

DEVELOP THE PYTHON CODE:

Date	17 NOV 2022
Team ID	PNT2022TMID18233
Project Name	Project -Smart farmer-IOT enabled smart Farming Application

Python Code:

```
#IBM Watson IOT Platform

#pip install wiotp-sdk

import wiotp.sdk.device

import time

import random

import requests, json


ms=0

api_key = "a0db30a689a774b93ffcb58ef2eddfda"

base_url = "http://api.openweathermap.org/data/2.5/weather?"

city_name = 'Chennai, IN'

complete_url = base_url + "appid=" + api_key + "&q=" + city_name


status='motor off'

myConfig = {

    "identity": {

        "orgId": "17lsro",

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    "typeId": "MyDeviceType",
    "deviceId": "12345"
},
"auth": {
    "token": "GkatKdiUS?UVHKvnAD"
}
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" %
cmd.data['command'])

    m=cmd.data['command']

    if(m=="MOTOR ON"):

        print("MOTOR IS ON")

        global status

        status='motor on'

        myData={'temperature':temp,
'humidity':hum,'soilmoisture':sm_percentage,'status':status,'api_temperature':
api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api
_weather_description':api_weather_description}

        client.publishEvent(eventId="status", msgFormat="json", data=myData,
qos=0, onPublish=None)

        print("Published data Successfully: %s", myData)

    time.sleep(2)

elif(m=="MOTOR OFF"):

    print("MOTOR IS OFF")

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status='motor off'

    myData={'temperature':temp,
'humidity':hum,'soilmoisture':sm_percentage,'status':status,'api_temperature':
api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api
_weather_description':api_weather_description}

    client.publishEvent(eventId="status", msgFormat="json", data=myData,
qos=0, onPublish=None)

    print("Published data Successfully: %s", myData)

time.sleep(2)

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:

    response = requests.get(complete_url)
    x = response.json()
    if x["cod"] != "404":


        y = x["main"]

        api_temperature = y["temp"]
```

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api_pressure = y["pressure"]
```

```
api_humidity = y["humidity"]
```

```
z = x["weather"]
```

```
api_weather_description = z[0]["description"]
```

```
temp=random.randint(-20,125)
```

```
hum=random.randint(0,100)
```

```
soilmoisture=random.randint(0,1023)#analog sensor
```

```
sm_percentage=(soilmoisture/1023)*100
```

```
sm_percentage=int(sm_percentage)
```

```
myData={'temperature':temp,
```

```
'humidity':hum,'soilmoisture':sm_percentage,'status':status,'api_temperature':  
api_temperature,'api_pressure':api_pressure,'api_humidity':api_humidity,'api  
_weather_description':api_weather_description}
```

```
client.publishEvent(eventId="status", msgFormat="json", data=myData,  
qos=0, onPublish=None)
```

```
print("Published data Successfully: %s", myData)
```

```
client.commandCallback = myCommandCallback
```

```
time.sleep(2)
```

```
time.sleep(2)
```

```
client.disconnect()
```

```
api python mit app.py - C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -1\api python mit app.py (3.8.10)
File Edit Format Run Options Window Help
#IBM Watson IOT Platform
#pip install wiotp-sdk
import wiotp.sdk.device
import time
import random
import requests, json

ms=0
api_key = "a0db30a689a774b93ffcb58ef2eddfda"
base_url = "http://api.openweathermap.org/data/2.5/weather?"
city_name = 'Chennai, IN'
complete_url = base_url + "appid=" + api_key + "&q=" + city_name

status="motor off"
myConfig = {
    "identity": {
        "orgId": "i7lsro",
        "typeId": "MyDeviceType",
        "deviceId": "12345"
    },
    "auth": {
        "token": "GkatKdiUS?UVHKvnAD"
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']
    if (m=="MOTOR ON"):
        print("MOTOR IS ON")
        global status
        status='motor on'
        myData={'temperature':temp, 'humidity':hum, 'soilmoisture':sm_percentage,'status':status,'api_temperature':api_temperature,'api_pressure':api_pressure}
        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
        print("Published data Successfully: %s", myData)
    time.sleep(2)

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```

```
api python mit app.py - C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -1\api python mit app.py (3.8.10)
File Edit Format Run Options Window Help
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
client.connect()

while True:
    response = requests.get(complete_url)
    x = response.json()
    if x["cod"] != "404":

        y = x["main"]

        api_temperature = y["temp"]

        api_pressure = y["pressure"]

        api_humidity = y["humidity"]

        z = x["weather"]

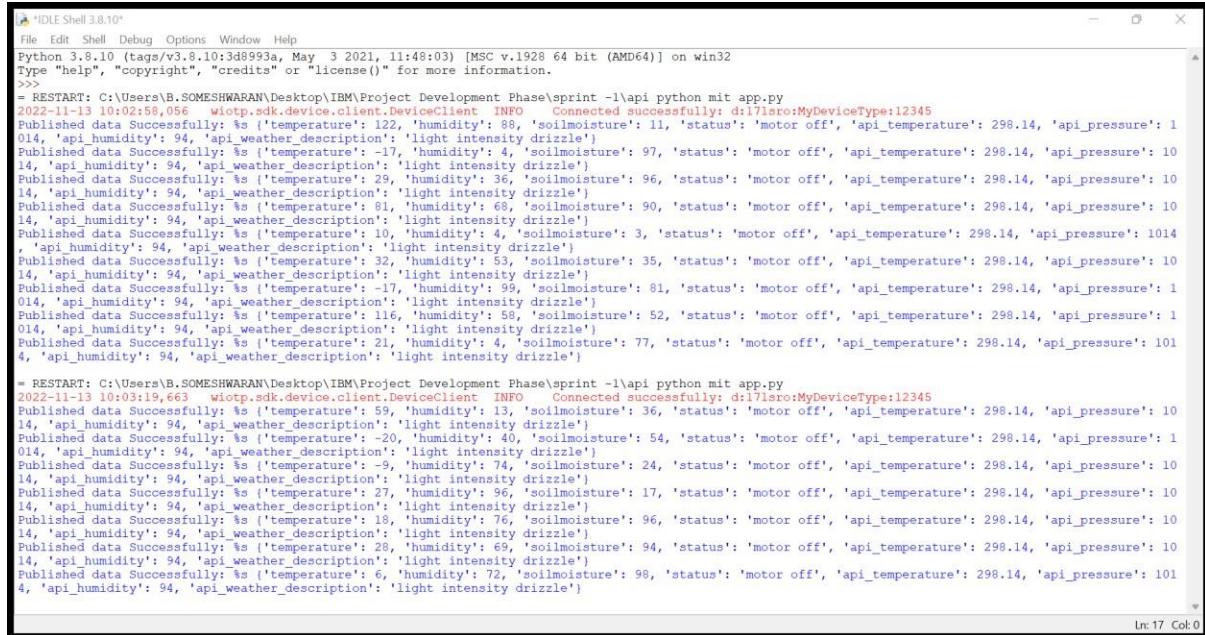
        api_weather_description = z[0]["description"]

        temp=random.randint(-20,125)
        hum=random.randint(0,100)
        soilmoisture=random.randint(0,1023)#analog sensor
        sm_percentage=(soilmoisture/1023)*100
        sm_percentage=int(sm_percentage)
        myData={'temperature':temp, 'humidity':hum, 'soilmoisture':sm_percentage,'status':status,'api_temperature':api_temperature,'api_pressure':api_pressure,'ap
        client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
        print("Published data Successfully: %s", myData)
        client.commandCallback = myCommandCallback
        time.sleep(2)

    time.sleep(2)
    client.disconnect()

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```

Running of Python Code



```
File Edit Shell Debug Options Window Help
Python 3.8.10 (tags/v3.8.10:3d8993a, May 3 2021, 11:48:03) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -l\api python mit.app.py
2022-11-13 10:02:58,056    wiotp.sdk.device.client.DeviceClient  INFO  Connected successfully: d:17lsro:MyDeviceType:12345
Published data Successfully: { "temperature": 122, "humidity": 88, "soilmoisture": 11, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": -17, "humidity": 4, "soilmoisture": 97, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 28, "humidity": 36, "soilmoisture": 96, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 10, "humidity": 68, "soilmoisture": 90, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 10, "humidity": 53, "soilmoisture": 3, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 32, "humidity": 53, "soilmoisture": 35, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": -17, "humidity": 99, "soilmoisture": 81, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 116, "humidity": 58, "soilmoisture": 52, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 21, "humidity": 4, "soilmoisture": 77, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }

= RESTART: C:\Users\B.SOMESHWARAN\Desktop\IBM\Project Development Phase\sprint -l\api python mit.app.py
2022-11-13 10:03:19,663    wiotp.sdk.device.client.DeviceClient  INFO  Connected successfully: d:17lsro:MyDeviceType:12345
Published data Successfully: { "temperature": 59, "humidity": 13, "soilmoisture": 36, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": -20, "humidity": 40, "soilmoisture": 54, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": -9, "humidity": 74, "soilmoisture": 24, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 27, "humidity": 96, "soilmoisture": 17, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 18, "humidity": 76, "soilmoisture": 96, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 28, "humidity": 69, "soilmoisture": 94, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
Published data Successfully: { "temperature": 6, "humidity": 72, "soilmoisture": 98, "status": "motor off", "api_temperature": 298.14, "api_pressure": 1014, "api_humidity": 94, "api_weather_description": "light intensity drizzle" }
```