

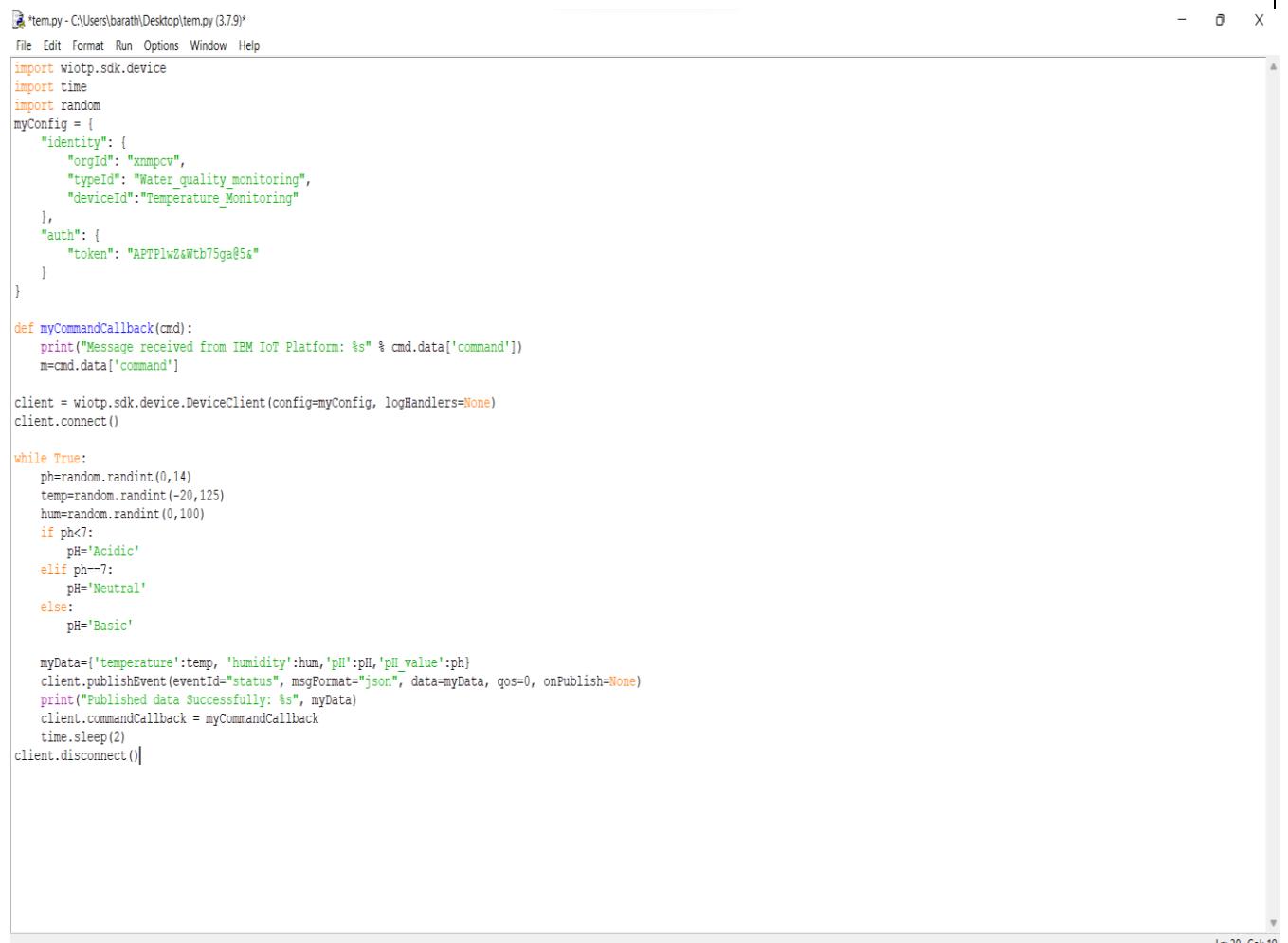
PROJECT DEVELOPMENT PHASE

PROJECT DEVELOPMENT - DELIVERY OF SPRINT 4

Date:	09 November 2022
Team ID:	PNT2022TMID00966
Name:	Real-Time River Water Quality Monitoring and Control System

SPRINT DESCRIPTION

In this Sprint we are about to describe about the Application we have developed and the Final Testing of the Python Code.



The screenshot shows a code editor window with a Python file named 'temp.py'. The code is a script for an IBM IoT Platform device. It imports the 'wiotp.sdk.device' module and other standard Python libraries. It defines a configuration dictionary 'myConfig' with 'identity' and 'auth' fields. The 'identity' field includes 'orgId', 'typeId', and 'deviceId' values. The 'auth' field includes a 'token'. A command callback function 'myCommandCallback' is defined to handle messages from the platform. The main loop generates random sensor data (temperature, humidity, pH) and publishes it as JSON. The pH value is mapped to environmental conditions ('Acidic', 'Neutral', 'Basic') based on its range. The script ends with a disconnect call.

```
temp.py - C:\Users\barath\Desktop\temp.py (3.7.9)*
File Edit Format Run Options Window Help
import wiotp.sdk.device
import time
import random
myConfig = {
    "identity": {
        "orgId": "xmppcv",
        "typeId": "water_quality_monitoring",
        "deviceId": "Temperature_Monitoring"
    },
    "auth": {
        "token": "APTPlwZ&Wtb75ga@54"
    }
}

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

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

while True:
    ph=random.randint(0,14)
    temp=random.randint(-20,125)
    hum=random.randint(0,100)
    if ph<7:
        pH='Acidic'
    elif ph==7:
        pH='Neutral'
    else:
        pH='Basic'

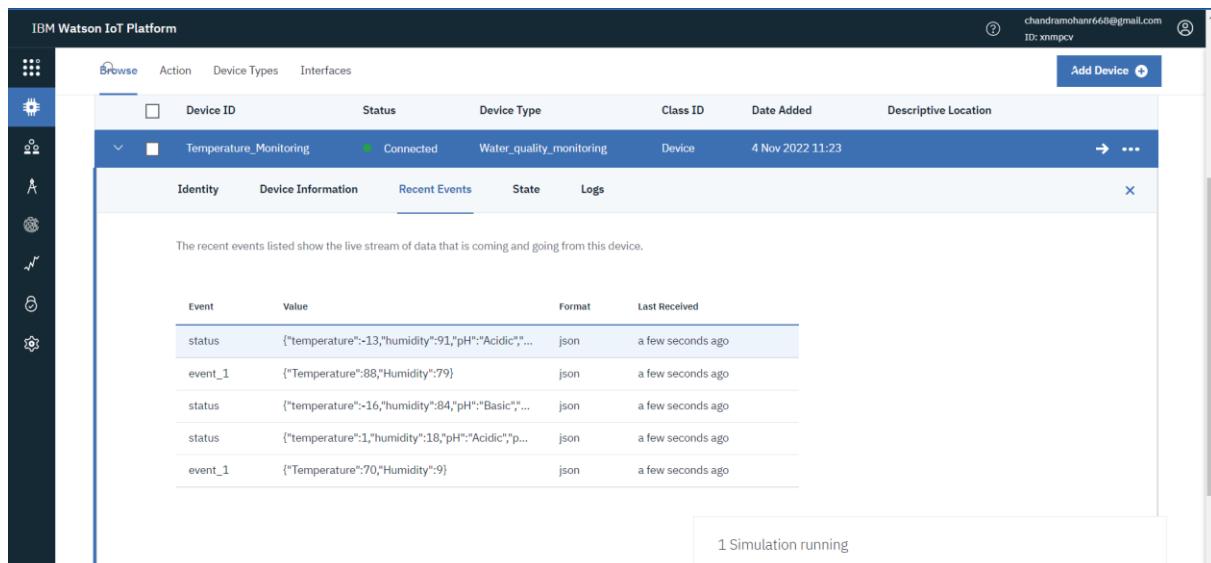
    myData={'temperature':temp, 'humidity':hum,'pH':pH,'pH_value':ph}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(2)
client.disconnect()
```

PYTHON EXECUTED OUTPUT



```
Python 3.7.0 (v3.7.0:bbfdd18, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Parameswari\Documents\temperature_code.py =====
2022-11-07 20:04:41,815 ibmiotf.device.Client   INFO  Connected successfully: d:udjikcs:1234:1234567
Published Temperature = 95 C Humidity = 82 % pHValue = 3 to IBM Watson
Published Temperature = 85 C Humidity = 15 % pHValue = 3 to IBM Watson
Published Temperature = 75 C Humidity = 5 % pHValue = 3 to IBM Watson
Published Temperature = 68 C Humidity = 99 % pHValue = 4 to IBM Watson
Published Temperature = 42 C Humidity = 49 % pHValue = 4 to IBM Watson
Published Temperature = 95 C Humidity = 68 % pHValue = 6 to IBM Watson
Published Temperature = 55 C Humidity = 11 % pHValue = 6 to IBM Watson
Published Temperature = 21 C Humidity = 3 % pHValue = 2 to IBM Watson
Published Temperature = 23 C Humidity = 85 % pHValue = 1 to IBM Watson
Published Temperature = 13 C Humidity = 94 % pHValue = 6 to IBM Watson
Published Temperature = 48 C Humidity = 54 % pHValue = 1 to IBM Watson
Published Temperature = 42 C Humidity = 15 % pHValue = 0 to IBM Watson
Published Temperature = 89 C Humidity = 5 % pHValue = 1 to IBM Watson
Published Temperature = 55 C Humidity = 8 % pHValue = 0 to IBM Watson
Published Temperature = 89 C Humidity = 65 % pHValue = 0 to IBM Watson
Published Temperature = 7 C Humidity = 86 % pHValue = 8 to IBM Watson
Published Temperature = 45 C Humidity = 88 % pHValue = 4 to IBM Watson
Published Temperature = 36 C Humidity = 41 % pHValue = 4 to IBM Watson
Published Temperature = 12 C Humidity = 7 % pHValue = 3 to IBM Watson
Published Temperature = 10 C Humidity = 4 % pHValue = 4 to IBM Watson
Published Temperature = 24 C Humidity = 1 % pHValue = 6 to IBM Watson
Published Temperature = 6 C Humidity = 54 % pHValue = 4 to IBM Watson
Published Temperature = 27 C Humidity = 93 % pHValue = 8 to IBM Watson
Published Temperature = 61 C Humidity = 18 % pHValue = 3 to IBM Watson
Published Temperature = 33 C Humidity = 94 % pHValue = 3 to IBM Watson
Published Temperature = 83 C Humidity = 87 % pHValue = 7 to IBM Watson
Published Temperature = 78 C Humidity = 4 % pHValue = 3 to IBM Watson
Published Temperature = 94 C Humidity = 95 % pHValue = 1 to IBM Watson
Published Temperature = 89 C Humidity = 71 % pHValue = 6 to IBM Watson
...
```

We have successfully developed the python code and executed it. The code runs with the Temperature, Humidity and pH Value also displayed in the IBM IoT Platform.



The screenshot shows the IBM Watson IoT Platform interface. On the left, there's a sidebar with icons for device management, monitoring, and interfaces. The main area has a header with the platform name, user info (chandramohanr668@gmail.com, ID: xmmpcv), and an 'Add Device' button. Below the header is a table for device monitoring. One row is highlighted for 'Temperature_Monitoring', which is connected and belongs to the 'Water_quality_monitoring' class. The table includes columns for Device ID, Status, Device Type, Class ID, Date Added, and Descriptive Location. Underneath the table, a section titled 'Recent Events' displays live data from the device. It lists five events with their details: status, event_1, status, status, and event_1. Each event includes fields for Event, Value, Format, and Last Received. A note at the bottom says 'The recent events listed show the live stream of data that is coming and going from this device.' At the bottom right, a message says '1 Simulation running'.

APPLICATION SCREENS

HERE WE DISPLAYED SCREEN 1 & SCREEN 2 PAGES OF OUR CREATED APPLICATION

Real Time River Water Quality and Control System

GET STARTED

ENTER LOGIN CREDENTIALS

USER ID:

enter user id

PASSWORD:

enter password

LOGIN

FORGOT PASSWORD

Temperature (c) : 34

Humidity (%) : 72

pH Value : 7

Temperature (c) : 30

Humidity (%) : 68

pH Value : 6

