SENDING DATA FROM RASPBERRY-PI TO IBM WATSON

Date	10 NOVEMBER 2022
Team ID	PNT2022TMID38202
Project Name	GAS LEAKAGE MONITORING AND ALERTING SYSTEM FOR INDUSTRIES

AIM:

To send sensor data (or any dummy data) from Raspberry –Pi to IBM Watson .In our case it is DHT sensors Data.

REQUIREMENTS:

HARDWARE:

- RASPBERRY-PI (3B)(WITH ETHERNET CABLE OR WIFI CONNECTED) ○ USB MOUSE
- USB KEYBOARD
- VGA TO HDMI CABLE
- A MONITOR
- RASPBERRY'S POWER SUPPLY
- DHT-11 Sensor ○ Connecting Wires

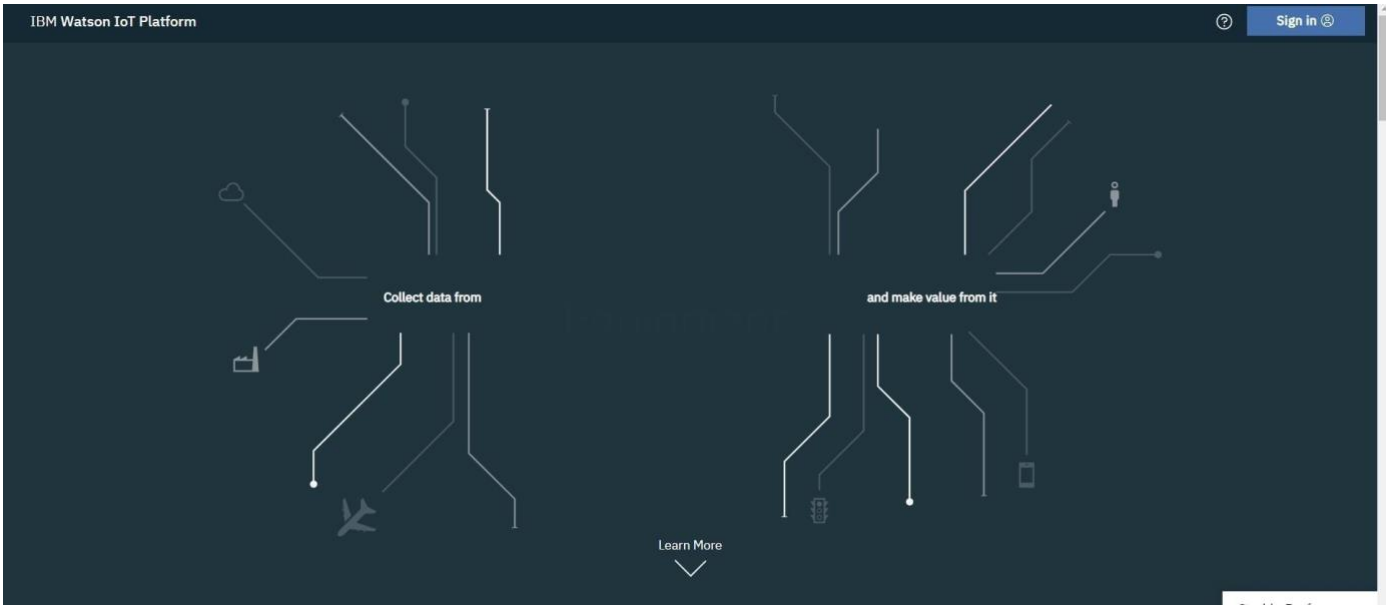
SOFTWARE:

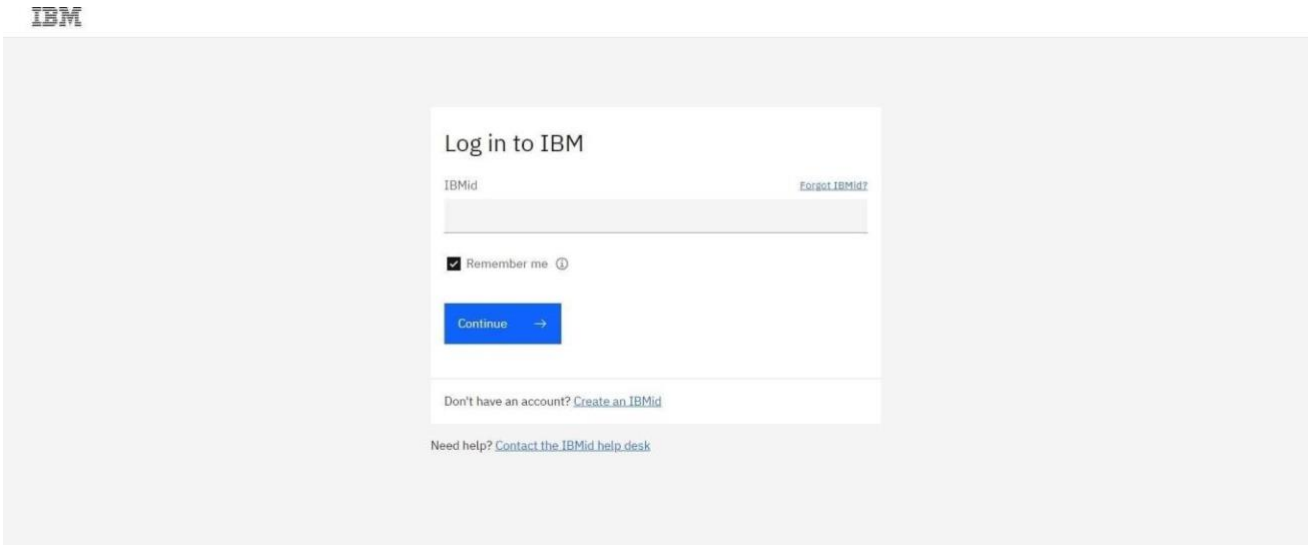
- IBM BLUEMIX ACCOUNT

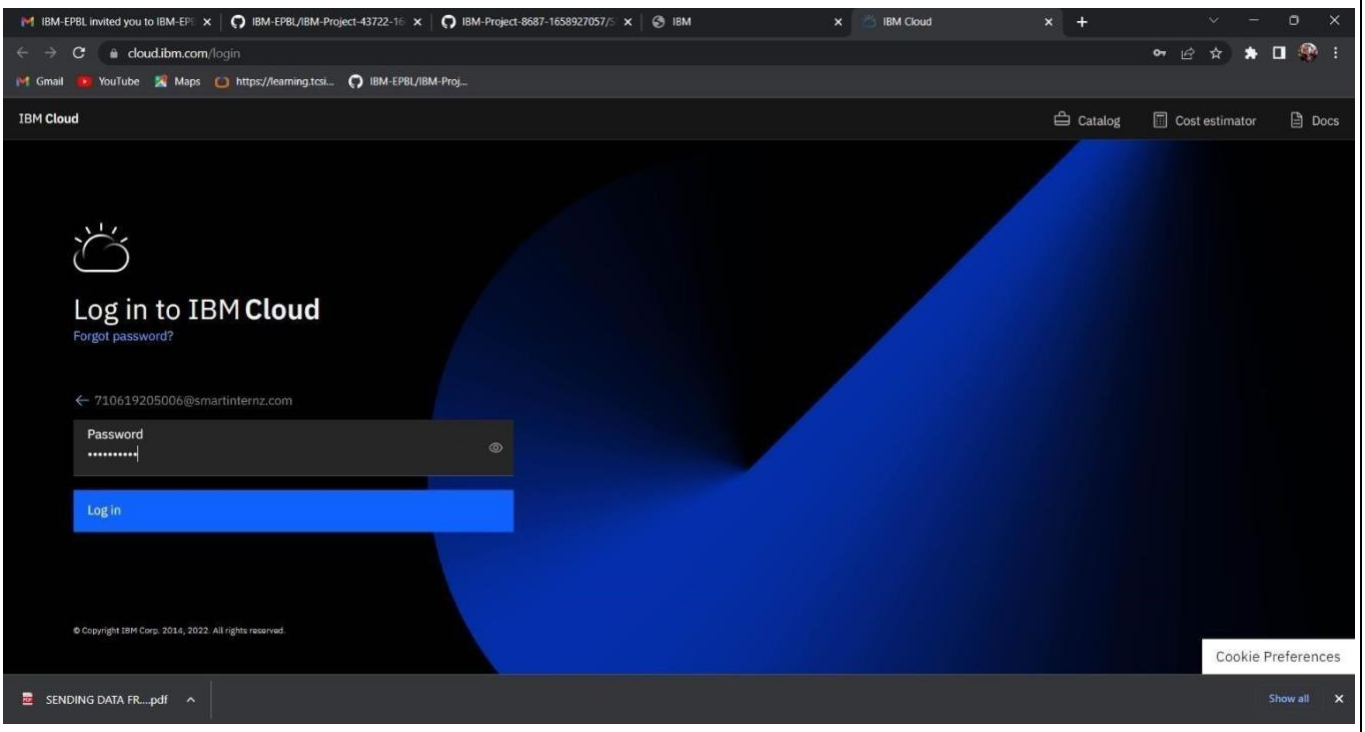
STEPS TO BE FOLLOWED

Step-1: Create a device in IBM Watson:

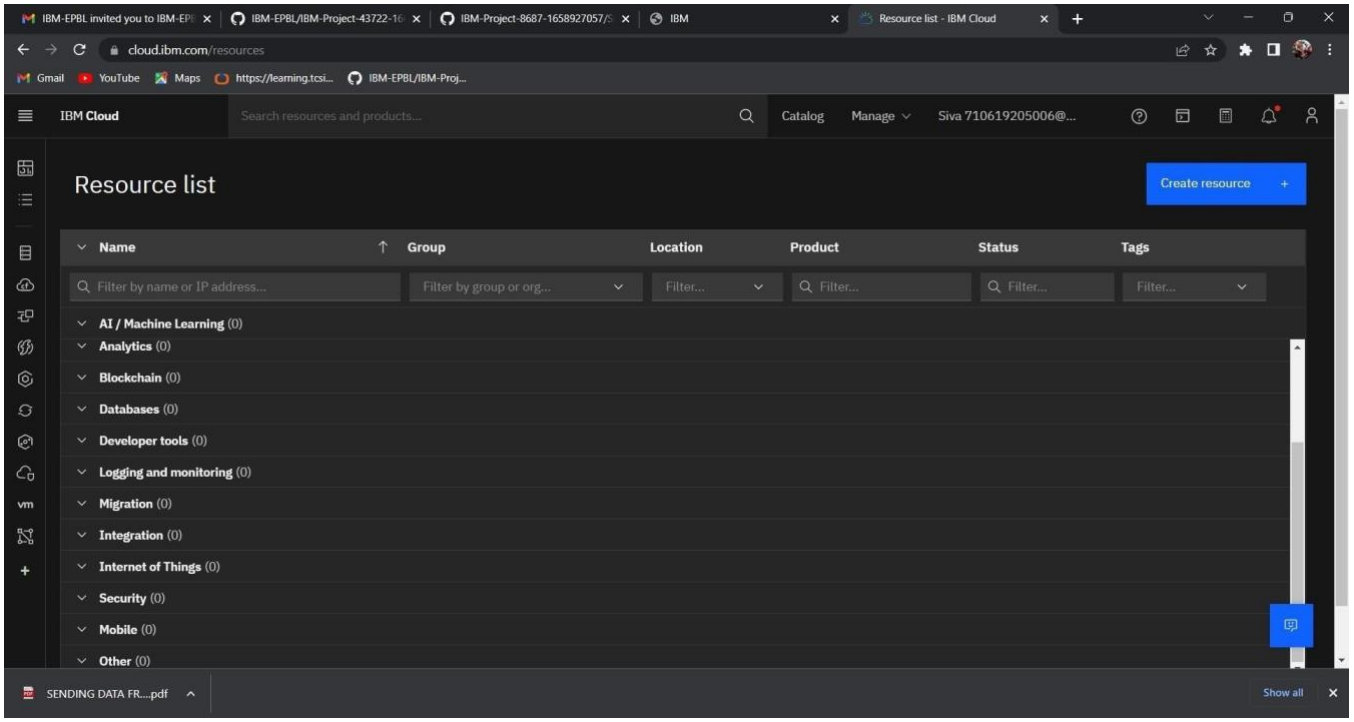
- Firstly, login into your IBM-Bluemix account with your e-mail ID and Password.


IBM Watson IoT Platform
Sign in
Collect data from
and make value from it
Learn More


IBM
Log in to IBM
IBMid
Forgot IBMid?
Remember me
Continue
Don't have an account? Create an IBMid
Need help? Contact the IBMid help desk



- Click on catalog on your dashboard screen, then under platform go IoT.



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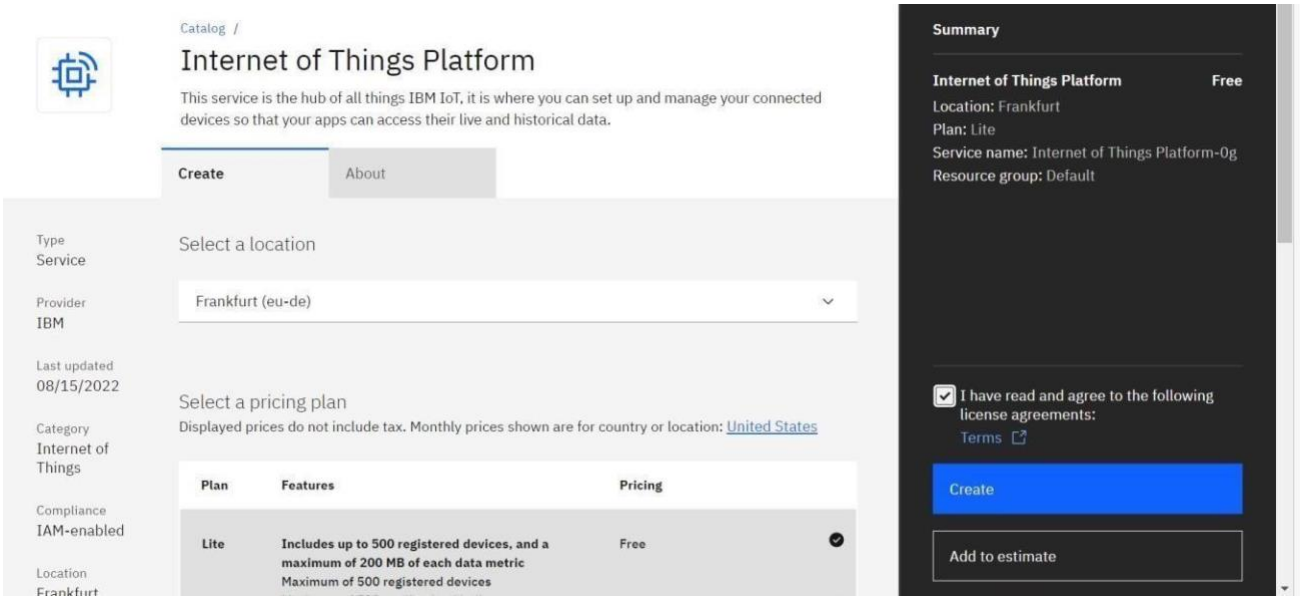
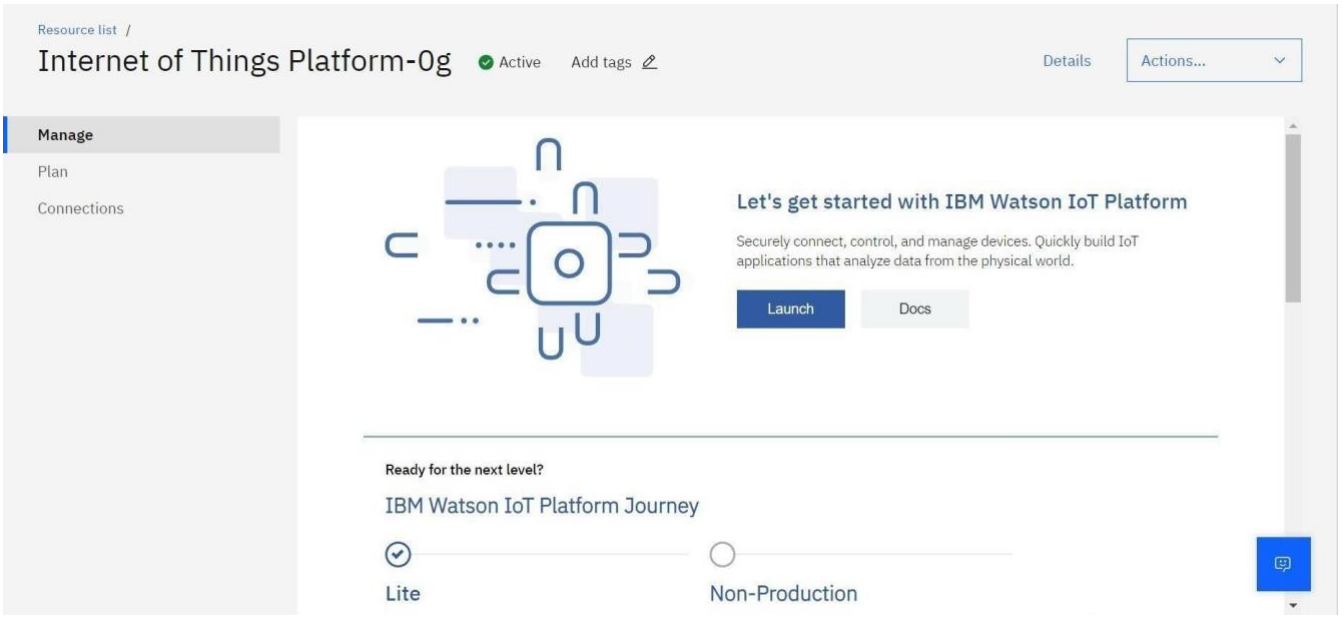
- Check all details and click on create.

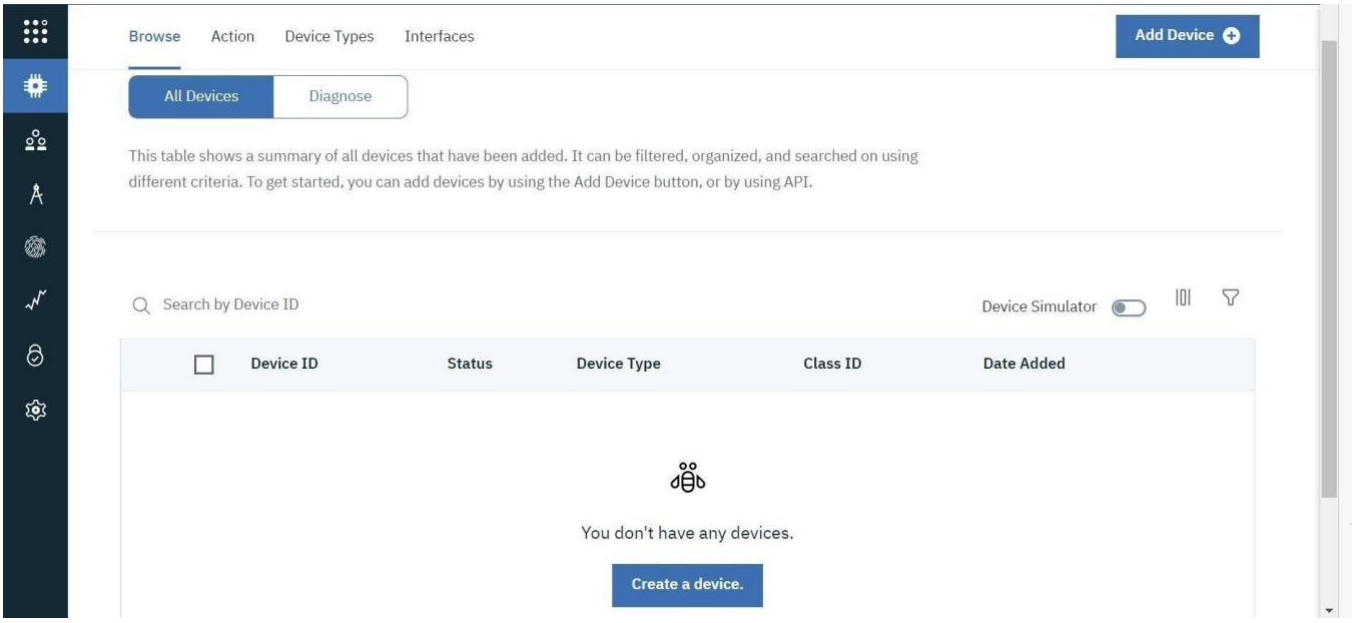


- click on Launch

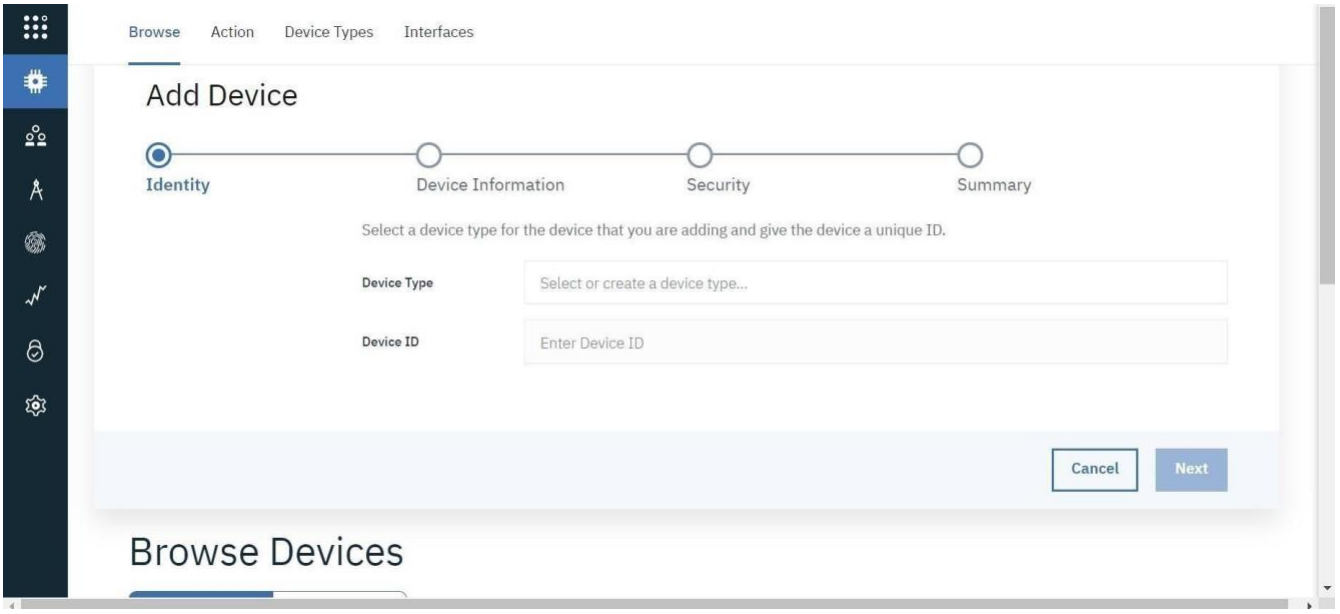


Dashboard of IBM Watson IoT platform,

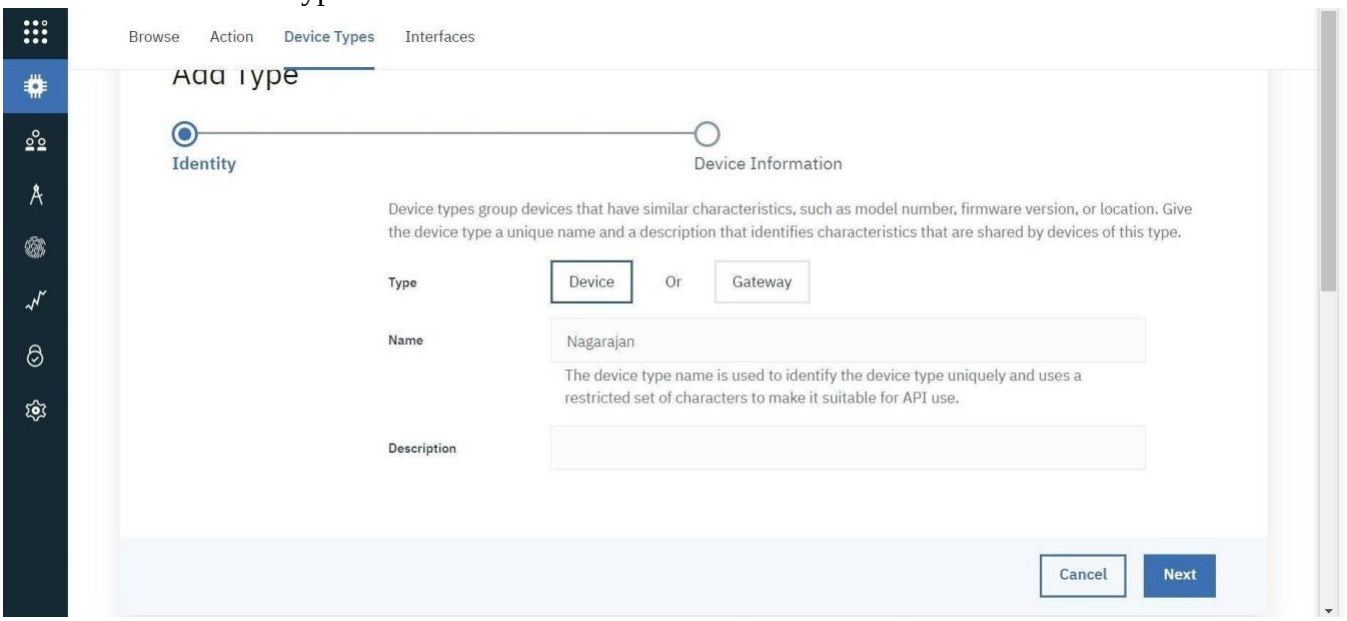
Click on Add device



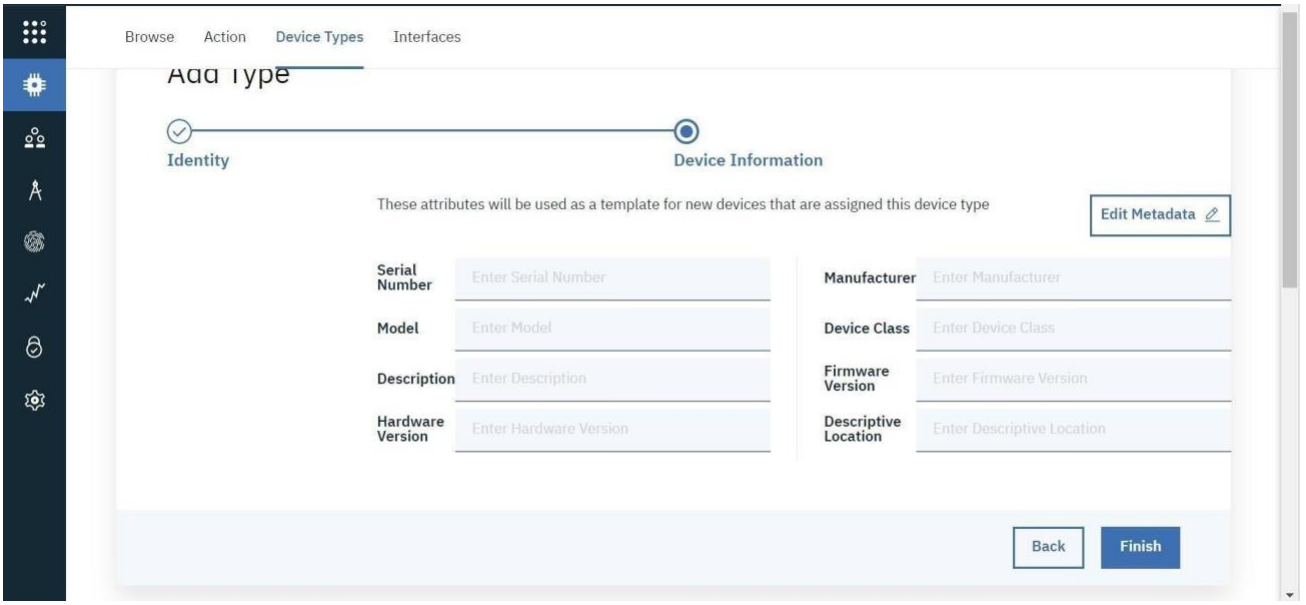
- After click on Add device this page will open



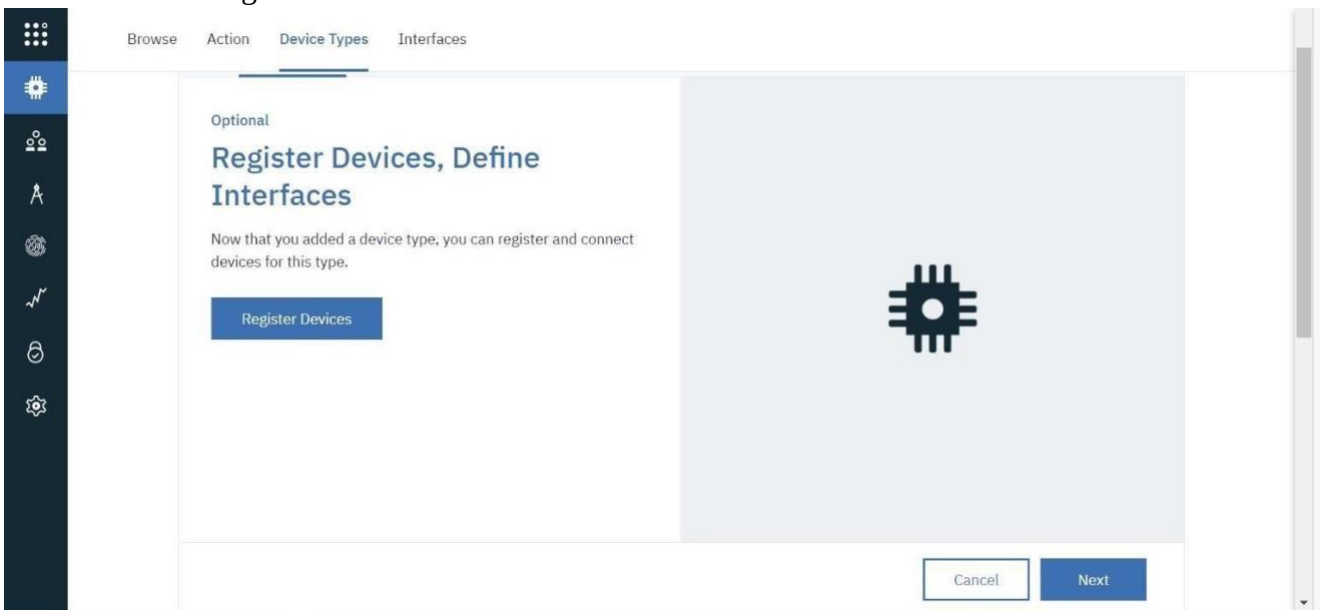
- Go to device type and fill the details.



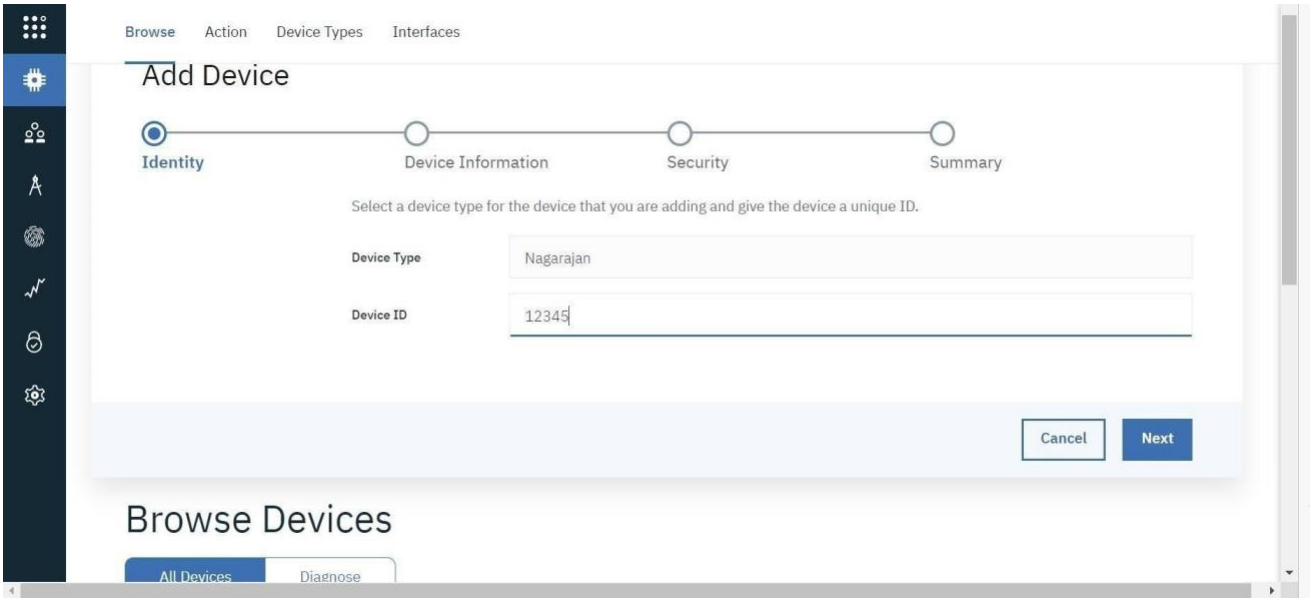
- Click on Finish



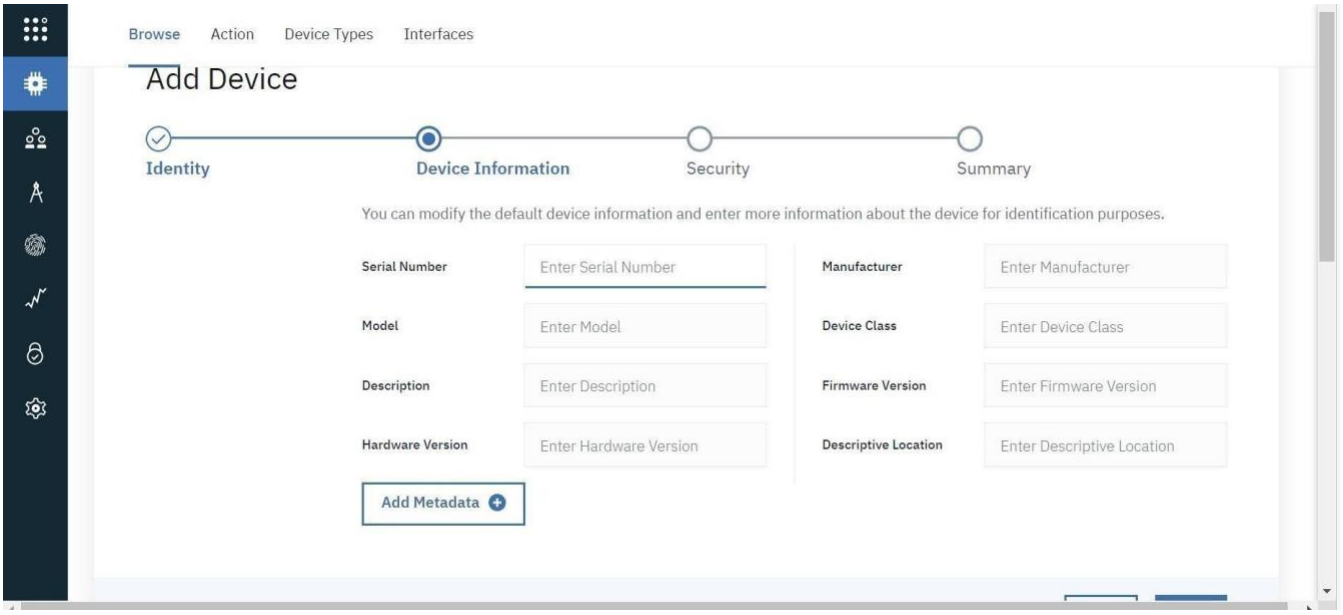
Register Device.



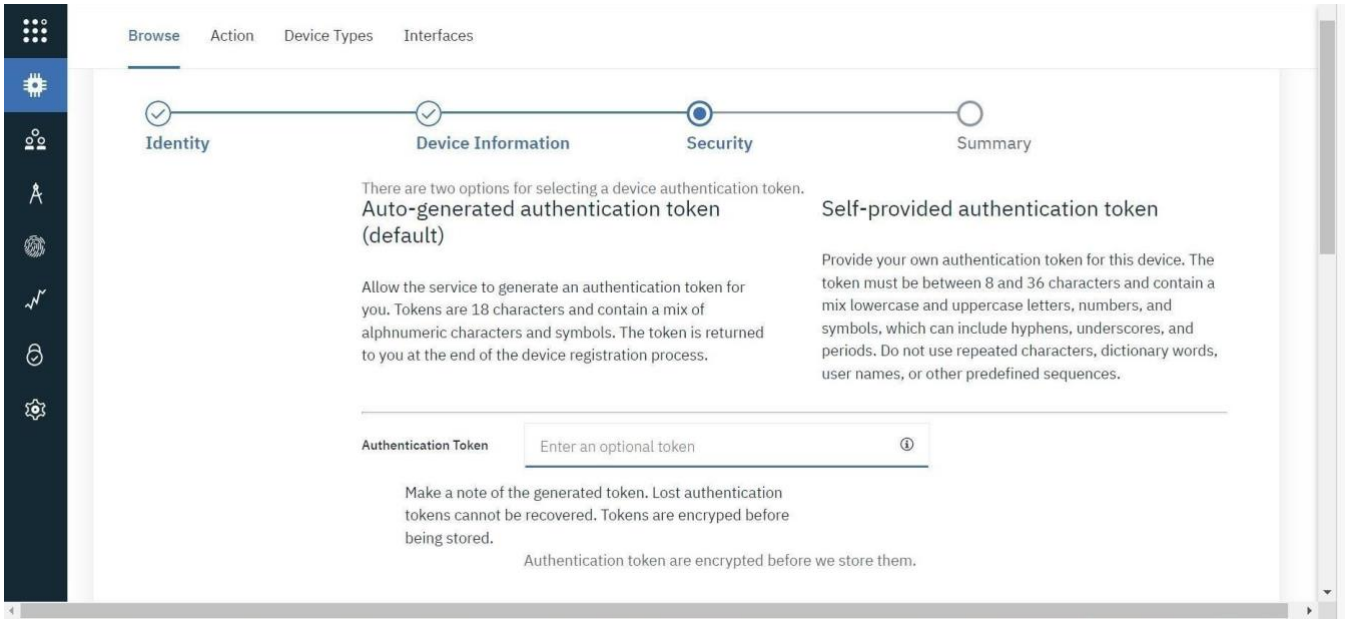
- Choose the device and give device ID and then click on next.



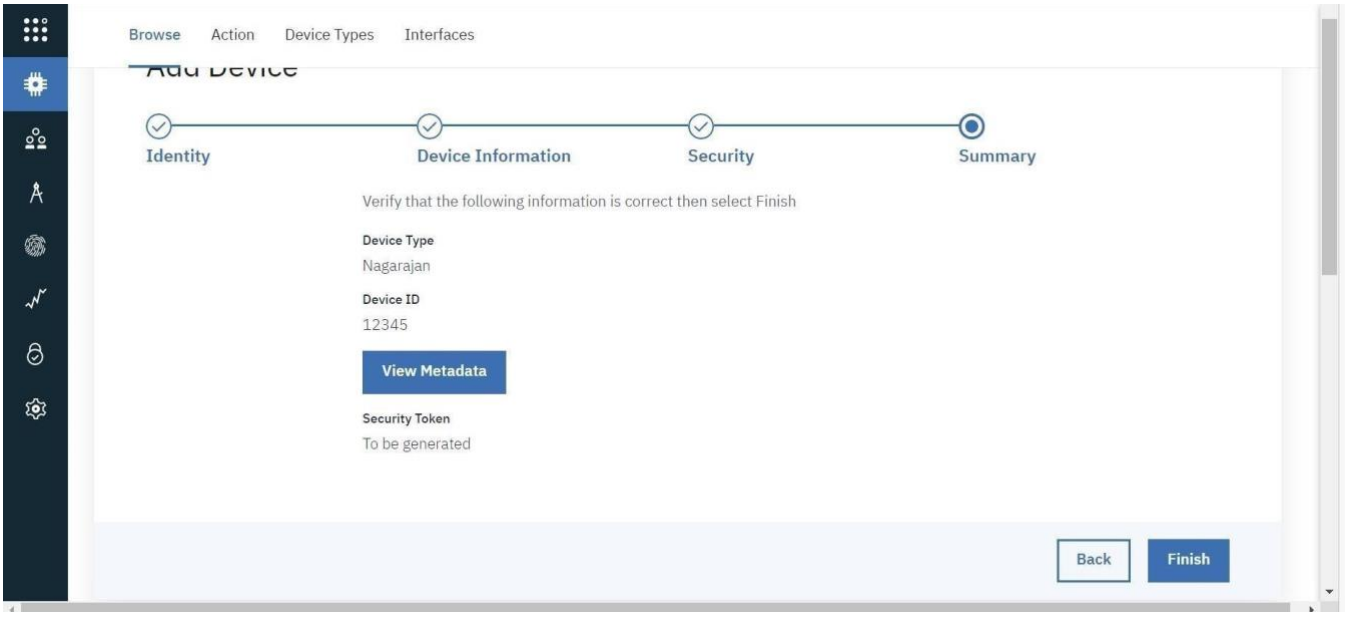
- Click on Next



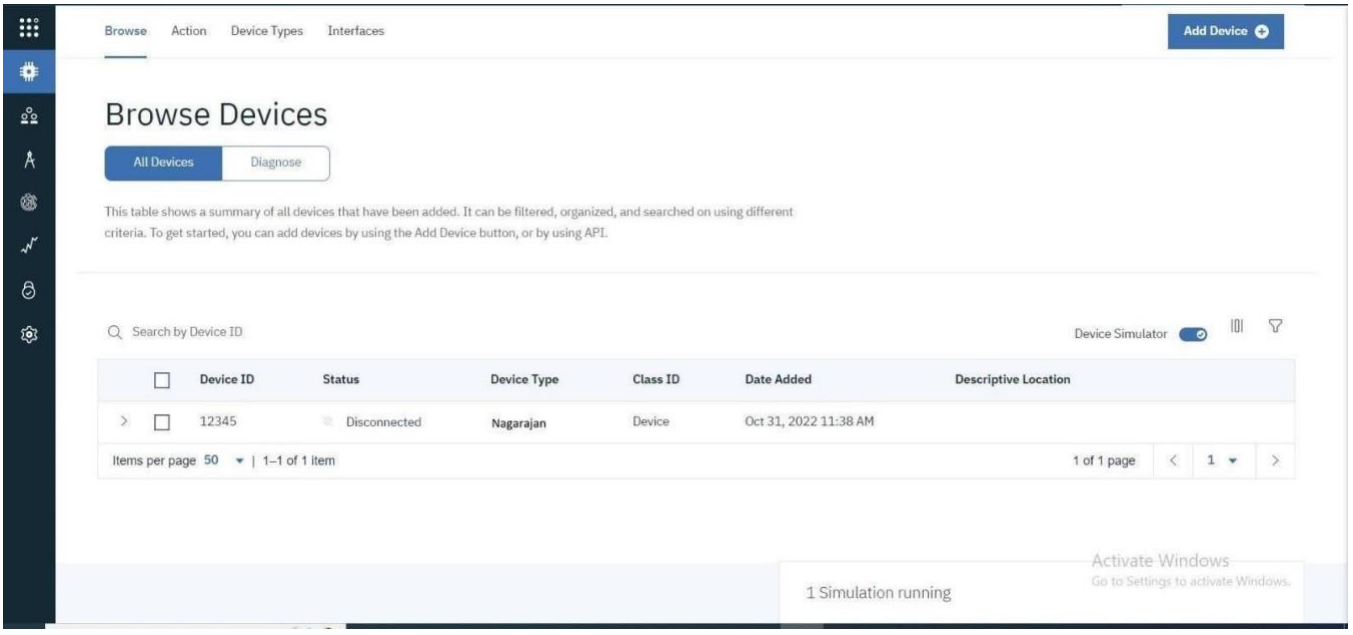
- Click on Next



Finish



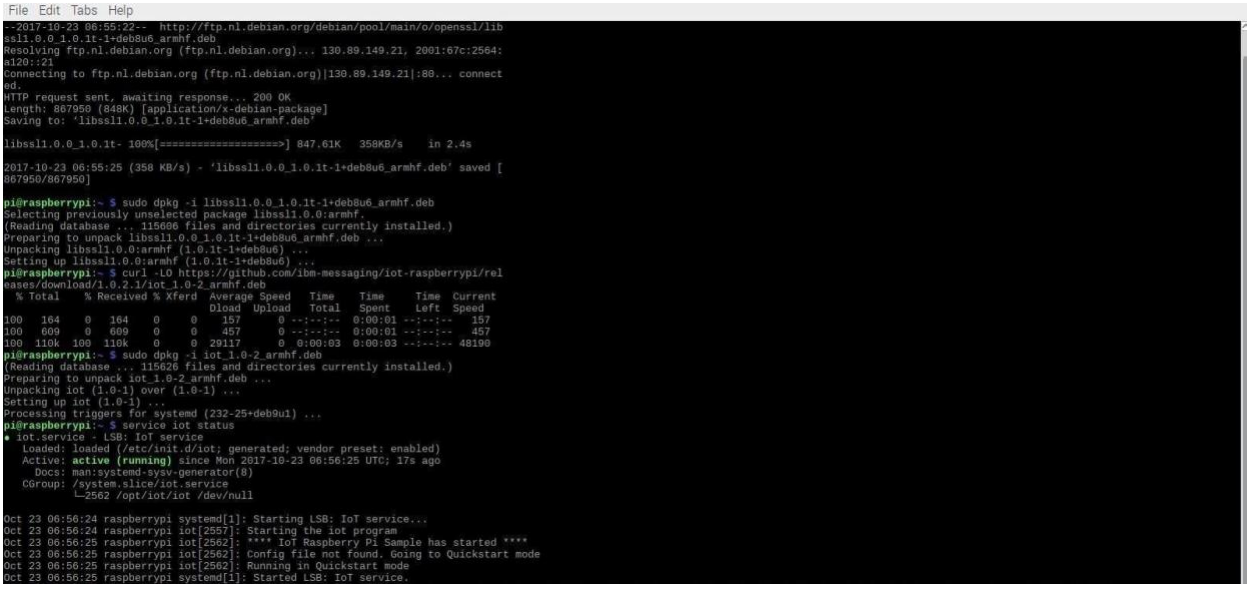
- Device is created



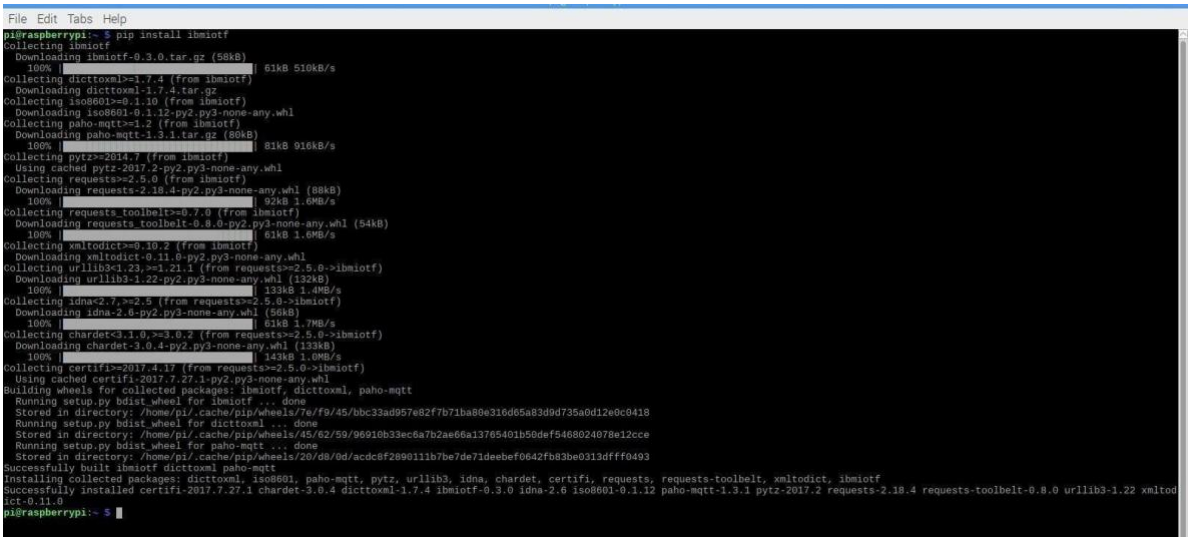
STEP-2: INSTALLING NECESSARY PACKAGES ON YOUR PI:

- Now we are going to install necessary packages on your pi.
- Open your terminal in your pi and type the following commands
- curl -LO https://github.com/ibm-messaging/iot-raspberrypi/releases/download/1.0.2.1/io t_1.0- 2_armhf.deb
- sudo dpkg -i iot_1.0-2_armhf.deb
- service iot status

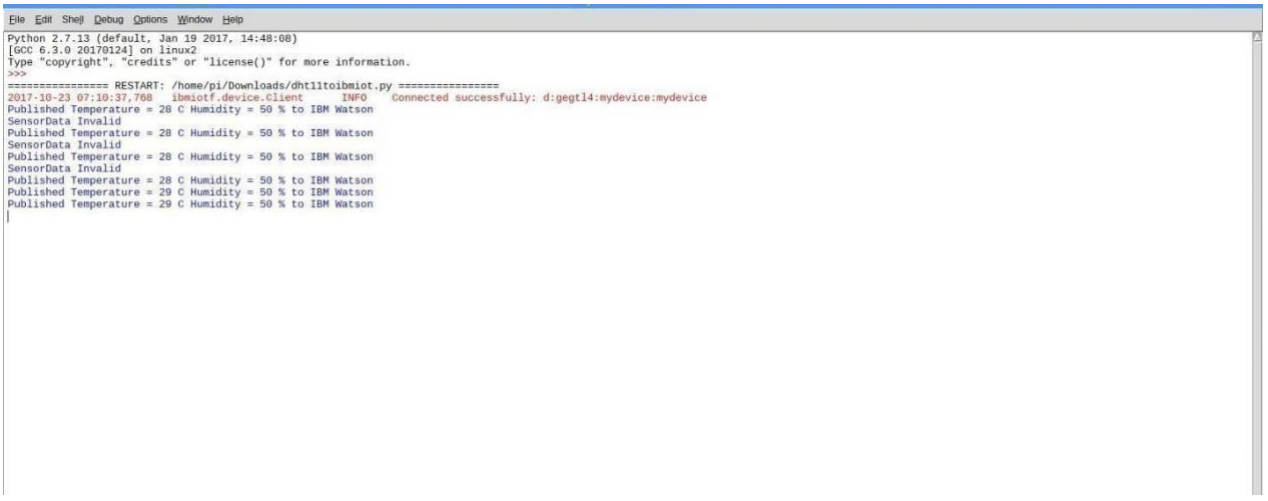
Following are the images as to what appears on your pi's terminal when u type these commands



- Then open your terminal and type pip install ibmiotf

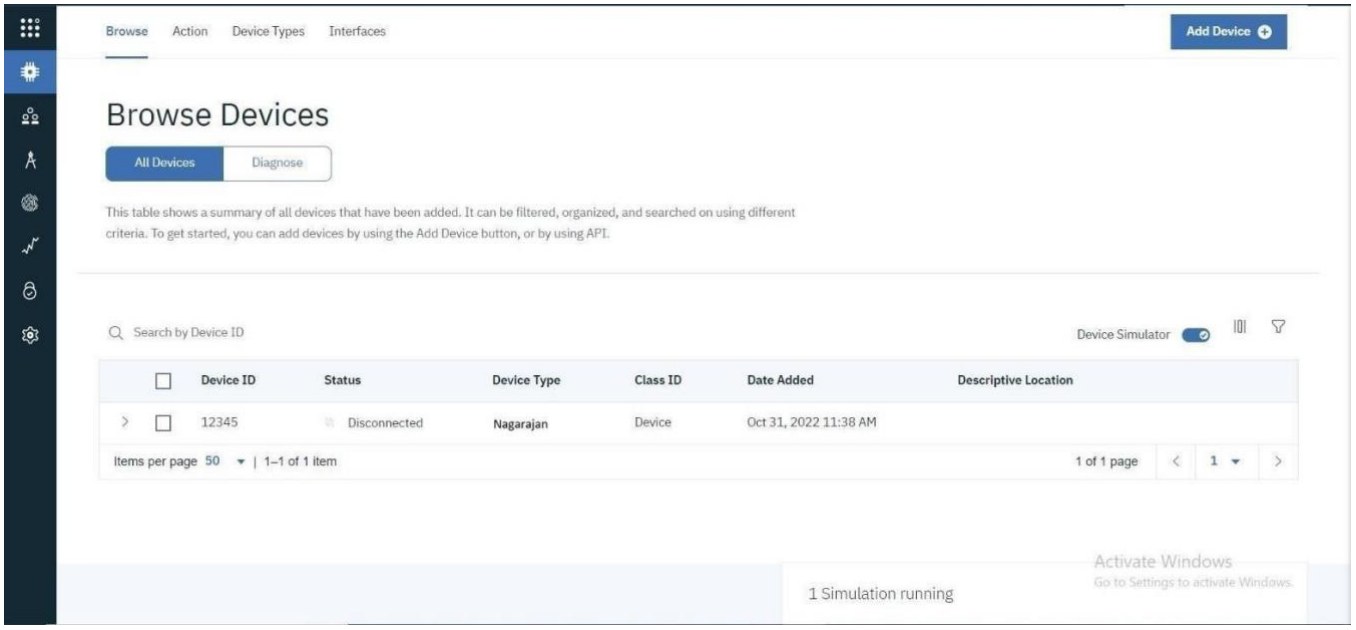


- I have sent DHT-11 Sensors data to ibm bluemix .To get the code u need to login into IOT GYAN.
  - Then I get the image as follows in my pi's shell:

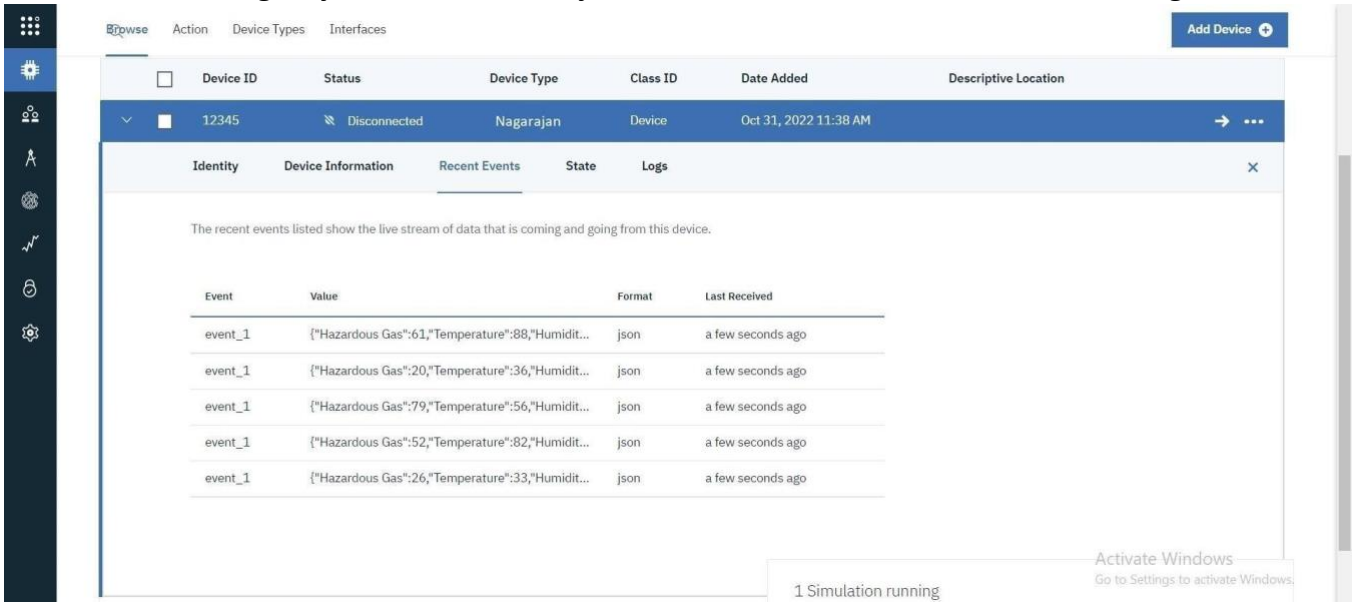


Step-3: checking your data sent on IBM Bluemix:

- After you have sent your sensors data you can check whether it is received at your iot platform Just look at the image below and if u see the same wifi kind of symbol on your created device then your data is being received.

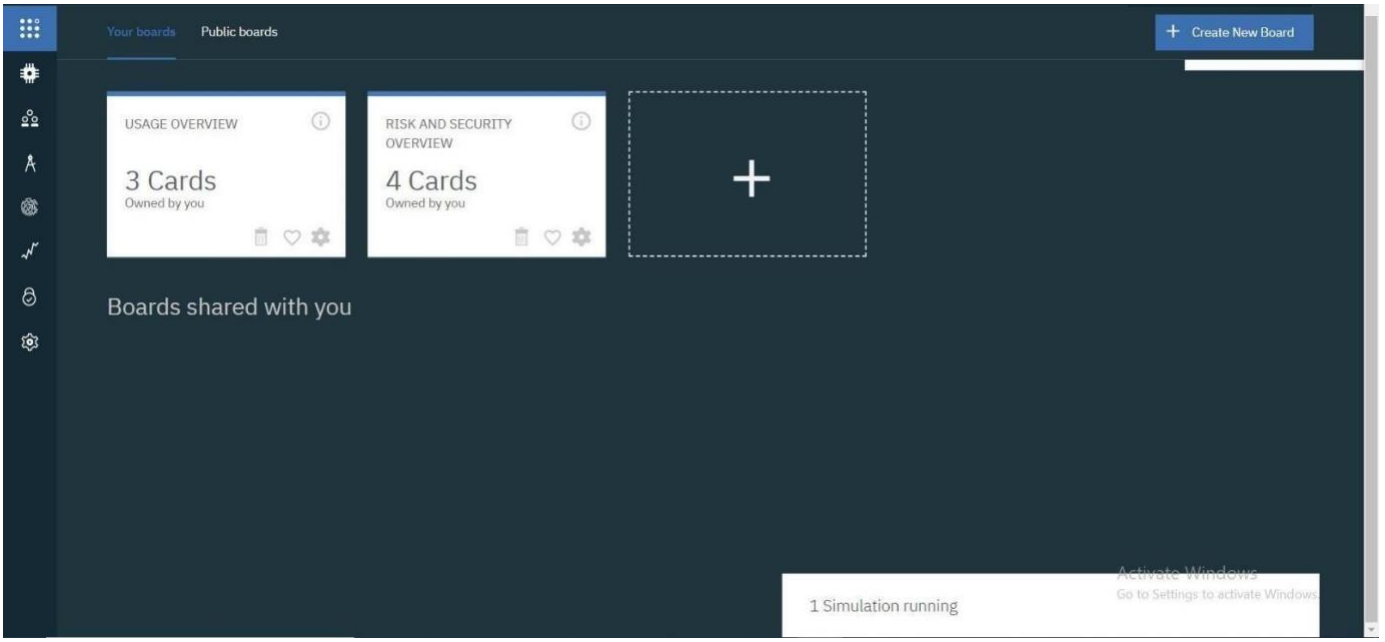


- After double clicking on your created device you can see the received data as shown in image



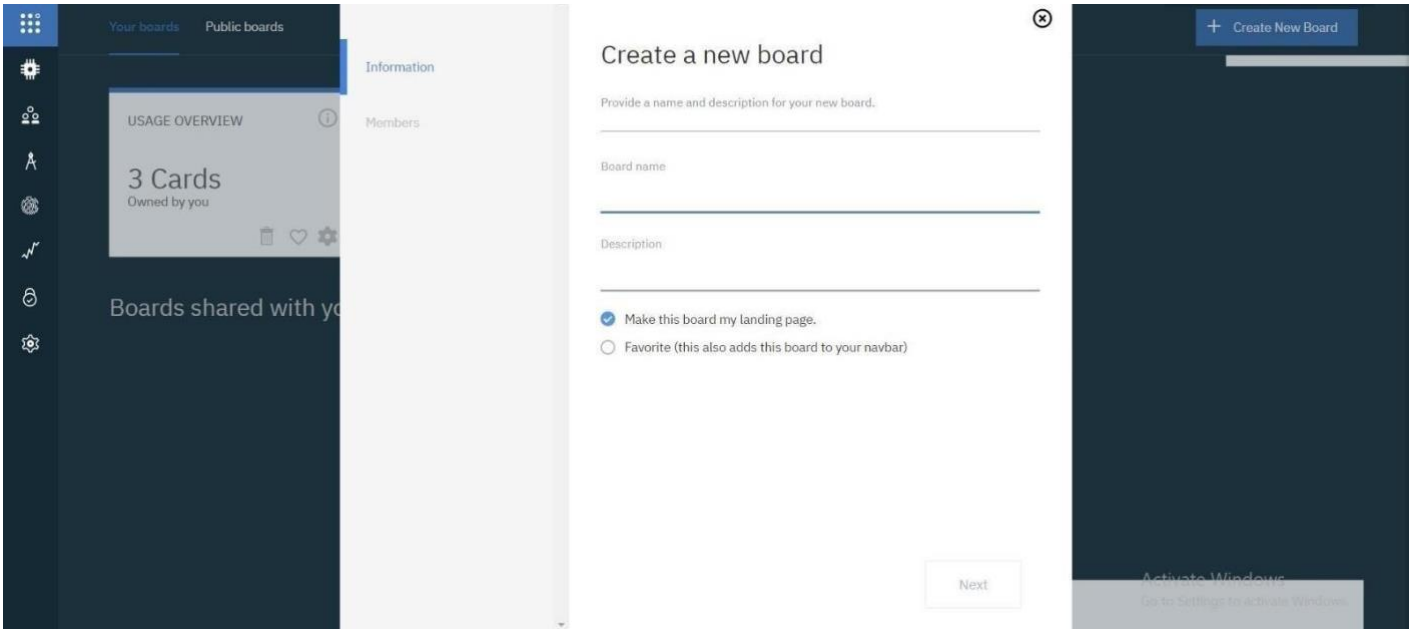
Step-4: Creating boards and cards for visualization of data:

- In your Watson platform you have an option called board .Click on it and you get the following window on your screen

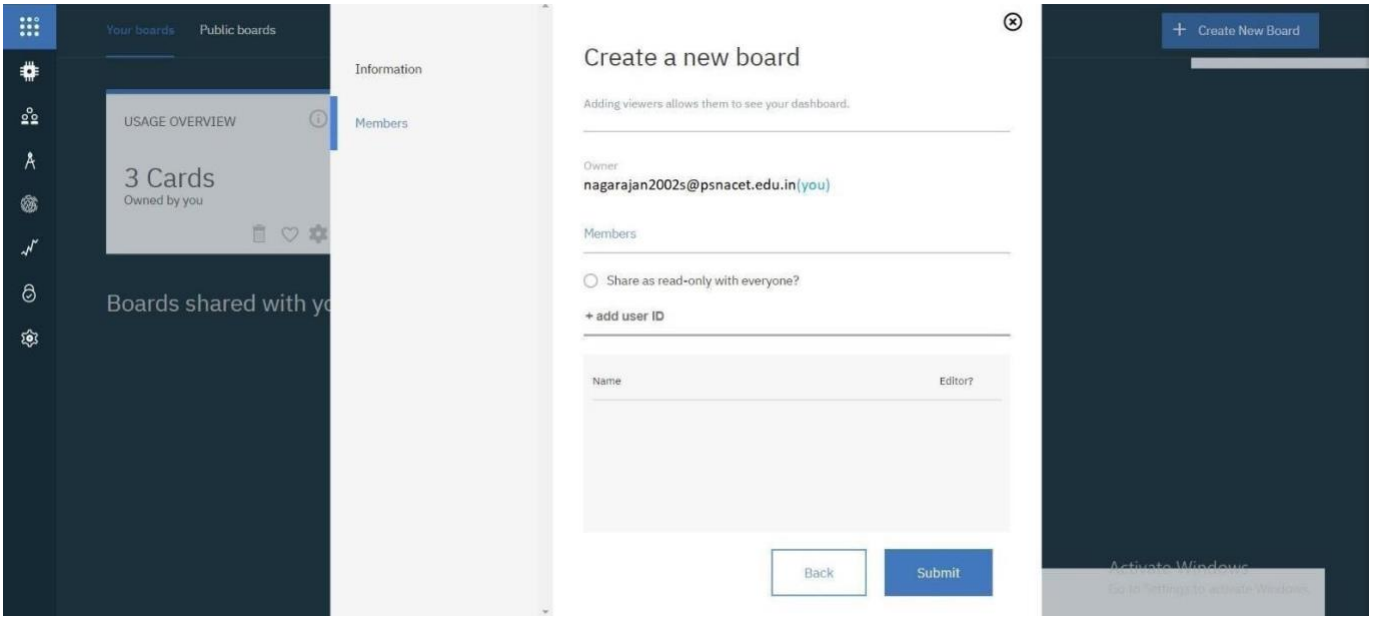


- Click on Create a new board to create a board .

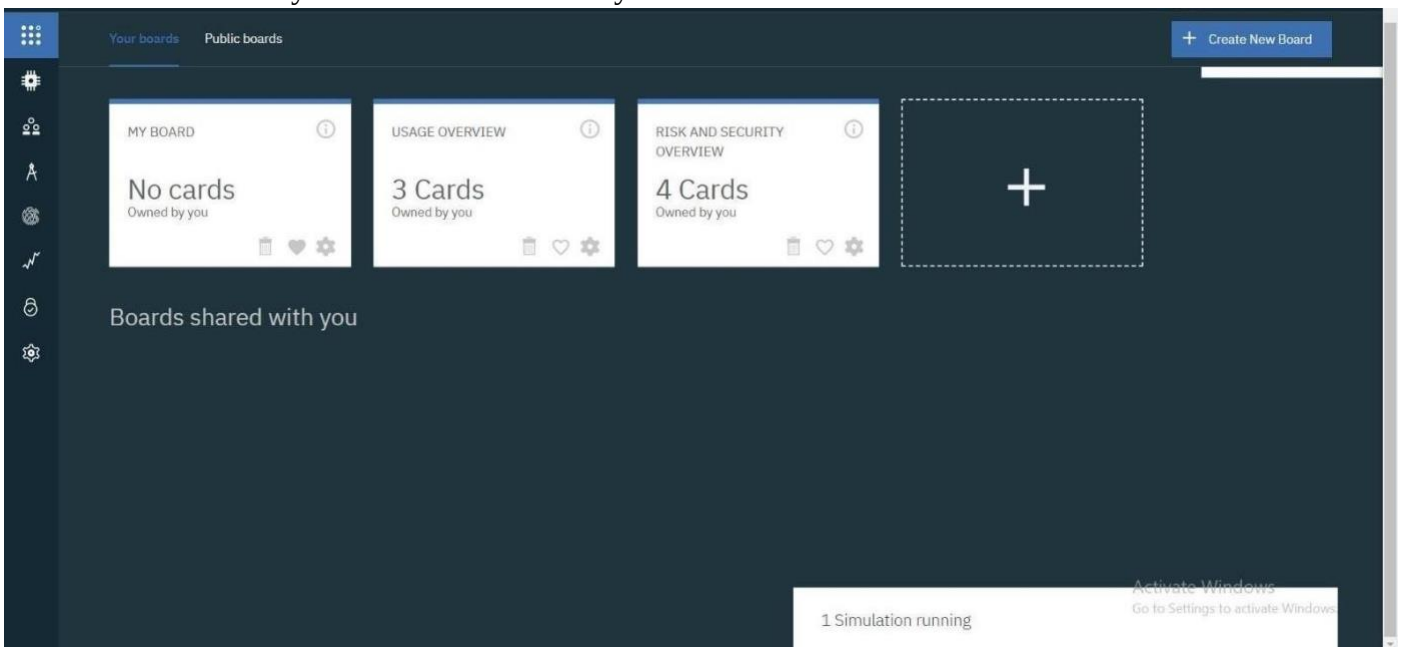
The given below window appears give a name and description to your board as shown in the window below.



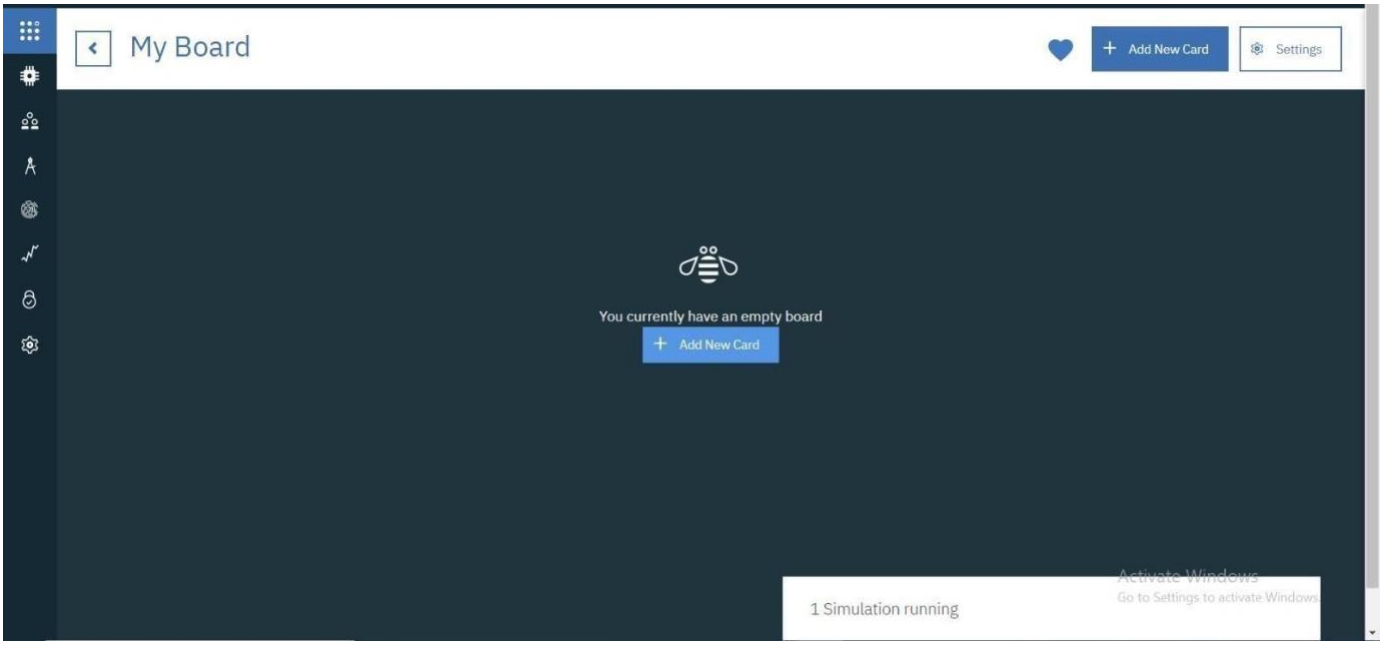
- Then click on Next you get the below window then again click on Submit



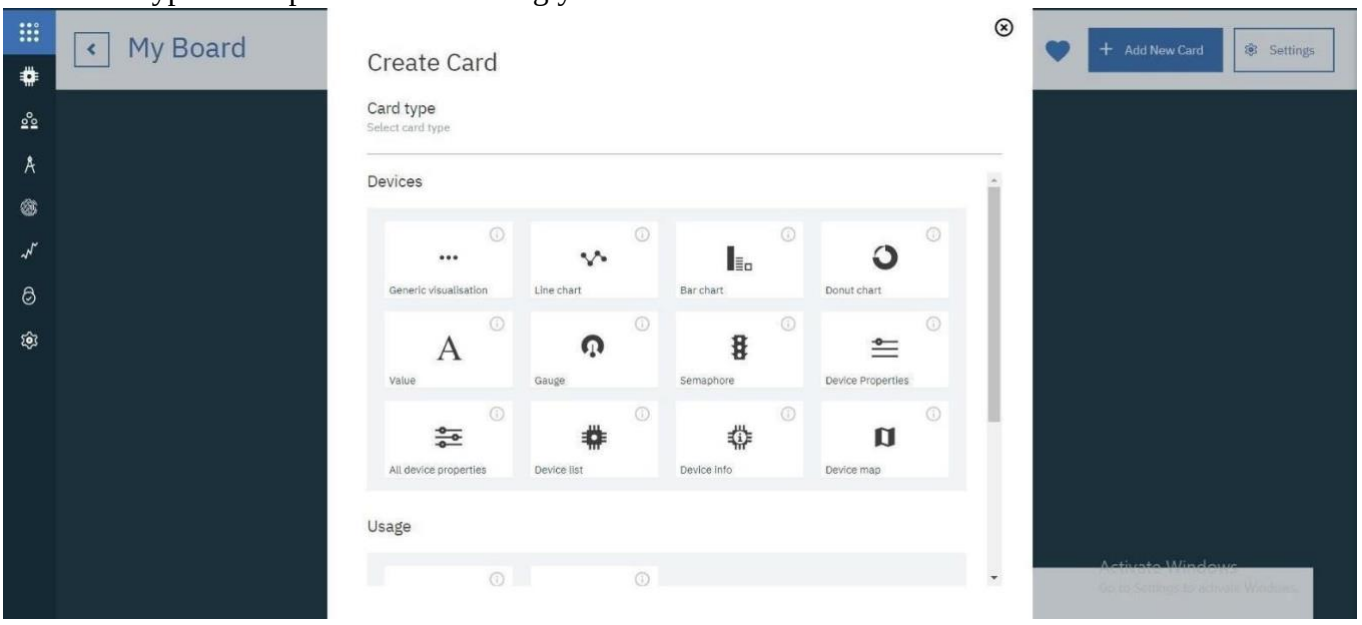
- Then double click on your boards name which you have created.



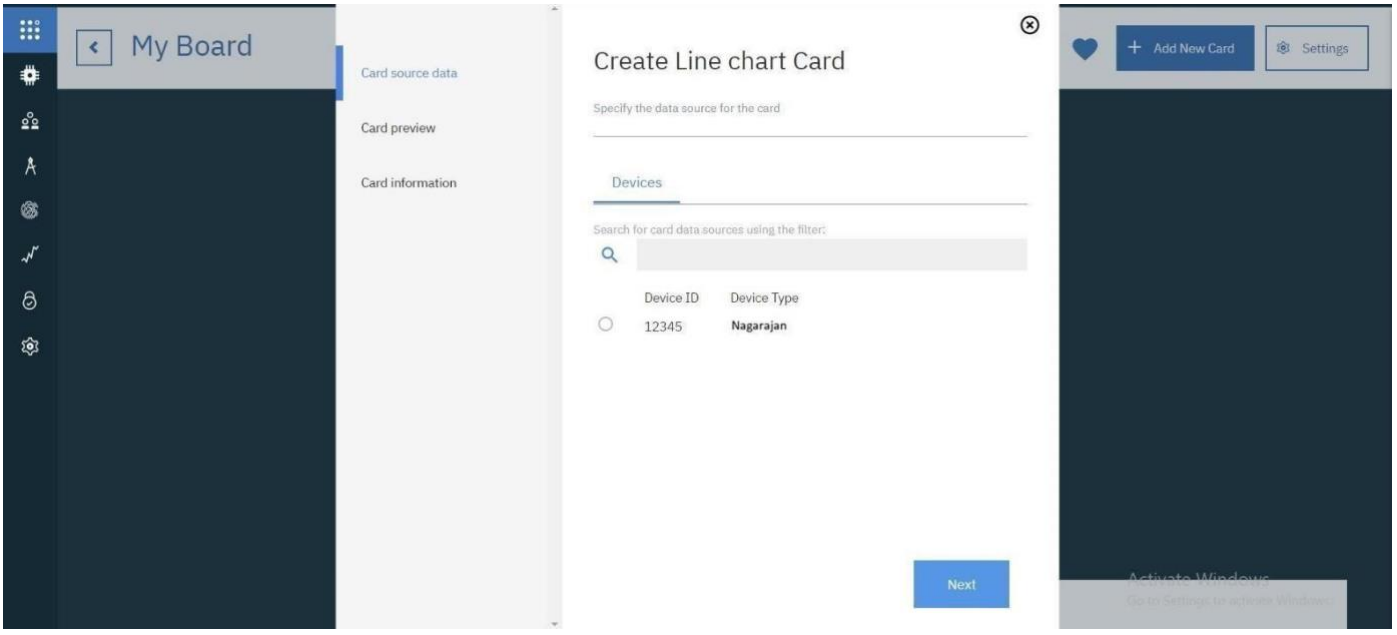
- Click on Add New Card



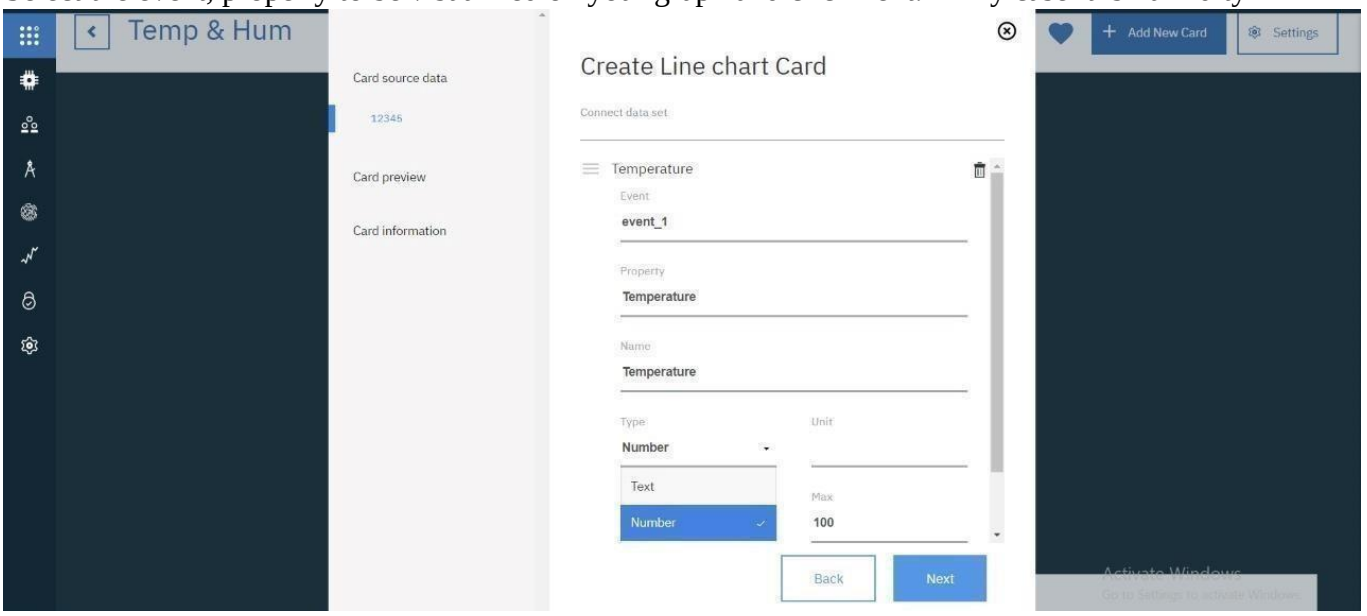
- Select the type of Graph u want accordingly and click next



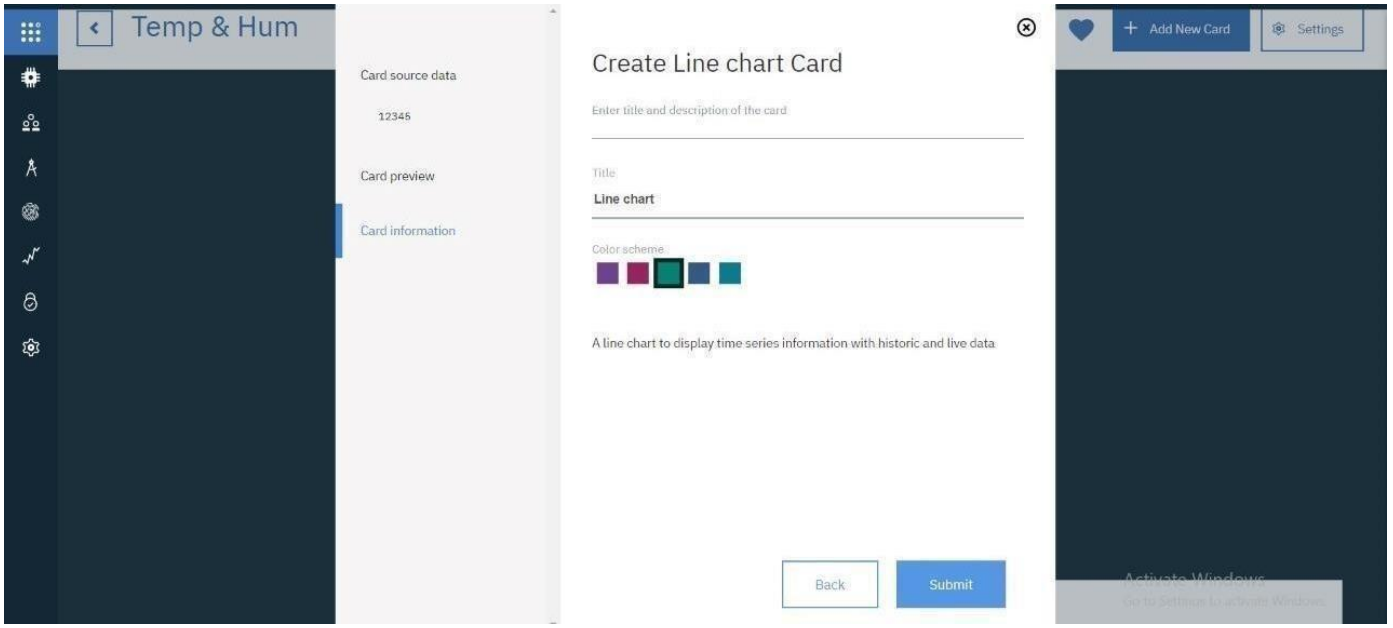
- You get the below window, choose the Device and click on Next.



- Select the event, properly to be visualized on your graph and click next. In my case it is humidity

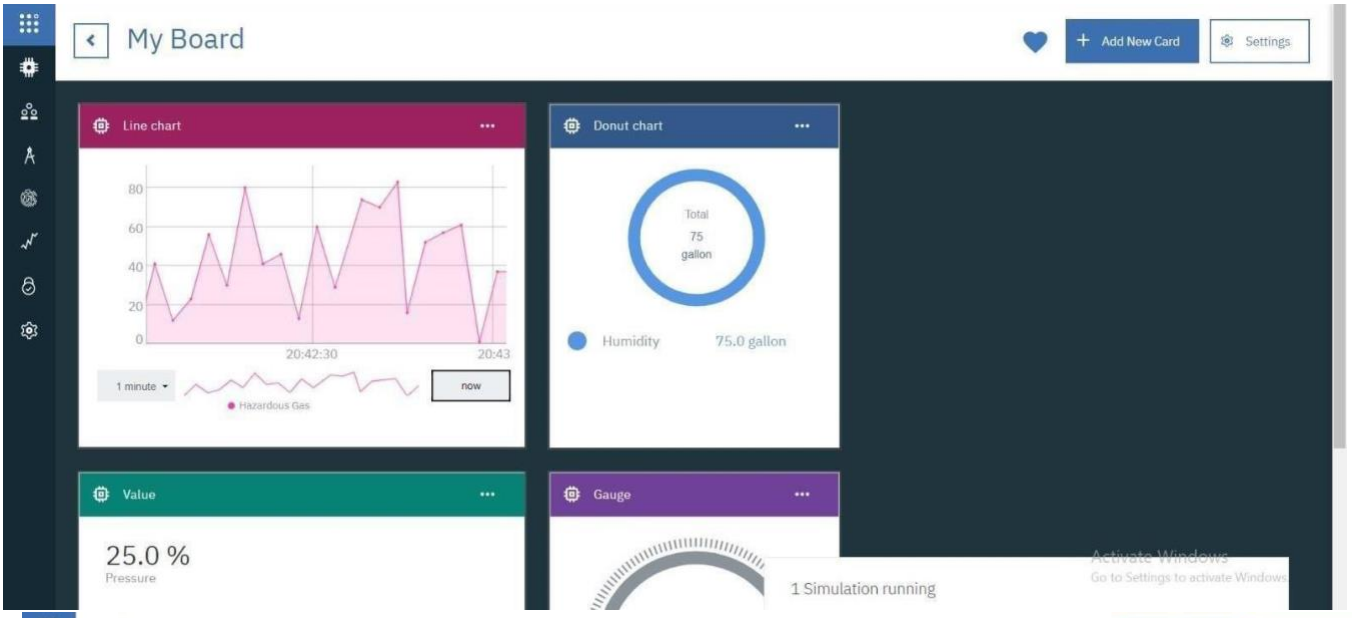


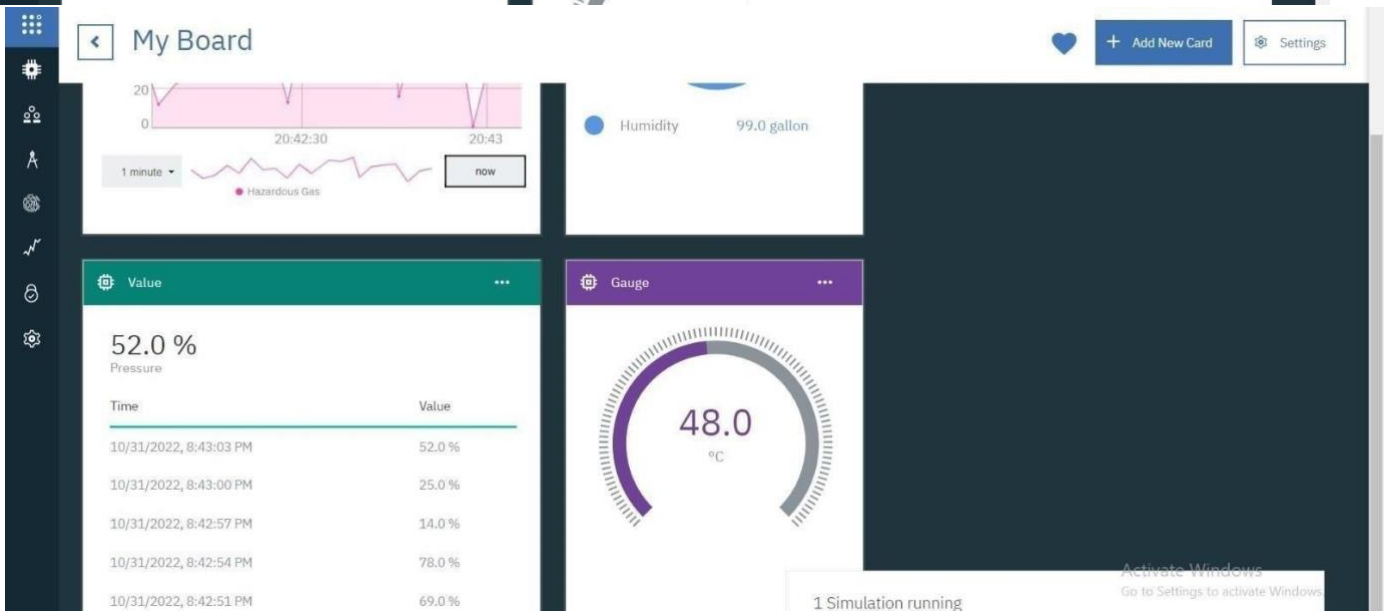
- Then select the size of the graph and color of the graph board you want and click next



- Here is the graph

- Repeat the process to get different graphs.


My Board
Add New Card
Settings
Line chart
80
60
40
20
0
20:42:30
20:43
1 minute
now
Hazardous Gas
Donut chart
Total
75
gallon
Humidity
75.0 gallon
Value
25.0 %
Pressure
Gauge
1 Simulation running
Activate Windows
Go to Settings to activate Windows.


My Board
Add New Card
Settings
20
0
20:42:30
20:43
1 minute
now
Hazardous Gas
Humidity
99.0 gallon
Value
52.0 %
Pressure
Time
Value
10/31/2022, 8:43:03 PM
52.0 %
10/31/2022, 8:43:00 PM
25.0 %
10/31/2022, 8:42:57 PM
14.0 %
10/31/2022, 8:42:54 PM
78.0 %
10/31/2022, 8:42:51 PM
69.0 %
Gauge
48.0
°C
1 Simulation running
Activate Windows
Go to Settings to activate Windows.

RESULT:

Hence, we were able to send data from our pi to IBM Watson and visualize it on a graph.