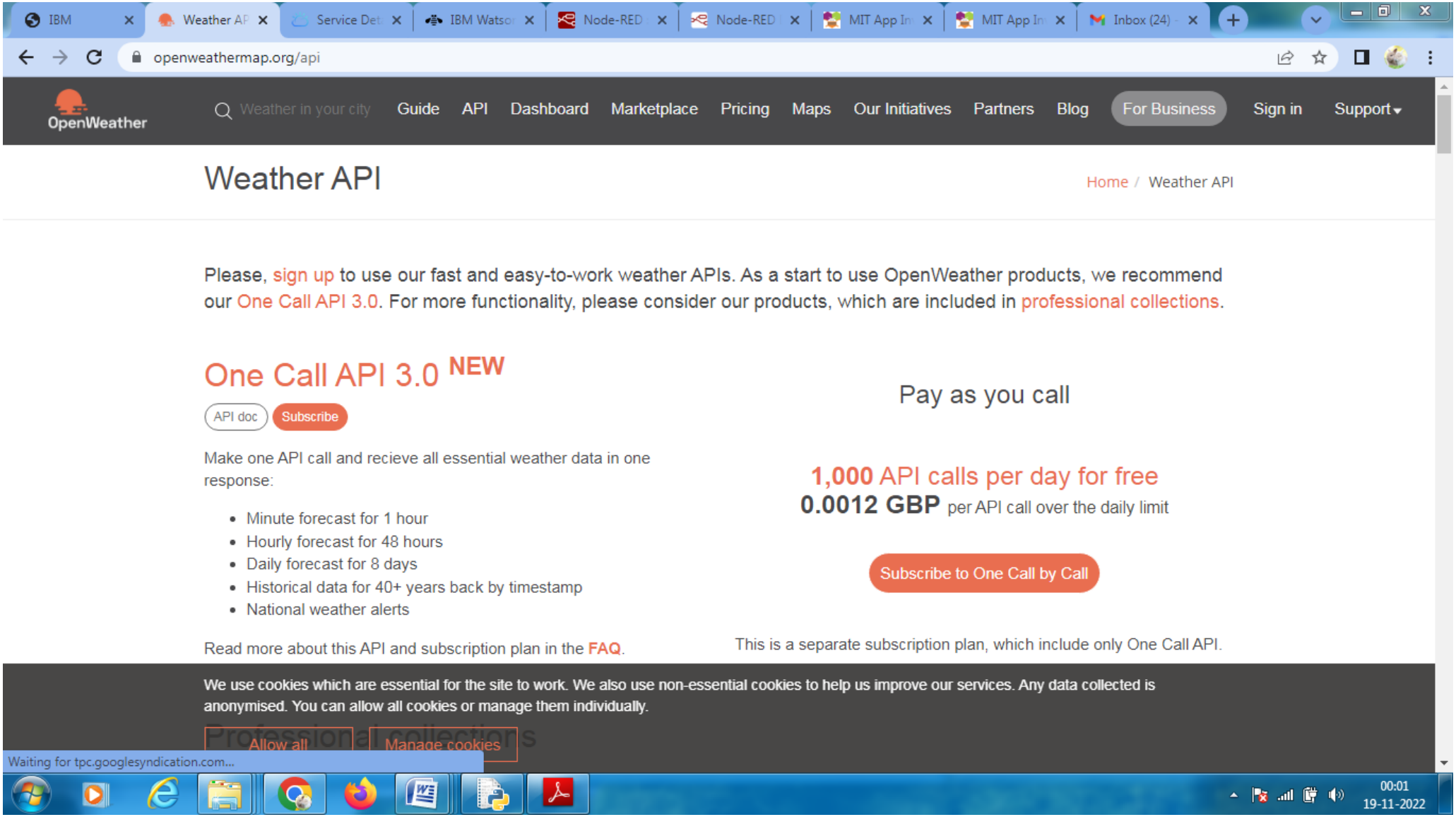
Project Development Phase
Sprint 3

Date	7 November 2022
Team ID	PNT2022TMID41539
Project Name	Project-Signs with Smart Connectivity for Better Road Safety
Maximum marks	8 Marks

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-3	Develop The Python Script	USN-6	**Develop A Python Script** Create a code snippet using python to • Extract weather data from OpenWeatherMap using APIs • Send the extracted data to the cloud • Receive data from the cloud and view it in the python compiler	10	Medium	1.Mugila R 2.Ishwariya P 3.Kalpana T 4.Shreein Fathima S

Extract weather data from OpenWeatherMap using APIs



Developed python code

```
import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = {
   #Configuration
   "identity": {
      "orgId": "3dpjnk",
      "typeId": "Sign_Board",
      "deviceId":"Board_1"
      },
   #API Key
   "auth": {
      "token": "1234567890"
   }
}

#Receiving callbacks from IBM IOT platform
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()

#OpenWeatherMap Credentials
BASE_URL ="https://api.openweathermap.org/data/2.5/weather?"
CITY = "Nagercoil"
URL = BASE_URL + "q=" + "Chennai" + "&appid=" + "01df65417ab3968e3fc2a38c4aee27bb"

while True:
    response = requests.get(URL)
    if response.status_code ==200:
        data = response.json()
        main = data['main']
        temperature =main['temp']
        humidity = main['humidity']
        pressure = main['pressure']
        report = data['visibility']

        #messge part
        msg=random.randint(0,5)
        if msg==1:
            message="SLOW DOWN, SCHOOL IS NEAR"
```

```
elif msg==3:
    message="SLOW DOWN, HOSPITAL NEARBY"
elif msg==5:
    message="NEED HELP, POLICE STATION NEARBY"
else:
    message=""

#Speed part
speed=random.randint(0,150)
if speed>=100:
    speedMsg=" SLOW DOWN, speed Limit Exceeded"
elif speed>=60 and speed<100:
    speedMsg="Moderate"
else:
    speedMsg="Slow"

#Sign part
sign=random.randint(0,5)
if sign==1:
    signMsg="Right Diversion"
elif sign==3:
    signMsg="Left Diversion"
elif sign==5:
    signmsg="U Turn"
```

```
        else:
            signMsg=""

        #Visibility
        if temperature < 50:
            visibility="Fog Ahead, Drive Slow"
        else:
            visibility="Clear Weather"

    else:
        print("Error in the HTTP request")
    myData={'Temperature':temperature, 'Message':message, 'Sign':signMsg, 'Speed':speedMsg, 'Visibility':visibility}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    #PUBLISHING TO IOT WATSON
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(5)
client.disconnect()
```

Python Script Developed

Python code.py - C:\Users\Oomsithan\Desktop\PROJECT\Python code.py (3.7.0)

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```python
import wiotp.sdk.device
import time
import random
import ibmiotf.application
import ibmiotf.device
import requests, json

myConfig = {
    #Configuration
    "identity": {
        "orgId": "74k16v",
        "typeId": "Board",
        "deviceId":"20082001"
        },
    #API Key
    "auth": {
        "token": "12345678"
    }
}

#Receiving callbacks from IBM IOT platform
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()

#OpenWeatherMap Credentials
BASE_URL ="https://api.openweathermap.org/data/2.5/weather?"
CITY = "Nagercoil"
URL = BASE_URL + "q=" + "Chennai" + "&appid=" + "01df65417ab3968e3fc2a38c4aee27bb"

while True:
    response = requests.get(URL)
    if response.status_code ==200:
        data = response.json()
        main = data['main']
        temperature =main['temp']
        humidity = main['humidity']
        pressure = main['pressure']
```

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```
    response = requests.get(URL)
    if response.status_code ==200:
        data = response.json()
        main = data['main']
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        humidity = main['humidity']
        pressure = main['pressure']
        report = data['visibility']

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        msg=random.randint(0,5)
        if msg==1:
            message="MESSAGE: SLOW DOWN, SCHOOL IS NEAR"
        elif msg==3:
            message="MESSAGE: SLOW DOWN, HOSPITAL NEARBY"
        elif msg==5:
            message="NEED HELP, POLICE STATION NEARBY"
        else:
            message=""

        #Speed part
        speed=random.randint(0,150)
        if speed>=100:
            speedMsg="SPEED MESSAGE: SLOW DOWN, speed Limit Exceeded"
        elif speed>=60 and speed<100:
            speedMsg="SPEED MESSAGE: Moderate"
        else:
            speedMsg="SPEED MESSAGE: Slow"

        #Sign part
        sign=random.randint(0,5)
        if sign==1:
            signMsg="SIGN: Right Diversion"
        elif sign==3:
            signMsg="SIGN: Left Diversion"
        elif sign==5:
            signmsg="SIGN: U Turn"
        else:
            signMsg=""

        #Visibility
        if temperature < 50:
```

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```
            message="MESSAGE: SLOW DOWN, HOSPITAL NEARBY"
        elif msg==5:
            message="NEED HELP, POLICE STATION NEARBY"
        else:
            message=""

        #Speed part
        speed=random.randint(0,150)
        if speed>=100:
            speedMsg="SPEED MESSAGE: SLOW DOWN, speed Limit Exceeded"
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            speedMsg="SPEED MESSAGE: Moderate"
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        #Sign part
        sign=random.randint(0,5)
        if sign==1:
            signMsg="SIGN: Right Diversion"
        elif sign==3:
            signMsg="SIGN: Left Diversion"
        elif sign==5:
            signmsg="SIGN: U Turn"
        else:
            signMsg=""

        #Visibility
        if temperature < 50:
            visibility="VISIBILITY: Fog Ahead, Drive Slow"
        else:
            visibility="VISIBILITY: Clear Weather"

    else:
        print("Error in the HTTP request")
    myData={'Temperature':temperature, 'Message':message, 'Sign':signMsg, 'Speed':speedMsg, 'Visibility':visibility}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    #PUBLISHING TO IOT WATSON
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(5)
client.disconnect()
```

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Send the extracted data to the cloud by running the code

Receive data from the cloud and view it in the python compiler(Python code output)

Python code.py - C:\Users\Oomsithan\Desktop\PROJECT\Python code.py (3.7.0)

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```
        elif msg==5:
            message="NEED HELP, POLICE STATION NEARBY"
        else:
            message=""

        #Speed part
        speed=random.randint(0,150)
        if speed>=100:
            speedMsg="SPEED MESSAGE: SLOW DOWN, speed Limit Exceeded"
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        #Sign part
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        #Visibility
        if temperature < 50:
            visibility="VISIBILITY: Fog Ahead, Drive Slow"
        else:
            visibility="VISIBILITY: Clear Weather"

    else:
        print("Error in the HTTP request")
    myData={'Temperature':temperature, 'Message':message, 'Sign':signMsg, 'Spe
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0
    #PUBLISHING TO IOT WATSON
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(5)
client.disconnect()
```

Python 3.7.0 Shell

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```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD6
4)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
========= RESTART: C:\Users\Oomsithan\Desktop\PROJECT\Python code.py =========
2022-11-19 00:05:09,279   wiotp.sdk.device.client.DeviceClient  INFO    Connecte
d successfully: d:74k16v:Board:20082001
Published data Successfully: %s {'Temperature': 298.14, 'Message': 'MESSAGE: SLO
W DOWN, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'SPEED MESSAGE: SLOW DOWN, speed
Limit Exceeded', 'Visibility': 'VISIBILITY: Clear Weather'}
Published data Successfully: %s {'Temperature': 298.14, 'Message': '', 'Sign': '
SIGN: Right Diversion', 'Speed': 'SPEED MESSAGE: Moderate', 'Visibility': 'VISIB
ILITY: Clear Weather'}
Published data Successfully: %s {'Temperature': 298.14, 'Message': 'MESSAGE: SLO
W DOWN, HOSPITAL NEARBY', 'Sign': '', 'Speed': 'SPEED MESSAGE: SLOW DOWN, speed
Limit Exceeded', 'Visibility': 'VISIBILITY: Clear Weather'}
Published data Successfully: %s {'Temperature': 298.14, 'Message': '', 'Sign': '
SIGN: Left Diversion', 'Speed': 'SPEED MESSAGE: Slow', 'Visibility': 'VISIBILITY
: Clear Weather'}
Published data Successfully: %s {'Temperature': 298.14, 'Message': 'MESSAGE: SLO
W DOWN, HOSPITAL NEARBY', 'Sign': 'SIGN: Left Diversion', 'Speed': 'SPEED MESSAG
E: Slow', 'Visibility': 'VISIBILITY: Clear Weather'}
```

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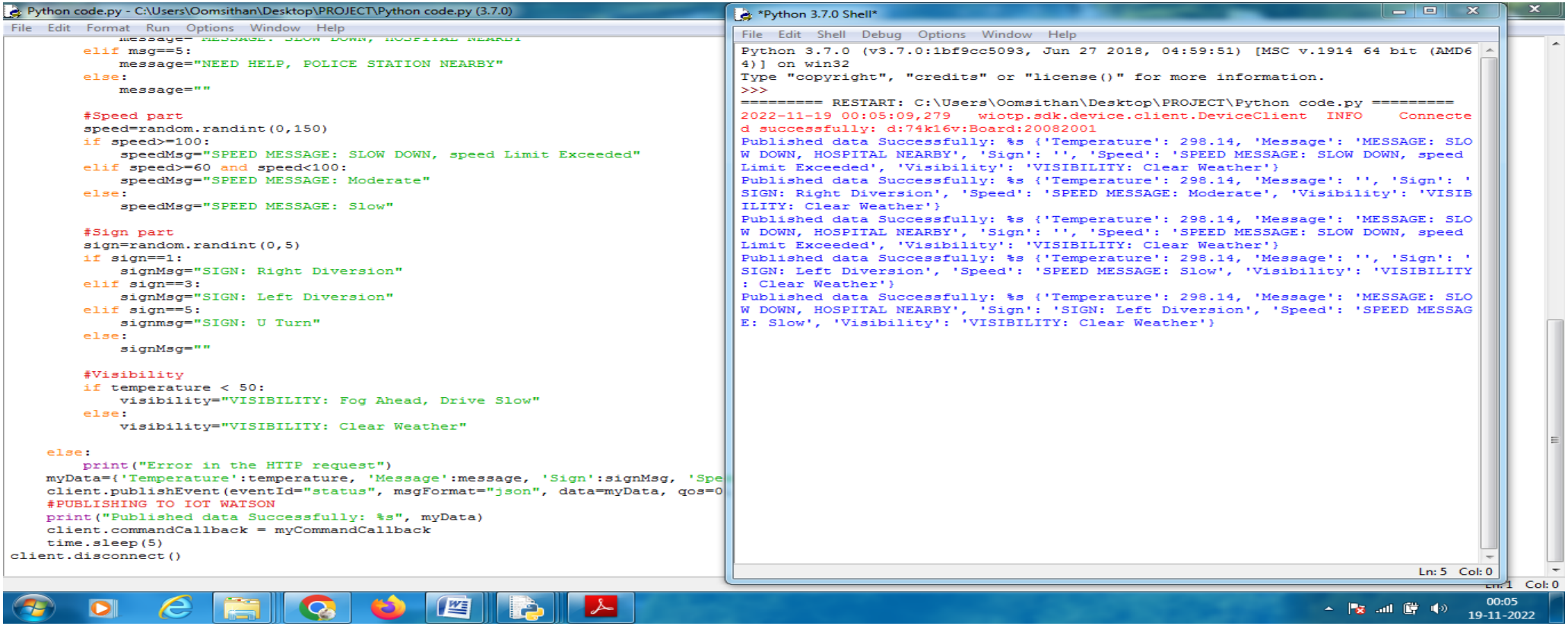
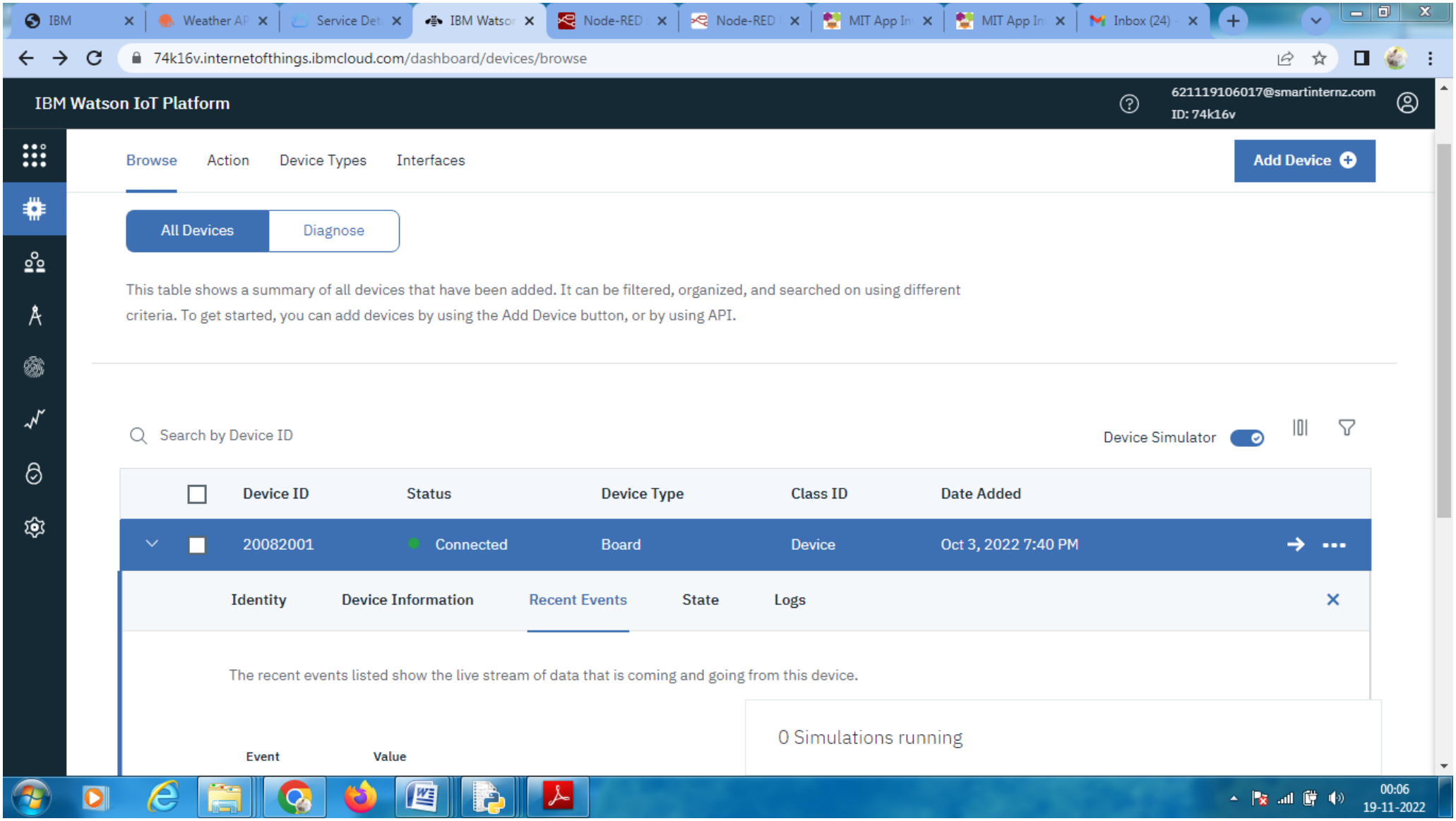
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-3	Develop The Python Script	USN-7	**Publish Data To The IBM Cloud** Python code is used to send random sensor data to the cloud and also to receive commands from the cloud. When the commands are received just print the statements which represent the control of the devices.	10	High	1.Mugila R 2.Ishwariya P 3.Kalpana T 4.Shreein Fathima S

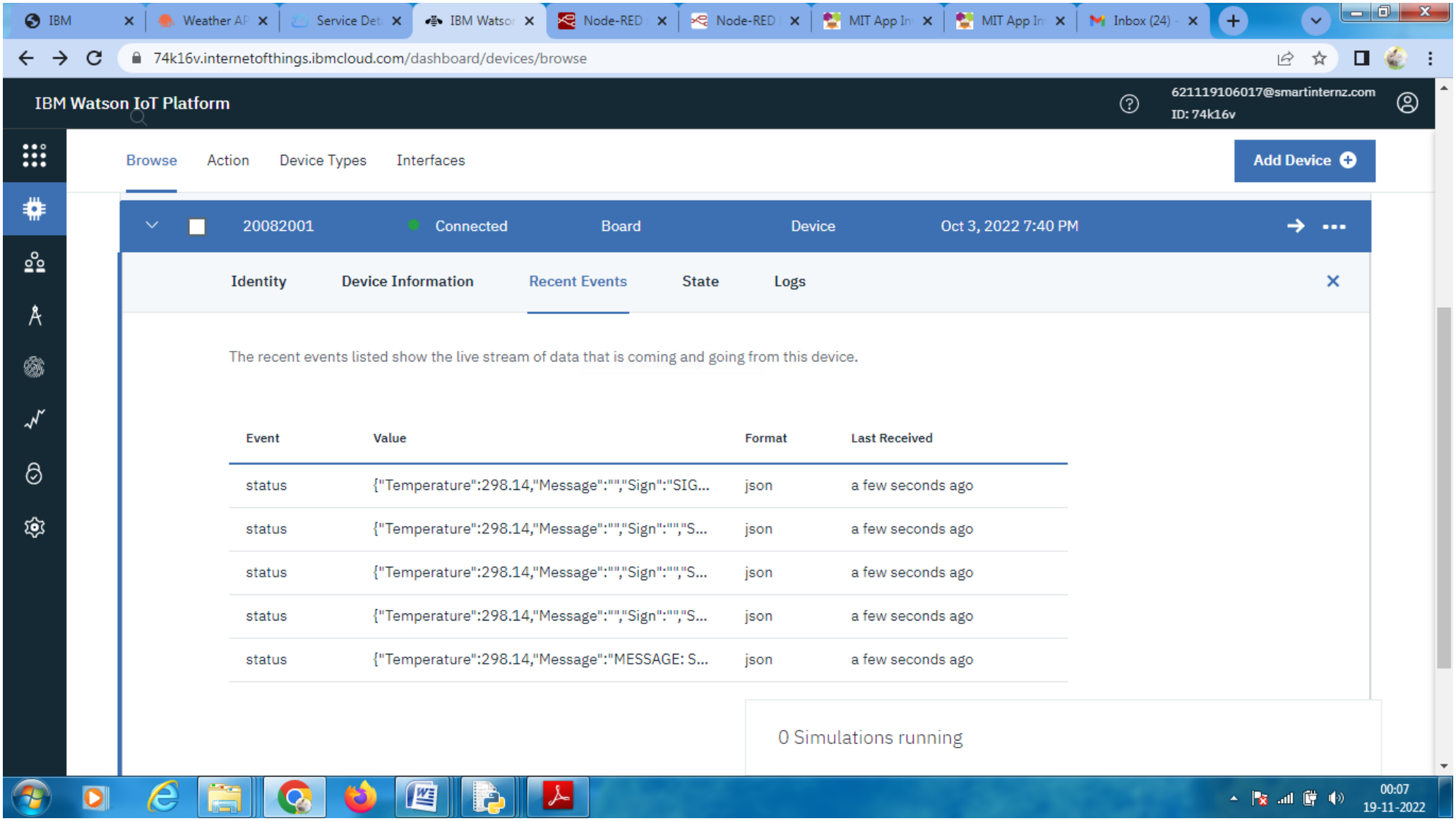
Send the extracted data to the cloud by running the code



IBM Watson IOT device connected



Checking Recent events(datas received)



Datas in Event Payload