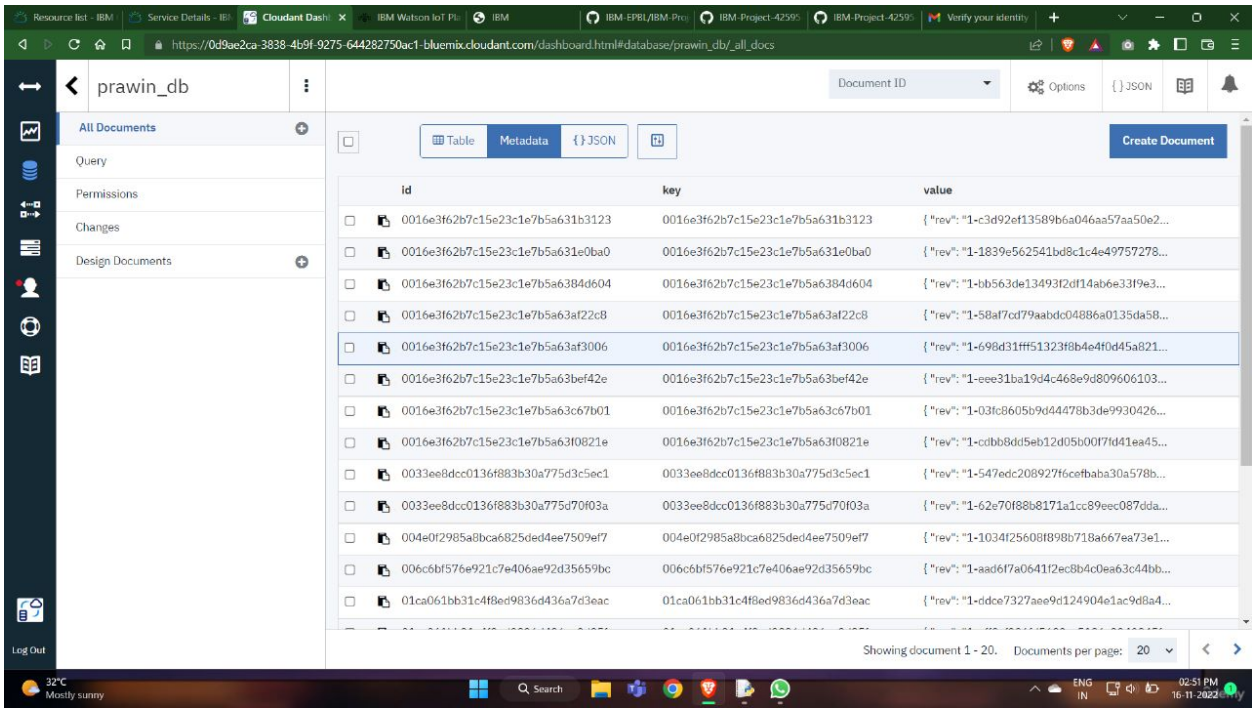


The values are stored in the IBM Cloudant database

Creation of database:



Storing data in cloud:



Actual Json format stored in cloud: