

PROJECT DEVELOPMENT PHASE

SPRINT 1

Date	18 November 2022
Team ID	PNT2022TMID53681
Project name	Gas Leakage Monitoring & Alerting System for Industries

ANALYZE THE PREREQUISITES

Needed prerequisites for real time river water quality monitoring and control system using Internet Of Things (IoT) were

- ❖ IBM Watson IoT Platform
- ❖ Node-RED Service
- ❖ Cloudant DB

Python code:

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
organization = "l27fmg"
deviceType = "12345"
deviceId = "123456"
authMethod = "token"
authToken = "123456789"
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status=="alarmon":
        print ("Alarm is on")
    elif status == "alarmoff":
        print ("Alarm 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()
deviceCli.connect()
while True:
    gasconcentration = random.randint(50,110)
    Humidity = random.randint(90,110)
```

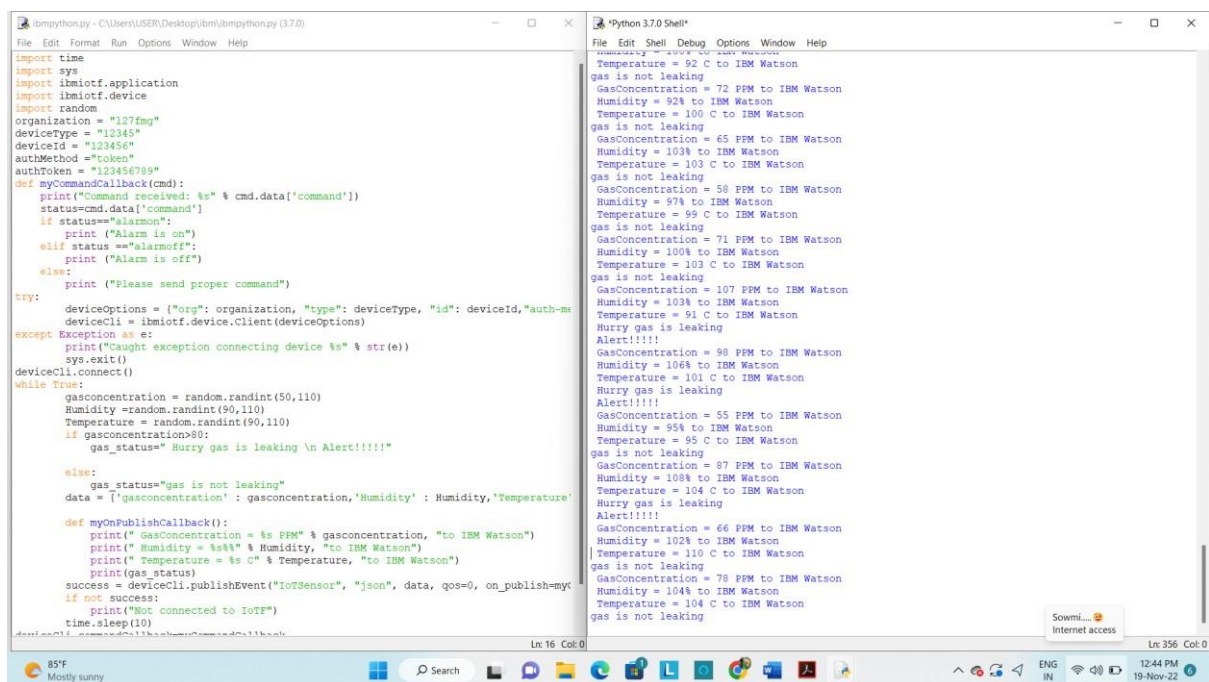
```

Temperature = random.randint(90,110)
if gasconcentration>80:
    gas_status=" Hurry gas is leaking \n Alert!!!!!"

else:
    gas_status="gas is not leaking"
data = {'gasconcentration' : gasconcentration,'Humidity' :
Humidity,'Temperature' :Temperature,'gas_status':gas_status}

def myOnPublishCallback():
    print(" GasConcentration = %s PPM" % gasconcentration, "to IBM Watson")
    print(" Humidity = %s%%" % Humidity, "to IBM Watson")
    print(" Temperature = %s C" % Temperature, "to IBM Watson")
    print(gas_status)
    success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
    if not success:
        print("Not connected to IoT")
        time.sleep(10)
deviceCli.commandCallback=myCommandCallback
deviceCli.disconnect()

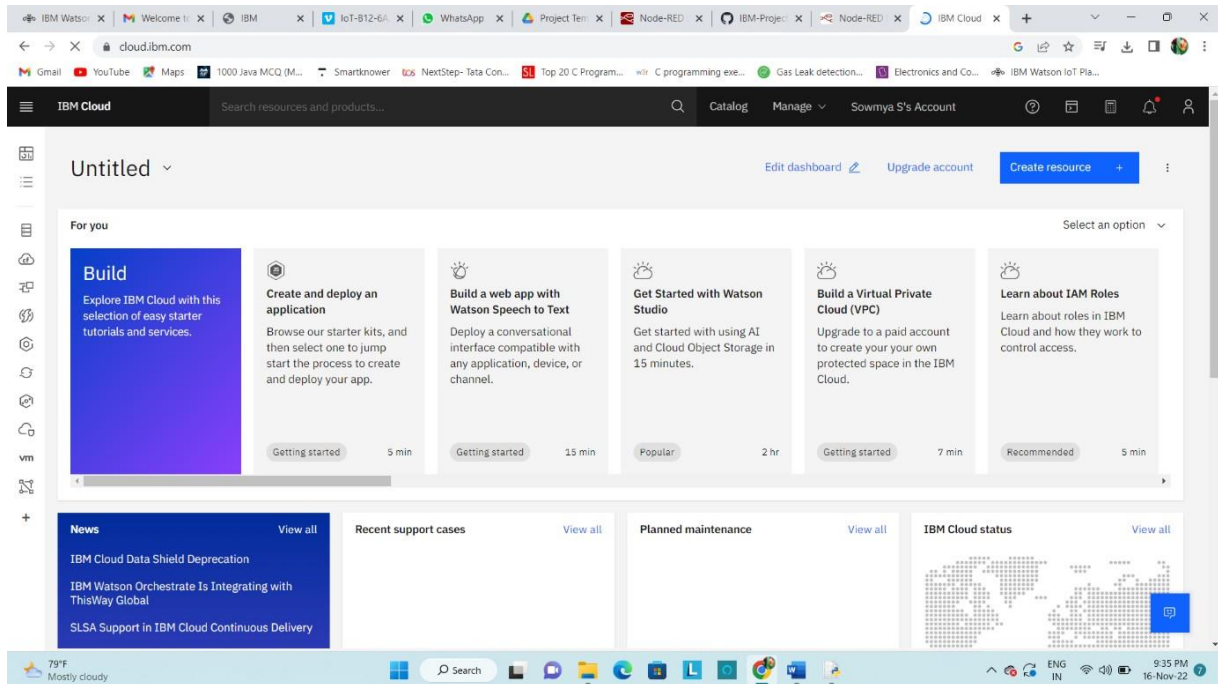
```



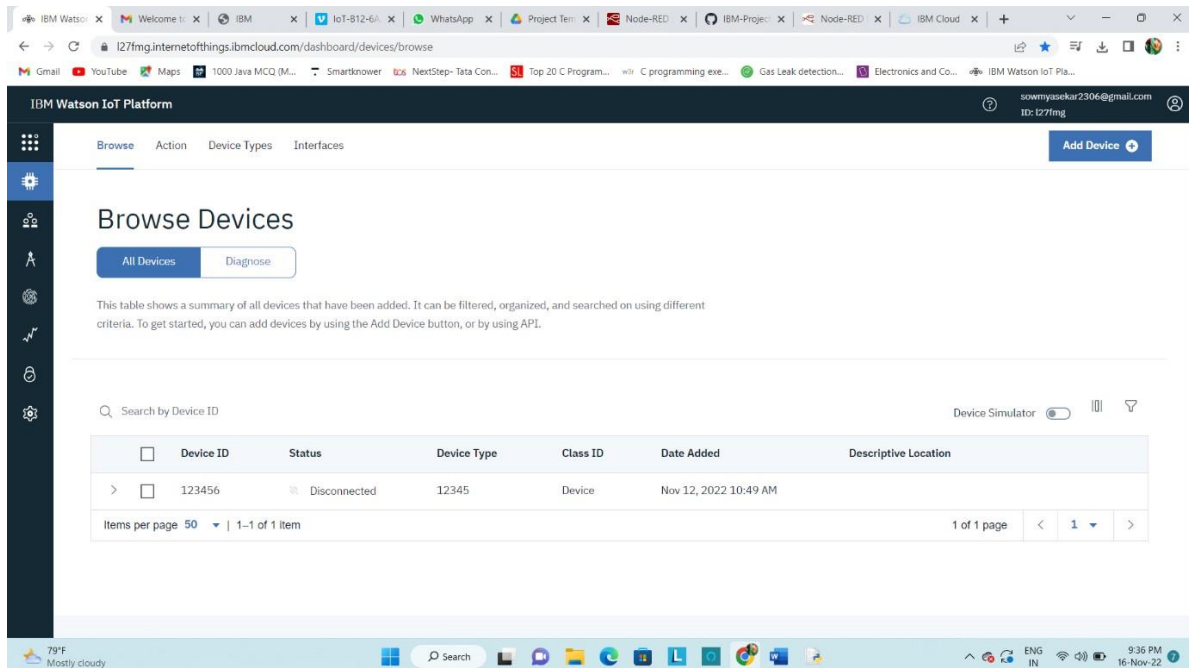
The screenshot shows a Windows desktop with two windows. The left window is a Python script editor displaying the code from the previous block. The right window is a Python Shell showing the output of the script, which includes random values for gas concentration, humidity, and temperature, along with status messages like 'gas is not leaking' or 'Hurry gas is leaking'.

Code runs successfully and random output values are generated

Creation of IBM cloud



Procedure for the creation of IBM IOT watson



Device creation

The screenshot shows the IBM Watson IoT Platform dashboard. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar is present with the text 'Search by Device ID'. The main content area displays a table with the following columns: Device ID, Status, Device Type, Class ID, Date Added, and Descriptive Location. The table contains one entry: Device ID 123456, Status Disconnected, Device Type 12345, Class ID Device, Date Added Nov 12, 2022 10:49 AM. Below the table, there is a section for 'Device Information' with details: Device ID 123456, Device Type 12345, Date Added Nov 12, 2022 10:49 AM, Added By sowmyasekar2306@gmail.com, and Connection Status Disconnected. The bottom of the screen shows a Windows taskbar with various application icons and a system tray indicating 79°F and Mostly cloudy weather.

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
123456	Disconnected	12345	Device	Nov 12, 2022 10:49 AM	

Device Information:

- Device ID: 123456
- Device Type: 12345
- Date Added: Nov 12, 2022 10:49 AM
- Added By: sowmyasekar2306@gmail.com
- Connection Status: Disconnected

Generation of random values in IBM Watson

The screenshot shows the IBM Watson IoT Platform dashboard with the 'Recent Events' tab selected. The main content area displays a table with the following columns: Event, Value, Format, and Last Received. The table contains four entries, each representing a random data point generated by the device. The bottom of the screen shows a Windows taskbar with various application icons and a system tray indicating 79°F and Mostly cloudy weather.

Event	Value	Format	Last Received
IoTSensor	("gasconcentration":100,"Humidity":109,"Tempe...	json	a few seconds ago
IoTSensor	("gasconcentration":94,"Humidity":104,"Temper...	json	a few seconds ago
IoTSensor	("gasconcentration":104,"Humidity":108,"Tempe...	json	a few seconds ago
IoTSensor	("gasconcentration":98,"Humidity":109,"Temper...	json	a few seconds ago