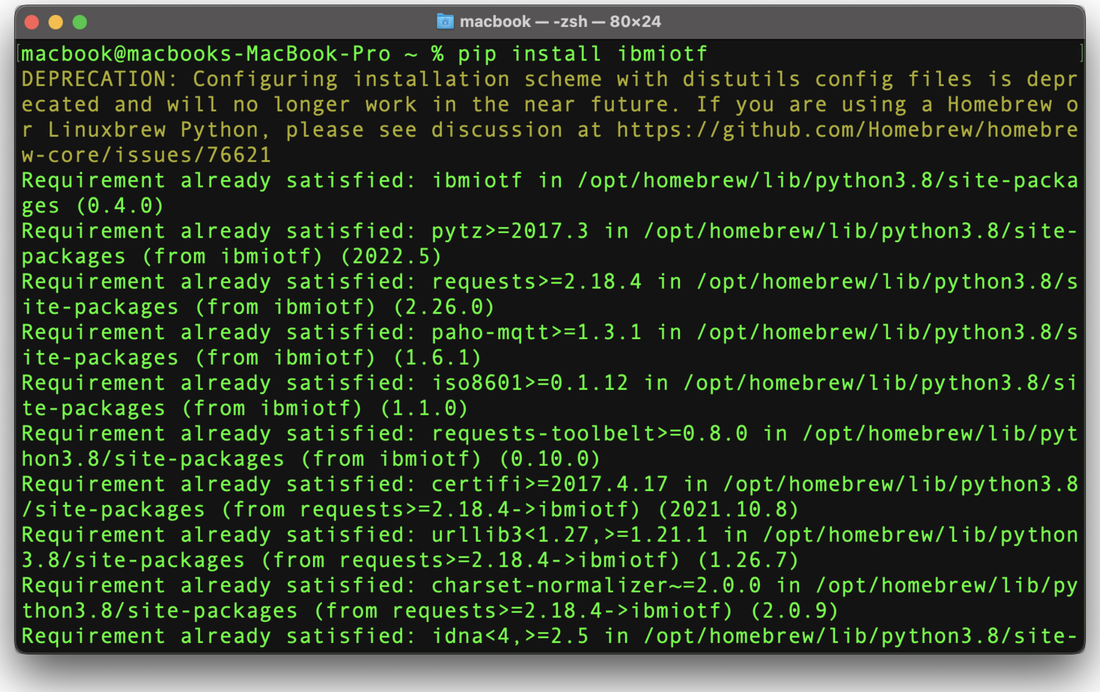
Step1 : Installing ibmiotf python module



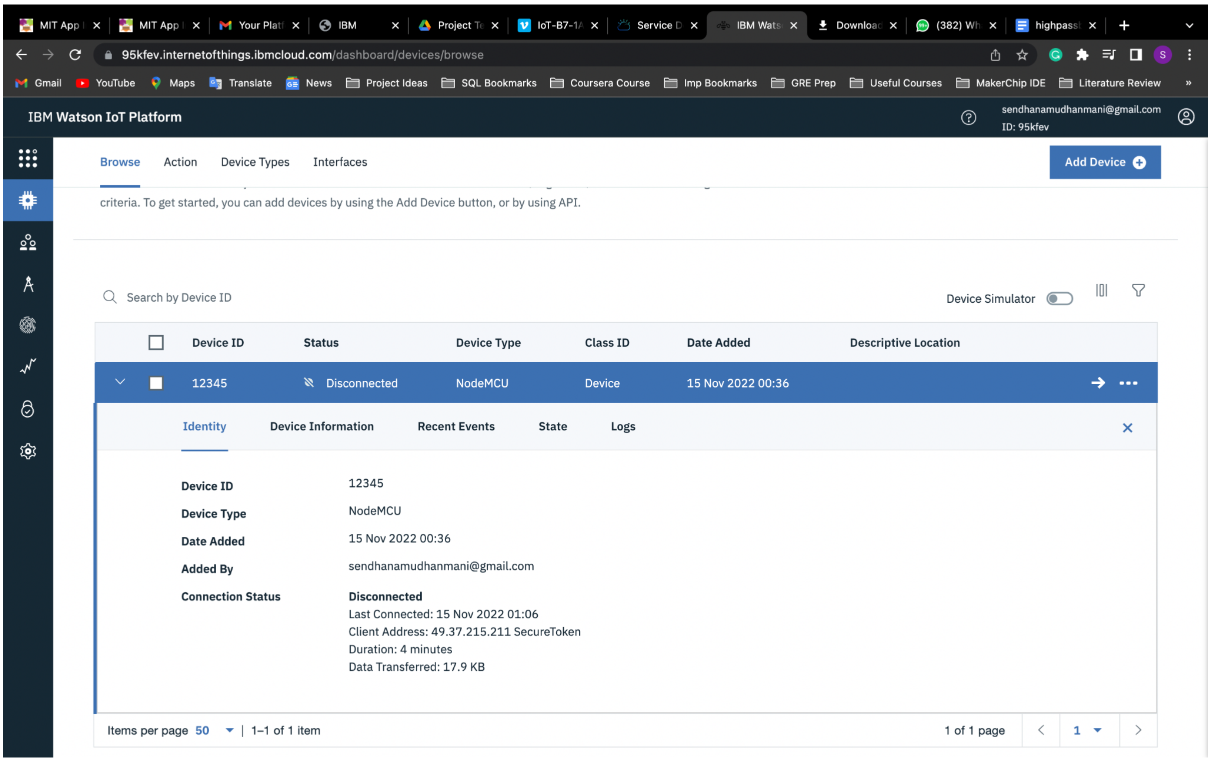
```
macbook@macbooks-MacBook-Pro ~ % pip install ibmiotf
DEPRECATION: Configuring installation scheme with distutils config files is depr
ecated and will no longer work in the near future. If you are using a Homebrew o
r Linuxbrew Python, please see discussion at https://github.com/Homebrew/homebre
w-core/issues/76621
Requirement already satisfied: ibmiotf in /opt/homebrew/lib/python3.8/site-packa
ges (0.4.0)
Requirement already satisfied: pytz>=2017.3 in /opt/homebrew/lib/python3.8/site-
packages (from ibmiotf) (2022.5)
Requirement already satisfied: requests>=2.18.4 in /opt/homebrew/lib/python3.8/s
ite-packages (from ibmiotf) (2.26.0)
Requirement already satisfied: paho-mqtt>=1.3.1 in /opt/homebrew/lib/python3.8/s
ite-packages (from ibmiotf) (1.6.1)
Requirement already satisfied: iso8601>=0.1.12 in /opt/homebrew/lib/python3.8/si
te-packages (from ibmiotf) (1.1.0)
Requirement already satisfied: requests-toolbelt>=0.8.0 in /opt/homebrew/lib/pyt
hon3.8/site-packages (from ibmiotf) (0.10.0)
Requirement already satisfied: certifi>=2017.4.17 in /opt/homebrew/lib/python3.8
/site-packages (from requests>=2.18.4->ibmiotf) (2021.10.8)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in /opt/homebrew/lib/python
3.8/site-packages (from requests>=2.18.4->ibmiotf) (1.26.7)
Requirement already satisfied: charset-normalizer~=2.0.0 in /opt/homebrew/lib/py
thon3.8/site-packages (from requests>=2.18.4->ibmiotf) (2.0.9)
Requirement already satisfied: idna<4,>=2.5 in /opt/homebrew/lib/python3.8/site-
```

Step 2 : Develop the python script

Python program :

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


#Provide your IBM Watson Device Credentials
organization = "95kfev"
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=="lighton":
        print ("led is on")
    else :
        print ("led is off")

    #print(cmd)




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)

        data = { 'temp' : temp, 'Humid': Humid }
        #print data
        def myOnPublishCallback():
            print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % Humid, "to
IBM Watson")

        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()
```

Step 3 : Creation of IOT Device in Watson IOT Platform



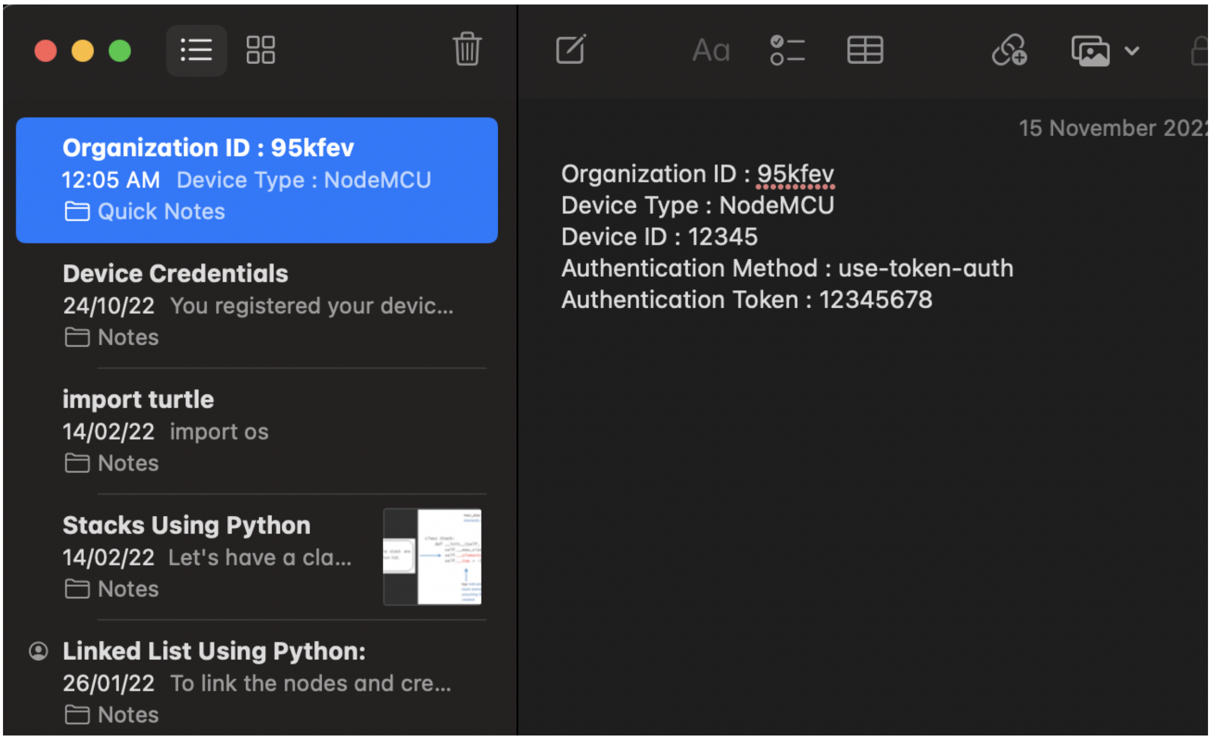
criteria. To get started, you can add devices by using the Add Device button, or by using API.

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
12345	Disconnected	NodeMCU	Device	15 Nov 2022 00:36	

Device ID	12345
Device Type	NodeMCU
Date Added	15 Nov 2022 00:36
Added By	sendhanamudhanmani@gmail.com
Connection Status	Disconnected Last Connected: 15 Nov 2022 01:06 Client Address: 49.37.215.211 SecureToken Duration: 4 minutes Data Transferred: 17.9 KB

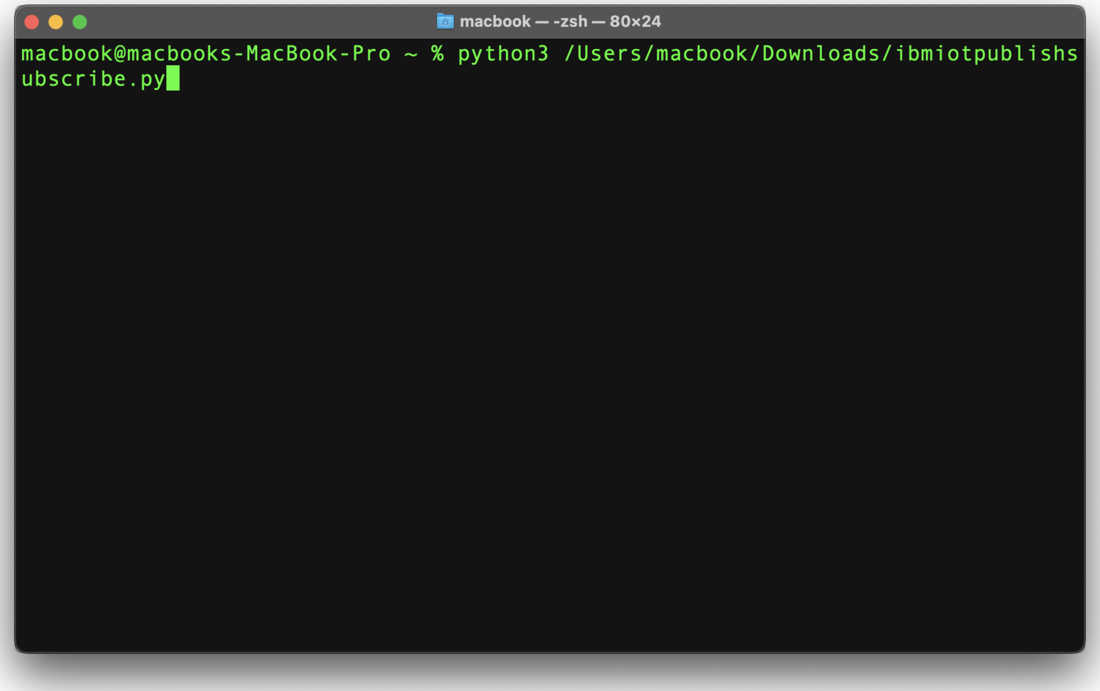
Items per page 50 | 1–1 of 1 item   1 of 1 page

Step 4 : Note the Device Specifications in a Notepad


Organization ID : 95kfev
12:05 AM Device Type : NodeMCU
Quick Notes
Device Credentials
24/10/22 You registered your devic...
Notes
import turtle
14/02/22 import os
Notes
Stacks Using Python
14/02/22 Let's have a cla...
Notes
Linked List Using Python:
26/01/22 To link the nodes and cre...
Notes
15 November 202

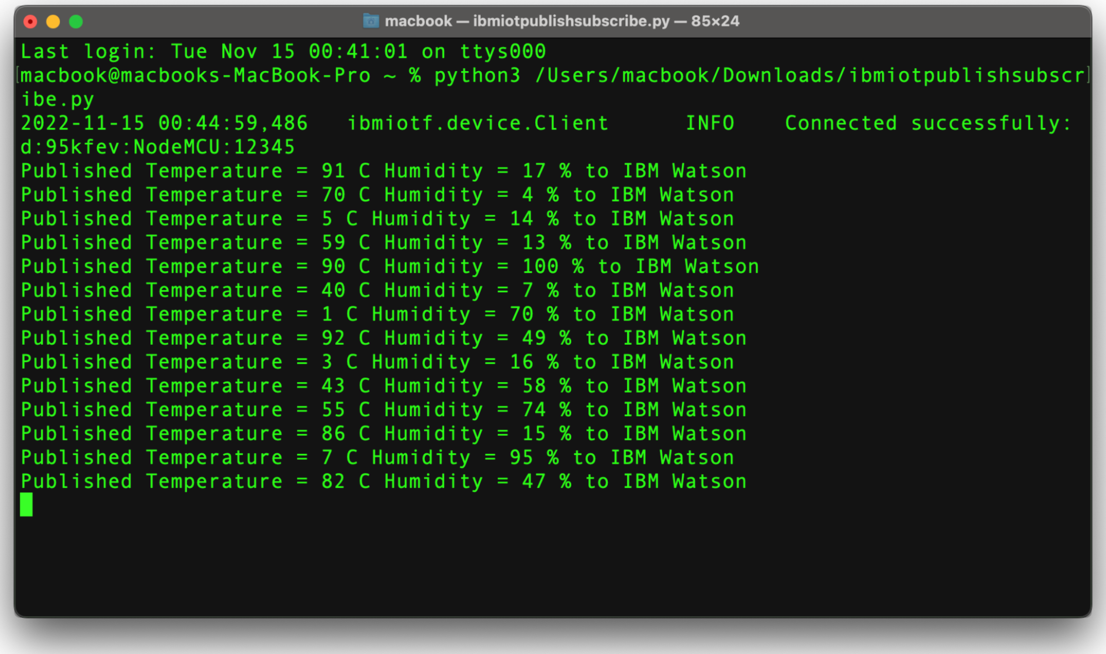
Organization ID : 95kfev
Device Type : NodeMCU
Device ID : 12345
Authentication Method : use-token-auth
Authentication Token : 12345678

Step 5 : Run the python script



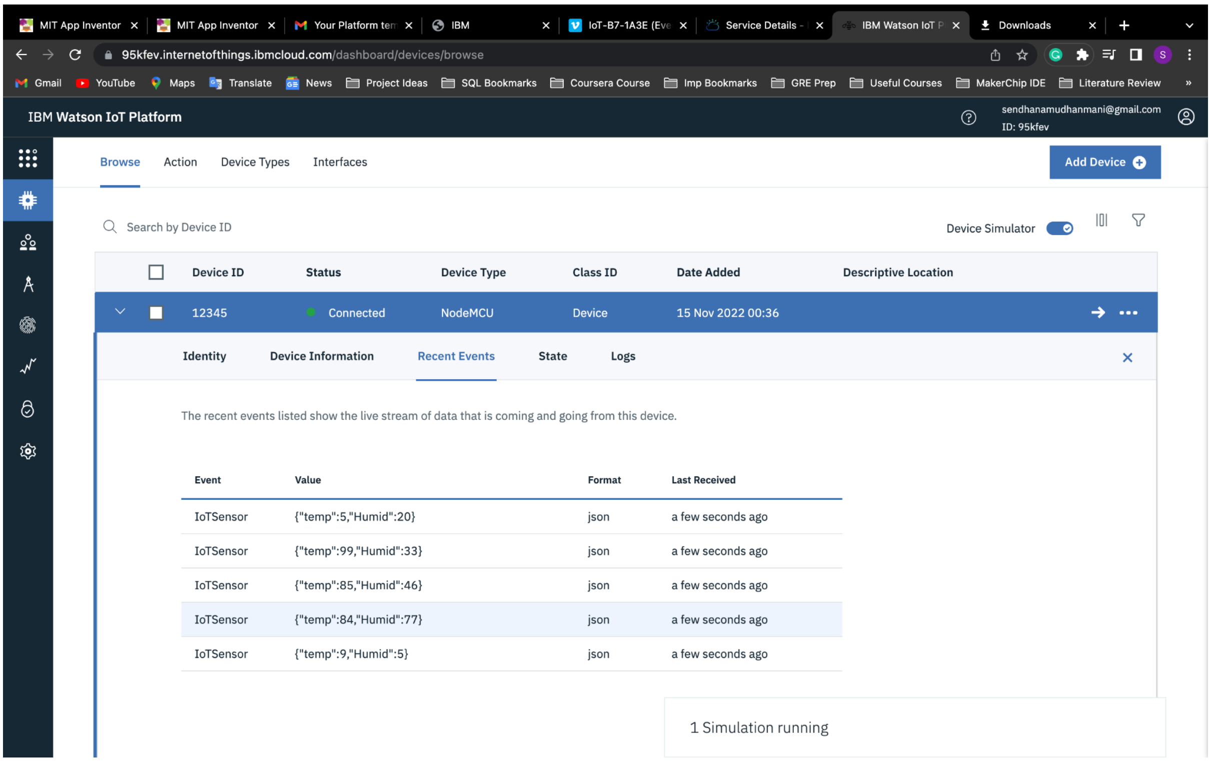
```
macbook@macbooks-MacBook-Pro ~ % python3 /Users/macbook/Downloads/ibmiotpublishs
ubscribe.py
```

Step 6 : View the output in Terminal/ Command Prompt



```
Last login: Tue Nov 15 00:41:01 on ttys000
[macbook@macbooks-MacBook-Pro ~ % python3 /Users/macbook/Downloads/ibmiotpublishsubscr]
ibe.py
2022-11-15 00:44:59,486   ibmiotf.device.Client      INFO     Connected successfully:
d:95kfev:NodeMCU:12345
Published Temperature = 91 C Humidity = 17 % to IBM Watson
Published Temperature = 70 C Humidity = 4 % to IBM Watson
Published Temperature = 5 C Humidity = 14 % to IBM Watson
Published Temperature = 59 C Humidity = 13 % to IBM Watson
Published Temperature = 90 C Humidity = 100 % to IBM Watson
Published Temperature = 40 C Humidity = 7 % to IBM Watson
Published Temperature = 1 C Humidity = 70 % to IBM Watson
Published Temperature = 92 C Humidity = 49 % to IBM Watson
Published Temperature = 3 C Humidity = 16 % to IBM Watson
Published Temperature = 43 C Humidity = 58 % to IBM Watson
Published Temperature = 55 C Humidity = 74 % to IBM Watson
Published Temperature = 86 C Humidity = 15 % to IBM Watson
Published Temperature = 7 C Humidity = 95 % to IBM Watson
Published Temperature = 82 C Humidity = 47 % to IBM Watson
```

Step 7 : View the Random Data Values in Watson IBM Platform



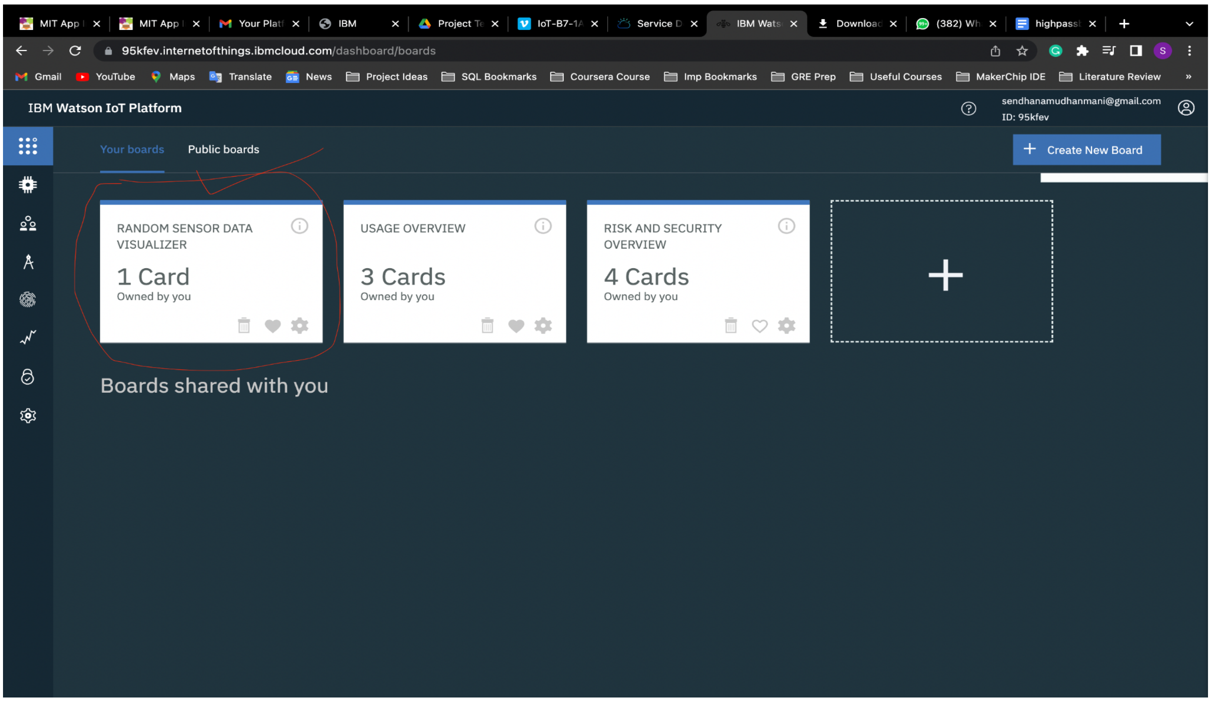
Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
12345	Connected	NodeMCU	Device	15 Nov 2022 00:36	

The recent events listed show the live stream of data that is coming and going from this device.

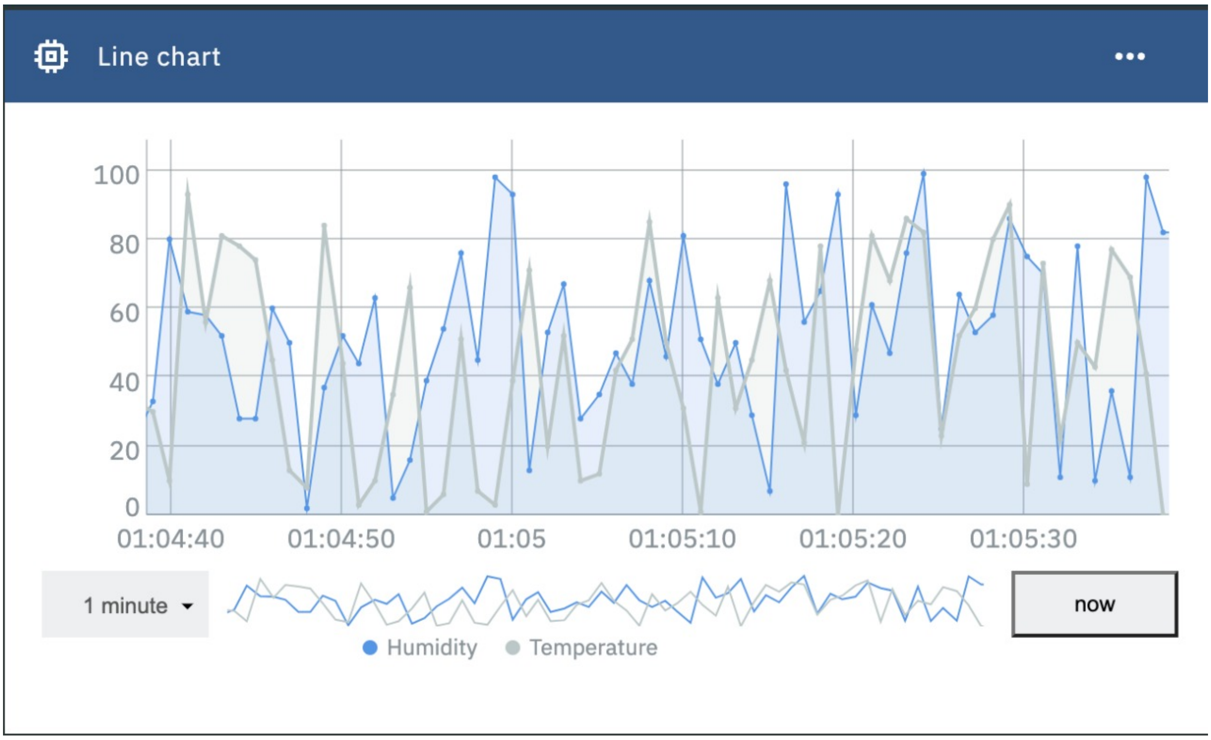
Event	Value	Format	Last Received
IoTSensor	{"temp":5,"Humid":20}	json	a few seconds ago
IoTSensor	{"temp":99,"Humid":33}	json	a few seconds ago
IoTSensor	{"temp":85,"Humid":46}	json	a few seconds ago
IoTSensor	{"temp":84,"Humid":77}	json	a few seconds ago
IoTSensor	{"temp":9,"Humid":5}	json	a few seconds ago

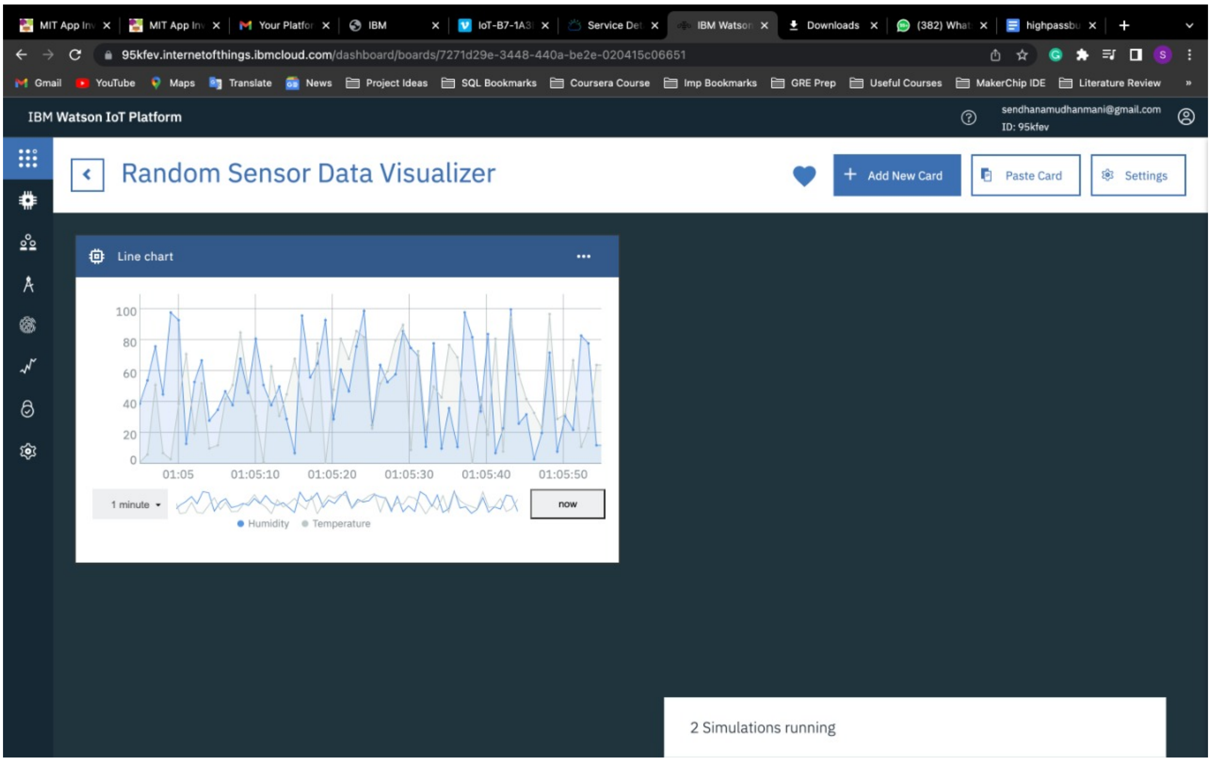
1 Simulation running

Step 8 : Create a board in Watson IOT platform to Visualise the Data



Step 9 : Create a Card inside the Newly Created Board for Visualising in a Graphical Way





2 Simulations running