

CREATE IBM WATSON IOT PLATFORM AND DEVICE

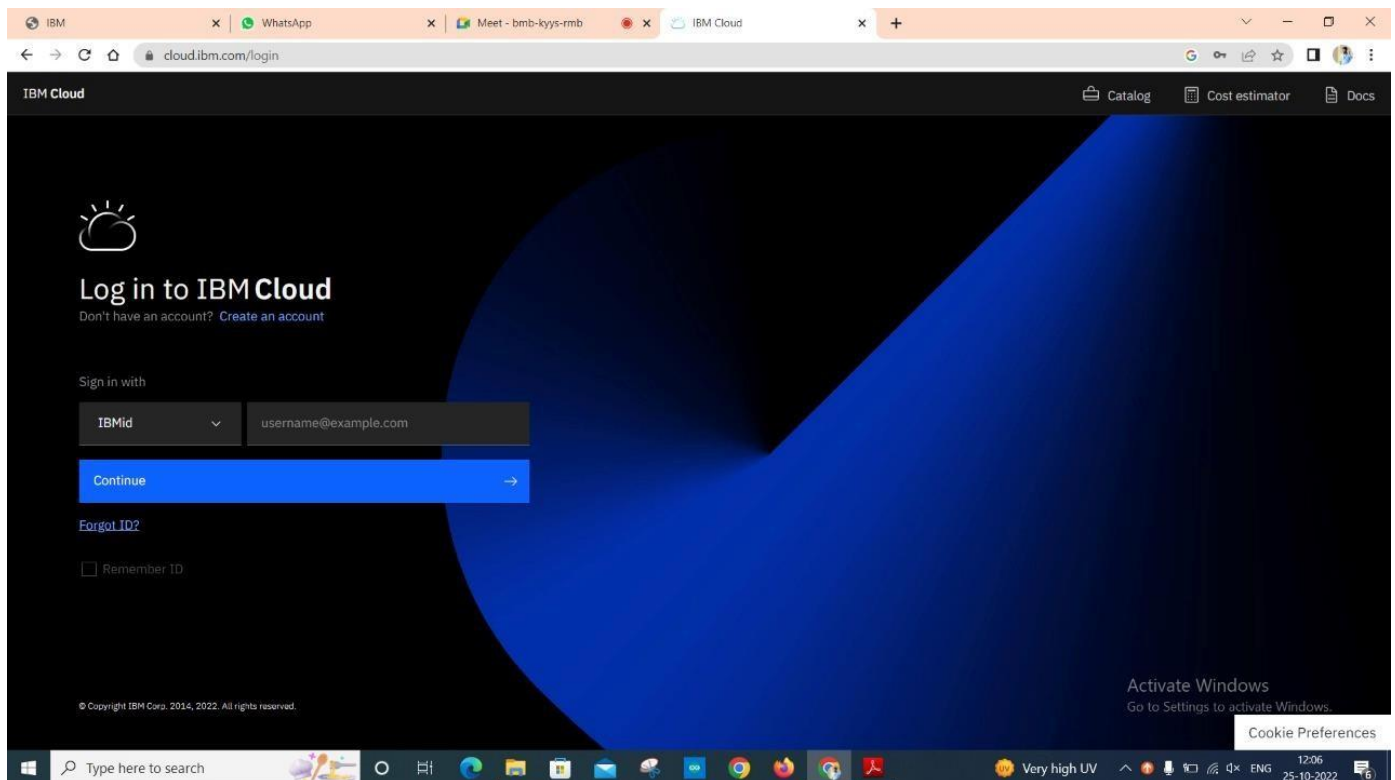
Date	25 October 2022
Team ID	PNT2022TMID04619
Project Name	Gas leakage monitoring and alerting system for industries

AIM:

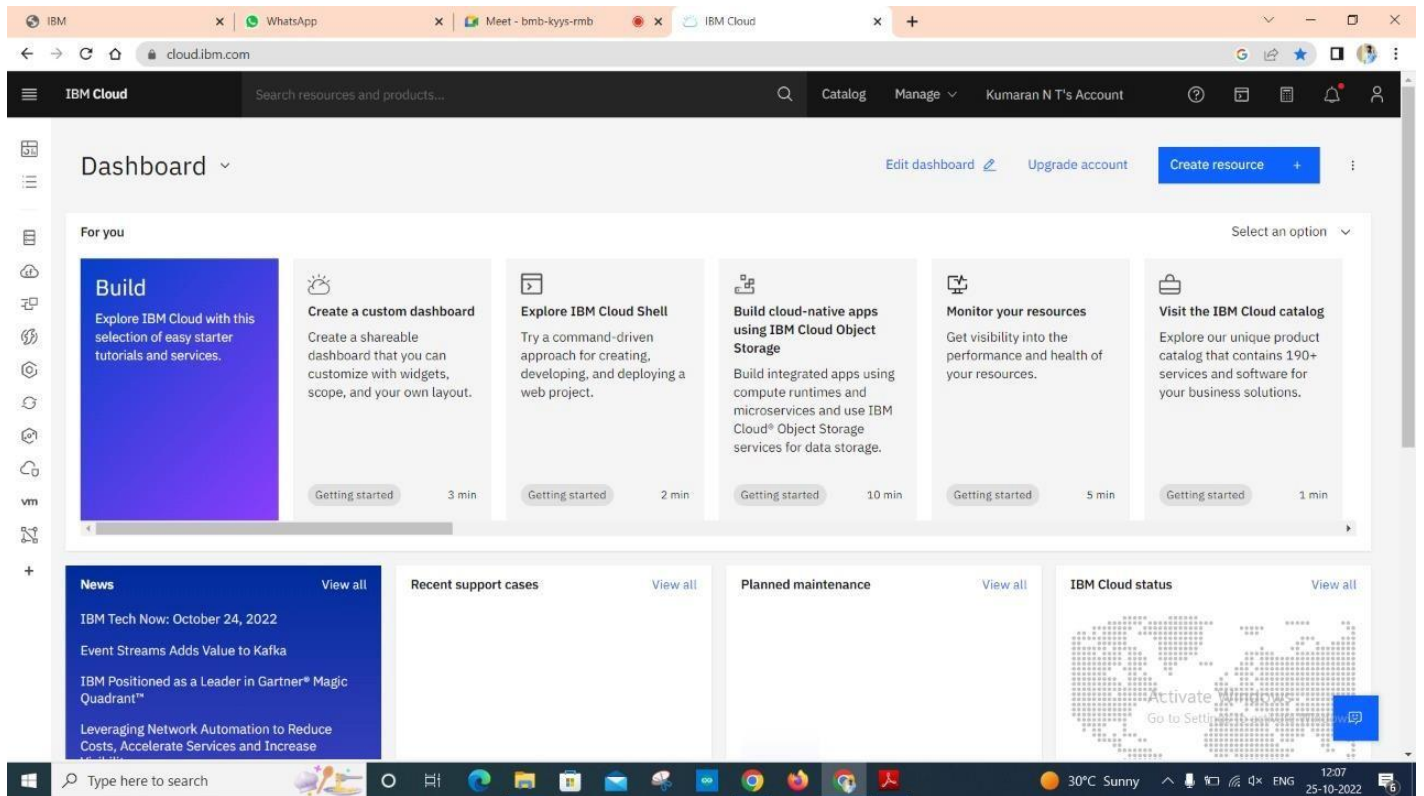
To create the IBM Watson IoT platform and device.

Steps to be followed

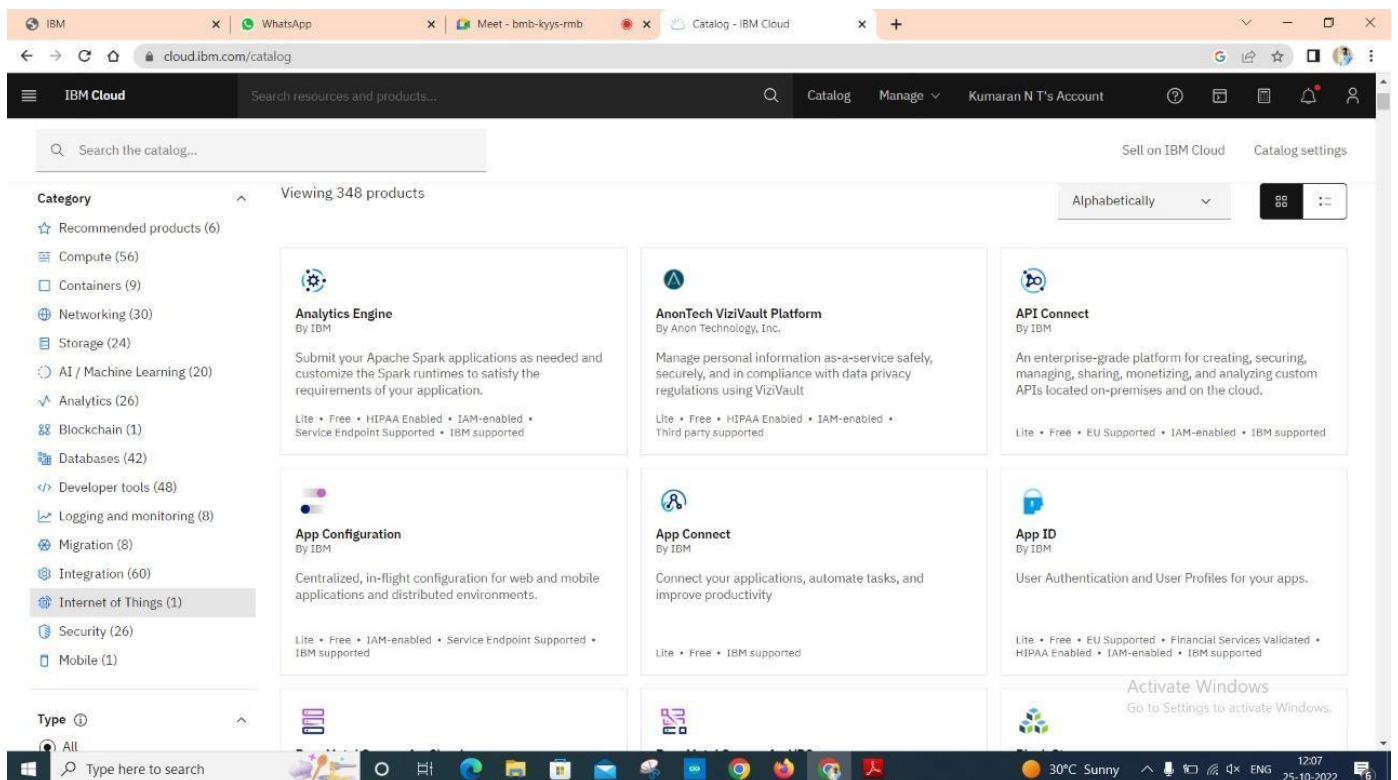
Step 1: Firstly, create an IBM cloud account with IBM id and password.



Step 2: Home page of IBM cloud.



Step 3: Click on the catalog on the top.



Step 4: Click on IoT in the category mentioned.

The screenshot shows the IBM Cloud Catalog interface. The top navigation bar includes the IBM logo, a search bar, and links to 'Catalog', 'Manage', and 'Kumaran N T's Account'. The main content area displays a grid of product cards. On the left, a sidebar lists categories: Recommended products (6), Compute (56), Containers (9), Networking (30), Storage (24), AI / Machine Learning (20), Analytics (26), Blockchain (1), Databases (42), Developer tools (48), Logging and monitoring (8), Migration (8), Integration (60), Internet of Things (1), Security (26), and Mobile (1). The 'Internet of Things' category is selected. The main grid shows products like 'Analytics Engine', 'AnonTech ViziVault Platform', 'API Connect', 'App Configuration', 'App Connect', and 'App ID'. Each card includes a description and pricing details. The bottom of the screen shows a Windows taskbar with various application icons and system information like '30°C Sunny' and '12:07 25-10-2022'.

Step 5: Click on Internet of Things Platform.

The screenshot shows the IBM Cloud Catalog interface with the 'Internet of Things' category selected. The main content area displays a grid of product cards. On the left, a sidebar lists categories: Recommended products (6), Compute (56), Containers (9), Networking (30), Storage (24), AI / Machine Learning (20), Analytics (26), Blockchain (1), Databases (42), Developer tools (48), Logging and monitoring (8), Migration (8), Integration (60), Internet of Things (1), Security (26), and Mobile (1). The 'Internet of Things' category is selected. The main grid shows products like 'Analytics Engine', 'AnonTech ViziVault Platform', 'API Connect', 'App Configuration', 'App Connect', and 'App ID'. Each card includes a description and pricing details. The bottom of the screen shows a Windows taskbar with various application icons and system information like '30°C Sunny' and '12:07 25-10-2022'.

Step 6: If already a lite is present delete it else u can't create another.

The screenshot shows the IBM Cloud catalog page for the Internet of Things Platform. The 'Lite' plan is selected, which is free and includes up to 500 registered devices and 200 MB of data metric. A warning message on the right states: 'Existing Lite plan instance. You can have only 1 Lite plan instance of this service per resource group. Delete your current Lite plan instance in Default resource group to create a new one, or view the existing instance.' Below the warning, there is a checkbox for 'I have read and agree to the following license agreements:' and a 'Create' button. The 'Configure your resource' section shows the service name 'Internet of Things Platform-9j' and the resource group 'Default'.

IBM Cloud

Search resources and products...

IBM

Updated on 08/15/2022

Category: Internet of Things

Compliance: IAM-enabled

Location: Frankfurt, London, Dallas, Washington DC

Related links: Docs, Terms

Select a pricing plan

Displayed prices do not include tax. Monthly prices shown are for country or location: [United States](#)

Plan	Features	Pricing
Lite	Includes up to 500 registered devices, and a maximum of 200 MB of each data metric Maximum of 500 registered devices Maximum of 500 application bindings Maximum of 200 MB of each of data exchanged, data analyzed and edge data analyzed	Free

The Lite service plan for Internet of Things Platform includes up to 500 registered devices, and a maximum of 200 MB each of data exchanged, data analyzed, and edge data analyzed per month.

Lite plan services are deleted after 30 days of inactivity.

Configure your resource

Service name:

Select a resource group:

Tags:

Access management tags:

Summary

Internet of Things Platform Free

Location: Frankfurt

Plan: Lite

Service name: Internet of Things Platform-9j

Resource group: Default

Existing Lite plan instance

You can have only 1 Lite plan instance of this service per resource group. [Delete](#) your current Lite plan instance in Default resource group to create a new one, or [view the existing instance](#).

☐ I have read and agree to the following license agreements: [Terms](#)

Create

Activate Windows

Go to Settings to activate Windows. Add to estimate

Step 7: Tick agreements and then click on create.

This screenshot is identical to the previous one, but the checkbox for 'I have read and agree to the following license agreements:' is now checked. The 'Create' button is still visible, and the warning message remains.

IBM Cloud

Search resources and products...

IBM

Updated on 08/15/2022

Category: Internet of Things

Compliance: IAM-enabled

Location: Frankfurt, London, Dallas, Washington DC

Related links: Docs, Terms

Select a pricing plan

Displayed prices do not include tax. Monthly prices shown are for country or location: [United States](#)

Plan	Features	Pricing
Lite	Includes up to 500 registered devices, and a maximum of 200 MB of each data metric Maximum of 500 registered devices Maximum of 500 application bindings Maximum of 200 MB of each of data exchanged, data analyzed and edge data analyzed	Free

The Lite service plan for Internet of Things Platform includes up to 500 registered devices, and a maximum of 200 MB each of data exchanged, data analyzed, and edge data analyzed per month.

Lite plan services are deleted after 30 days of inactivity.

Configure your resource

Service name:

Select a resource group:

Tags:

Access management tags:

Summary

Internet of Things Platform Free

Location: Frankfurt

Plan: Lite

Service name: Internet of Things Platform-9j

Resource group: Default

Existing Lite plan instance

You can have only 1 Lite plan instance of this service per resource group. [Delete](#) your current Lite plan instance in Default resource group to create a new one, or [view the existing instance](#).

☒ I have read and agree to the following license agreements: [Terms](#)

Create

Activate Windows

Go to Settings to activate Windows. Add to estimate

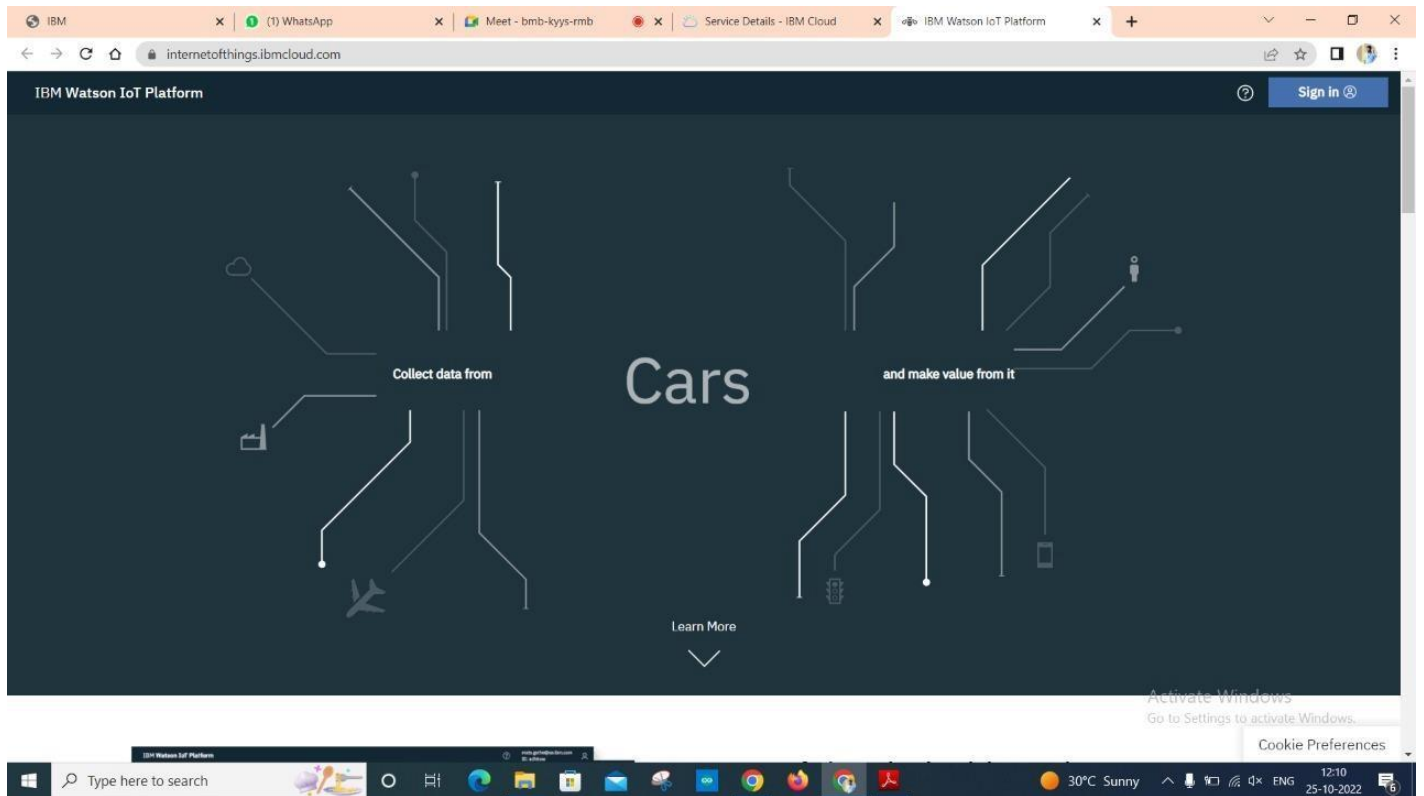
Step 8: Click on the launch button.

The screenshot shows the IBM Cloud IoT Platform service page. The browser tabs include IBM, (1) WhatsApp, Meet - bmb-kyys-rmb, and Service Details - IBM Cloud. The URL is cloud.ibm.com/services/iotf-service/cm%3Av1%3Abluemix%3Apublic%3Aiotf-service%3Aeu-de%3Aa%2F7c78e0d245714182ba5b5c61d6c11283%3Aee595334-0365-44f2-8be2-23567ab... The page header shows the IBM Cloud logo, a search bar, and navigation links for Catalog, Manage, and the user account (Kumaran N T's Account). The main content area is titled "Internet of Things Platform-hg" and is marked as "Active". It features a "Launch" button and a "Docs" button. Below this, there is a section titled "Let's get started with IBM Watson IoT Platform" with a subtext: "Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world." Further down, a "Ready for the next level?" section introduces the "IBM Watson IoT Platform Journey" with three plans: Lite, Non-Production, and Production. The Lite plan is selected and described as a lightweight development environment. The Non-Production plan is a full-featured, fully-integrated offering. The Production plan is a fully managed SaaS offering. A "Cookie Preferences" dialog is visible in the bottom right corner. The Windows taskbar at the bottom shows the search bar, task view, and various application icons.

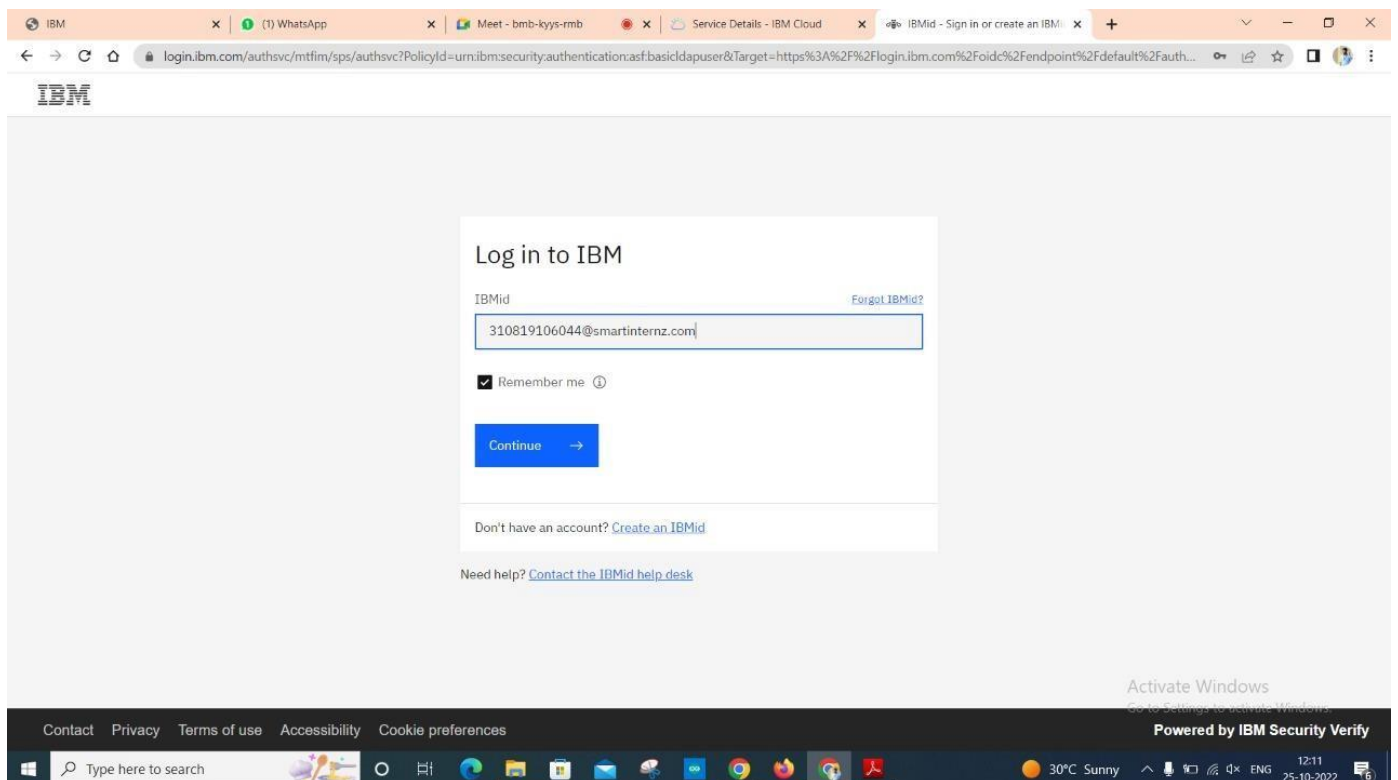
Step 9: After clicking on the launch button this tab will open.

The screenshot shows the IBM Watson IoT Platform dashboard. The browser tabs include IBM, (1) WhatsApp, Meet - bmb-kyys-rmb, Service Details - IBM Cloud, and IBM Watson IoT Platform. The URL is internetofthings.ibmcloud.com. The dashboard has a dark theme and features a large central graphic with the word "Cars" in the middle. To the left of "Cars" is the text "Collect data from" and to the right is "and make value from it". The graphic includes icons for a car, a factory, a plane, and a smartphone. A "Learn More" link is at the bottom center. The top right corner has a "Sign in" button. The bottom right corner has a "Cookie Preferences" dialog. The Windows taskbar at the bottom shows the search bar, task view, and various application icons.

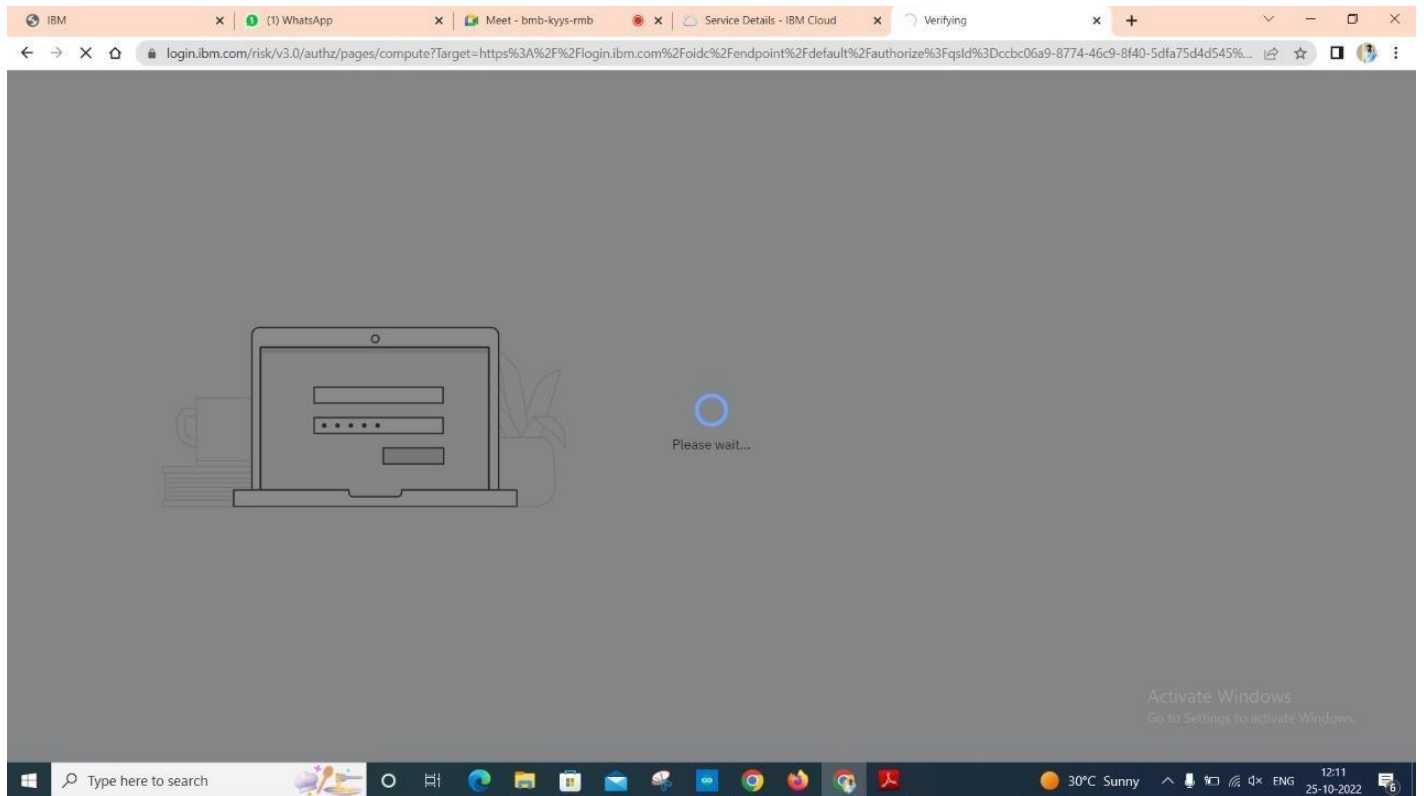
Step 10: Click on Sign in.



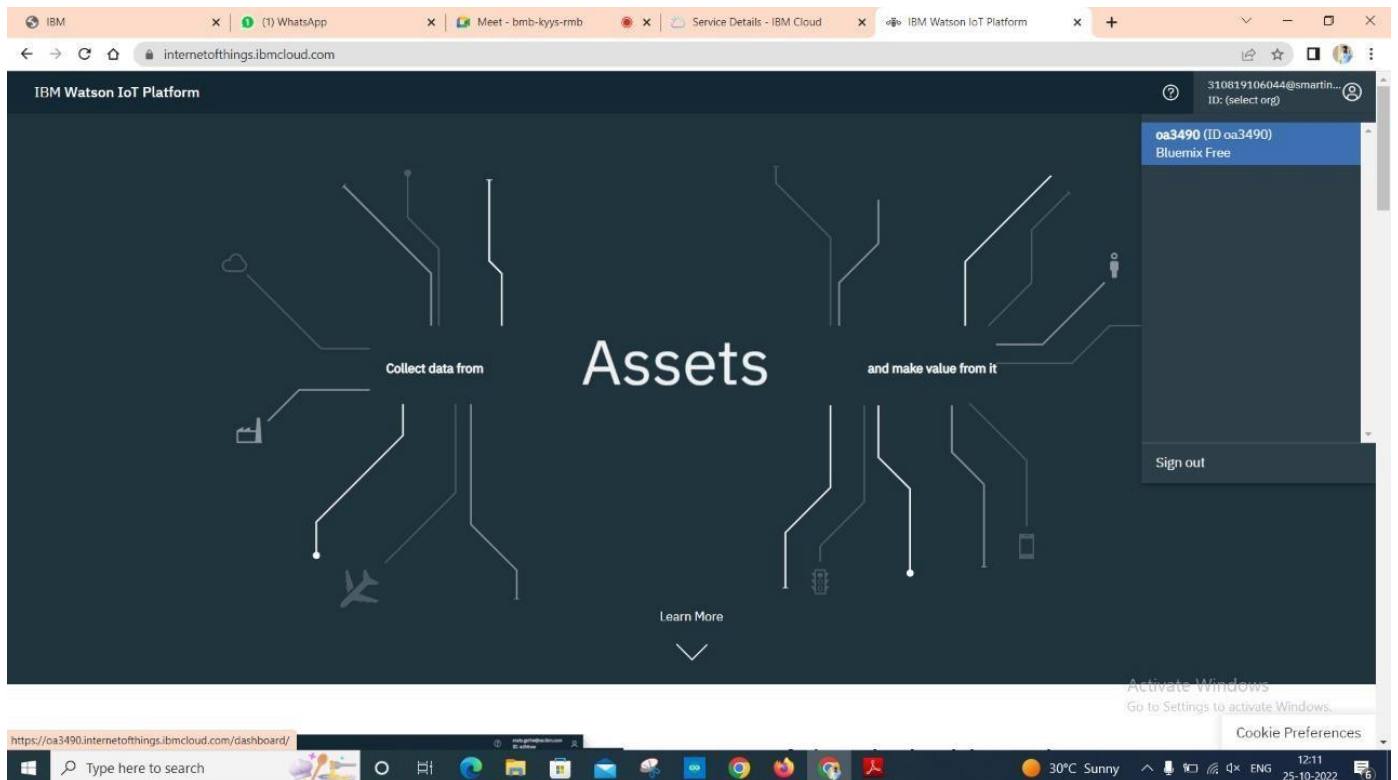
Step 11: Fill the login details.



Step 12: Sign in on progress.



Step 13: Once it is logged in, the name will be displayed click on it and then click on Bluemix Free.



Step 14: This is the IBM Watson platform.

IBM Watson IoT Platform

310819106044@smartinternz.com
ID: oa3490

Browse Action Device Types Interfaces

Browse Devices

All Devices Diagnose

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

Search by Device ID

Device Simulator

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
> <input type="checkbox"/>	12345	Disconnected	TestDeviceType	Device	Oct 23, 2022 1:42 PM	

Items per page 50 | 1-1 of 1 item

1 of 1 page

1 Simulation running

Activate Windows
Go to Settings to activate Windows.

Step 15: Click on Add Device.

IBM Watson IoT Platform

310819106044@smartinternz.com
ID: oa3490

Browse Action Device Types Interfaces

Browse Devices

All Devices Diagnose

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different criteria. To get started, you can add devices by using the Add Device button, or by using API.

Search by Device ID

Device Simulator

<input type="checkbox"/>	Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
> <input type="checkbox"/>	12345	Disconnected	TestDeviceType	Device	Oct 23, 2022 1:42 PM	

Items per page 50 | 1-1 of 1 item

1 of 1 page

1 Simulation running

Activate Windows
Go to Settings to activate Windows.

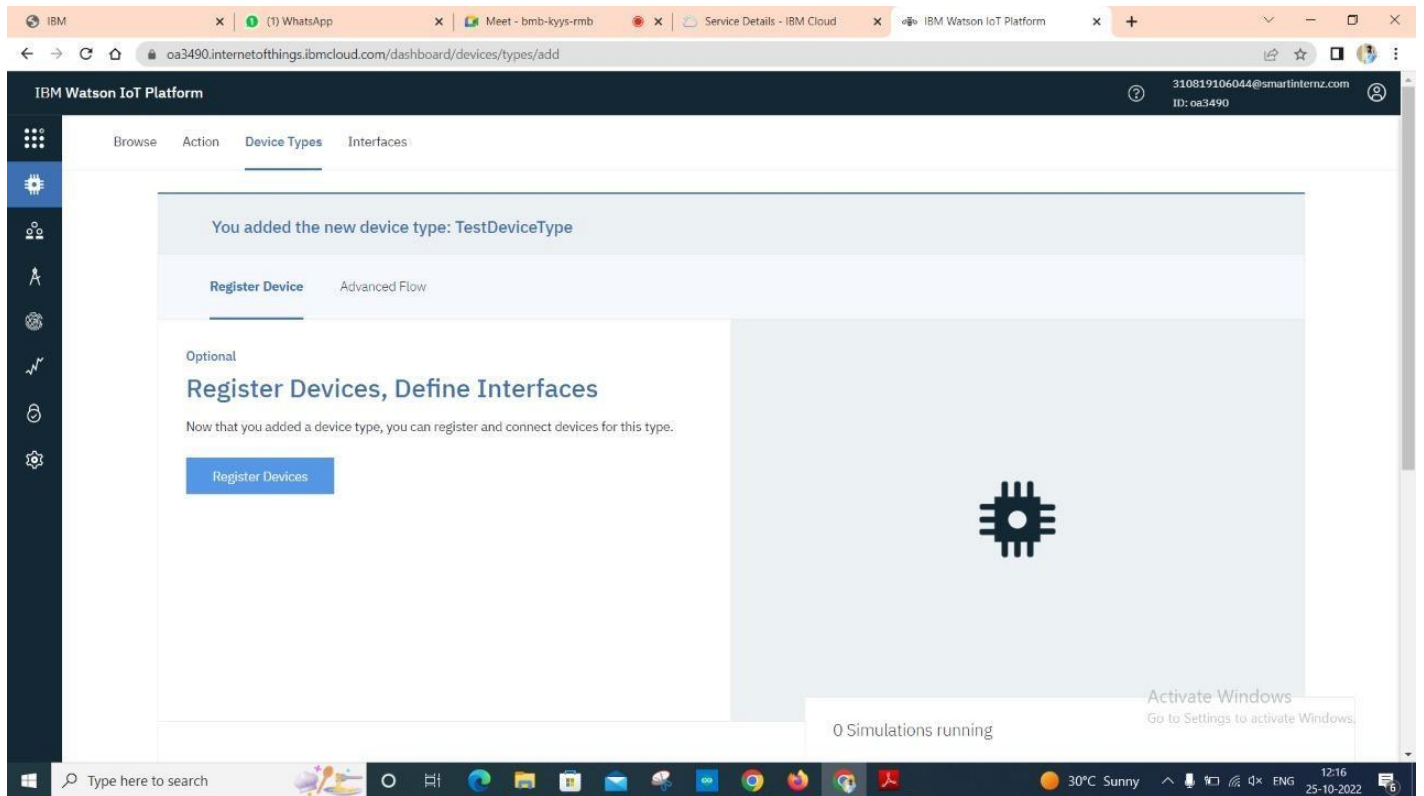
Step 16: Click on Device Type.

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The 'Add Device' wizard is open, showing a progress bar with four steps: Identity, Device Information, Security, and Summary. The 'Identity' step is active. Below the progress bar, there is a text prompt: 'Select a device type for the device that you are adding and give the device a unique ID.' There are two input fields: 'Device Type' with a placeholder 'Select or create a device type...' and 'Device ID' with a placeholder 'Enter Device ID'. At the bottom right of the wizard, there are 'Cancel' and 'Next' buttons. Below the wizard, the 'Browse Devices' section is visible, showing 'All Devices' and 'Diagnose' buttons. The bottom status bar indicates '0 Simulations running' and 'Activate Windows'.

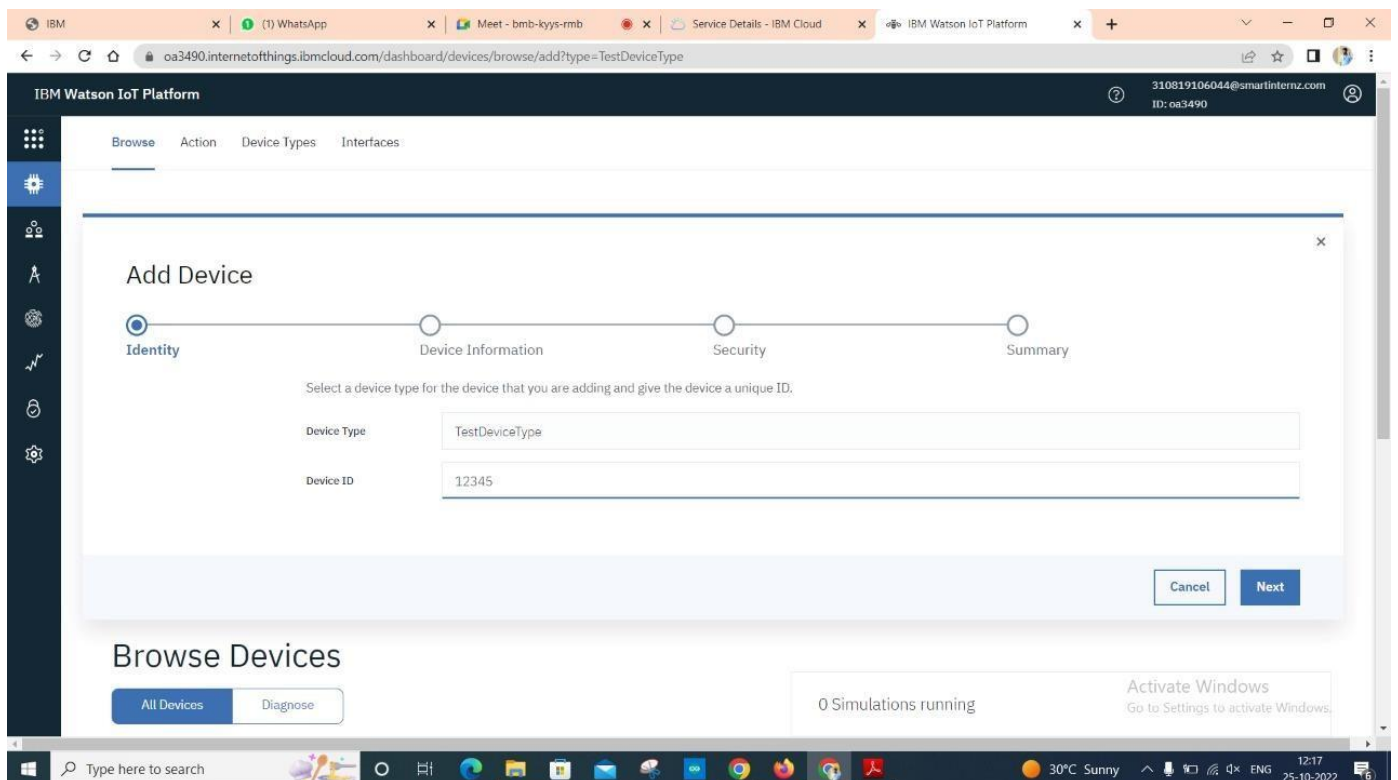
Step 17: Fill the details.

The screenshot shows the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The 'Add Type' wizard is open, showing a progress bar with two steps: Identity and Device Information. The 'Identity' step is active. Below the progress bar, there is a text prompt: 'Device types group devices that have similar characteristics, such as model number, firmware version, or location. Give the device type a unique name and a description that identifies characteristics that are shared by devices of this type.' There are three input fields: 'Type' with a dropdown menu showing 'Device' and 'Gateway', 'Name' with a text input 'TestDeviceType', and 'Description' with a text input. At the bottom right of the wizard, there are 'Cancel' and 'Next' buttons. Below the wizard, the 'Device Types' section is visible, showing '0 Simulations running' and 'Activate Windows'.

Step 18: Click on Register Devices.



Step 19: Give the device name which you have created and give Device ID.



Step 20: After giving all the data, Click on Finish.

IBM Watson IoT Platform

310819106044@smartinternz.com
ID: oa3490

Browse Action Device Types Interfaces

Identity Device Information Security Summary

Verify that the following information is correct then select Finish

Device Type
TestDeviceType

Device ID
12345

View Metadata

Security Token
To be generated

Back Finish

Browse Devices

All Devices Diagnose

0 Simulations running

Activate Windows
Go to Settings to activate Windows.

Type here to search

30°C Sunny

12:17
25-10-2022

Step 21: After creating the device, Copy the Device Credentials.

IBM Watson IoT Platform

310819106044@smartinternz.com
ID: oa3490

← Back

Device Drilldown - 12345

Device Credentials

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Device Credentials

You registered your device to the organization. Add these credentials to the device to connect it to the platform. After the device is connected, you can navigate to view connection and event details.

Organization ID
oa3490

Device Type
TestDeviceType

Device ID
12345

Authentication Method
use-token-auth

Authentication Token
qvUymv*BGwD&jLz9C3

⚠ Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token.

Find out how to add these credentials to your device

Connection Information

0 Simulations running

Activate Windows
Go to Settings to activate Windows.

Type here to search

30°C Sunny

12:17
25-10-2022

Step 22: Go to Setting, click on Data and Devices.

The screenshot shows the IBM Watson IoT Platform Settings page. The left sidebar contains a navigation menu with the following items: Boards, Devices, Members, Apps, Access Management, Usage, Security, and Settings (which is highlighted). The main content area is titled 'Settings' and includes a description: 'Here you can see and modify global organization information and locally enable experimental Watson IoT Platform features.' Below this, there are three sections: 'About' (showing Date Created: 10/23/2022, Organization Type: Bluemix Free, and Geographic Location: eu-de), 'Identity' (showing Organization ID: oa3490 and a Friendly Name input field), and 'Experimental Features' (showing 0 Simulations running). The Windows taskbar at the bottom shows the date as 25-10-2022 and the time as 12:18.

Step 23: Then click on Device Simulator and Activate Device Simulator.

The screenshot shows the IBM Watson IoT Platform General Settings page. The left sidebar is expanded to show the 'DATA AND DEVICES' section, which includes 'Device Simulator' (highlighted), 'Custom Device Management Packages', and 'SECURITY' (which includes 'Connection Security', 'CA Certificates', 'Messaging Server Certificates', and 'Group Access beta'). The main content area is titled 'General Settings' and includes a description: 'Here you can see and modify global organization information and locally enable experimental Watson IoT Platform features.' Below this, there are three sections: 'Device Simulator' (with a toggle switch for 'Activate Device Simulator' that is turned on), 'Connection Security' (with a button to 'Open Connection Security Policy'), and 'CA Certificates' (with a button to 'Add Certificate'). The Windows taskbar at the bottom shows the date as 25-10-2022 and the time as 12:18.

Step 24: Click on the pop-up screen on the right side.

IBM Watson IoT Platform

General Settings

Here you can see and modify global organization information and locally enable experimental Watson IoT Platform features.

Experimental Features

- Last Event Cache
- Client Connection State API

DATA AND DEVICES

Custom Device Management Packages

Device Simulator

Simulate devices and device data to get up and running quickly on Watson IoT Platform. For more details see the [documentation](#).

Activate Device Simulator ☒

Connection Security

You can use the Connection Security Policy to configure the security level for device connection.

Open Connection Security Policy

0 Simulations running

Activate Windows

Go to Settings to activate Windows.

Step 25: Click on Create Simulation.

IBM Watson IoT Platform

General Settings

Here you can see and modify global organization information and locally enable experimental Watson IoT Platform features.

Experimental Features

- Last Event Cache
- Client Connection State API

DATA AND DEVICES

Custom Device Management Packages

Device Simulator

Simulate devices and device data to get up and running quickly on Watson IoT Platform.

Activate Device Simulator ☒

Connection Security

You can use the Connection Security Policy to configure the security level for device connection.

Open Connection Security Policy

Simulations

[Import/Export simulation](#)

You can use the simulated event data to learn about, test, and demonstrate fully functioning Watson IoT Platform features. You can simulate a device and its data or simulate only data for a device that is already registered.

To create a device simulation:

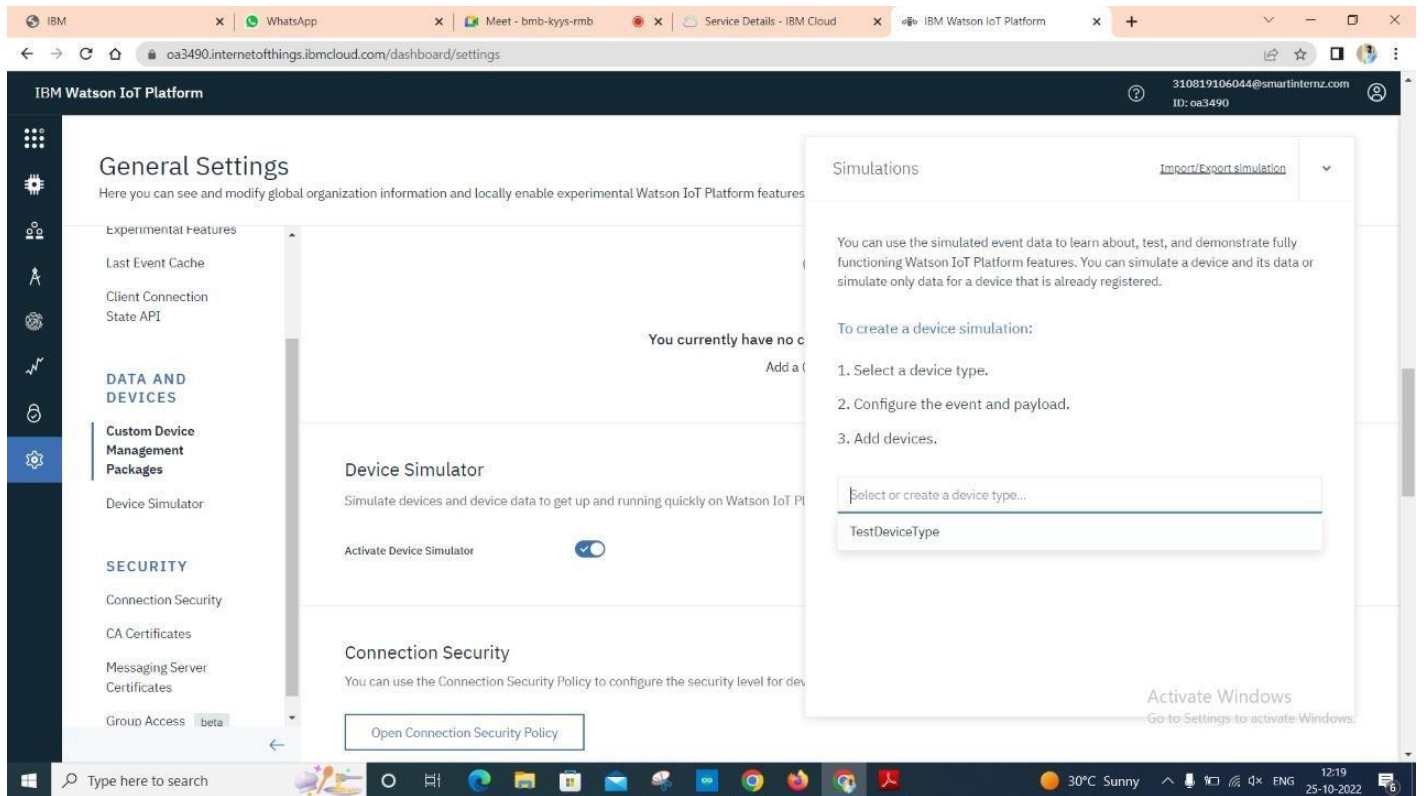
1. Select a device type.
2. Configure the event and payload.
3. Add devices.

[+ Create simulation](#)

Activate Windows

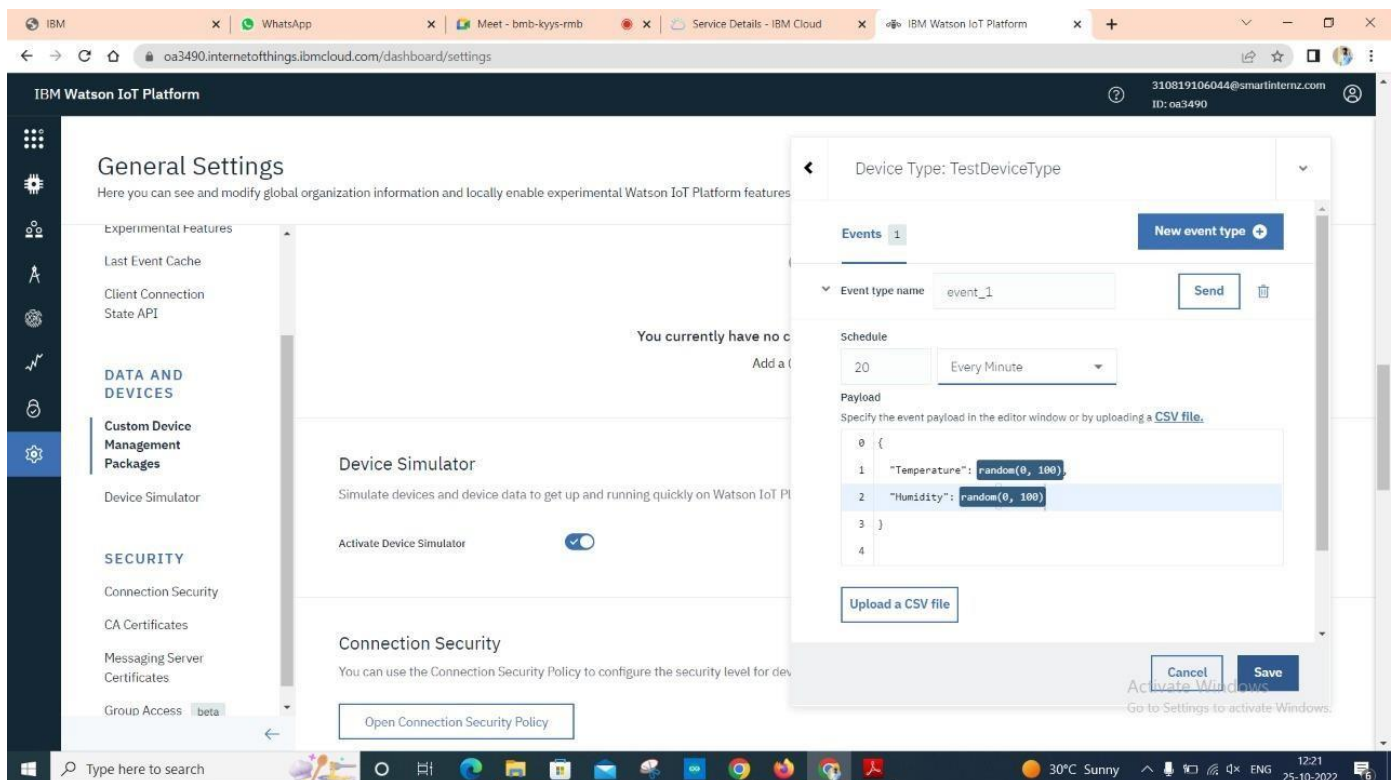
Go to Settings to activate Windows.

Step 26: Choose the Device.



The screenshot shows the IBM Watson IoT Platform dashboard. The left sidebar contains navigation links for General Settings, Experimental Features, Last Event Cache, Client Connection State API, DATA AND DEVICES, Custom Device Management Packages, Device Simulator, SECURITY, Connection Security, CA Certificates, Messaging Server Certificates, and Group Access (beta). The main content area displays the 'General Settings' page, which includes sections for 'Device Simulator' and 'Connection Security'. The 'Device Simulator' section has a toggle switch labeled 'Activate Device Simulator' which is turned on. A modal window titled 'Simulations' is open, showing instructions on how to create a device simulation. The modal includes a list of steps: 1. Select a device type, 2. Configure the event and payload, and 3. Add devices. Below the steps is a dropdown menu labeled 'Select or create a device type...' with 'TestDeviceType' selected. The modal also has a 'Cancel' button and a 'Save' button.

Step 27: Type the code.



The screenshot shows the IBM Watson IoT Platform dashboard. The left sidebar contains navigation links for General Settings, Experimental Features, Last Event Cache, Client Connection State API, DATA AND DEVICES, Custom Device Management Packages, Device Simulator, SECURITY, Connection Security, CA Certificates, Messaging Server Certificates, and Group Access (beta). The main content area displays the 'General Settings' page, which includes sections for 'Device Simulator' and 'Connection Security'. The 'Device Simulator' section has a toggle switch labeled 'Activate Device Simulator' which is turned on. A modal window titled 'Device Type: TestDeviceType' is open, showing the 'Events' section. The modal includes a 'New event type' button and a list of events. The first event, 'event_1', is selected. The 'Schedule' section shows a frequency of '20' and 'Every Minute'. The 'Payload' section shows a JSON object with 'Temperature' and 'Humidity' fields, both set to 'random(0, 100)'. The modal also has a 'Cancel' button and a 'Save' button.

Step 28: Click on Use Registered Device and choose the device and run it.

The screenshot shows the IBM Watson IoT Platform 'General Settings' page. The left sidebar contains navigation links for 'Experimental Features', 'Last Event Cache', 'Client Connection State API', 'DATA AND DEVICES', 'Custom Device Management Packages', 'Device Simulator', 'SECURITY', 'Connection Security', 'CA Certificates', 'Messaging Server Certificates', and 'Group Access | beta'. The main content area is titled 'General Settings' and includes sections for 'Device Simulator' and 'Connection Security'. A 'Simulations' panel is open on the right, displaying '1/50 Simulations Running' and a table with one device, '12345'. Below the table are buttons for 'Create Simulated Device' and 'Use Registered Device'. The 'Use Registered Device' button is highlighted. At the bottom of the panel, it says '41 events sent' and 'Activate Windows'.

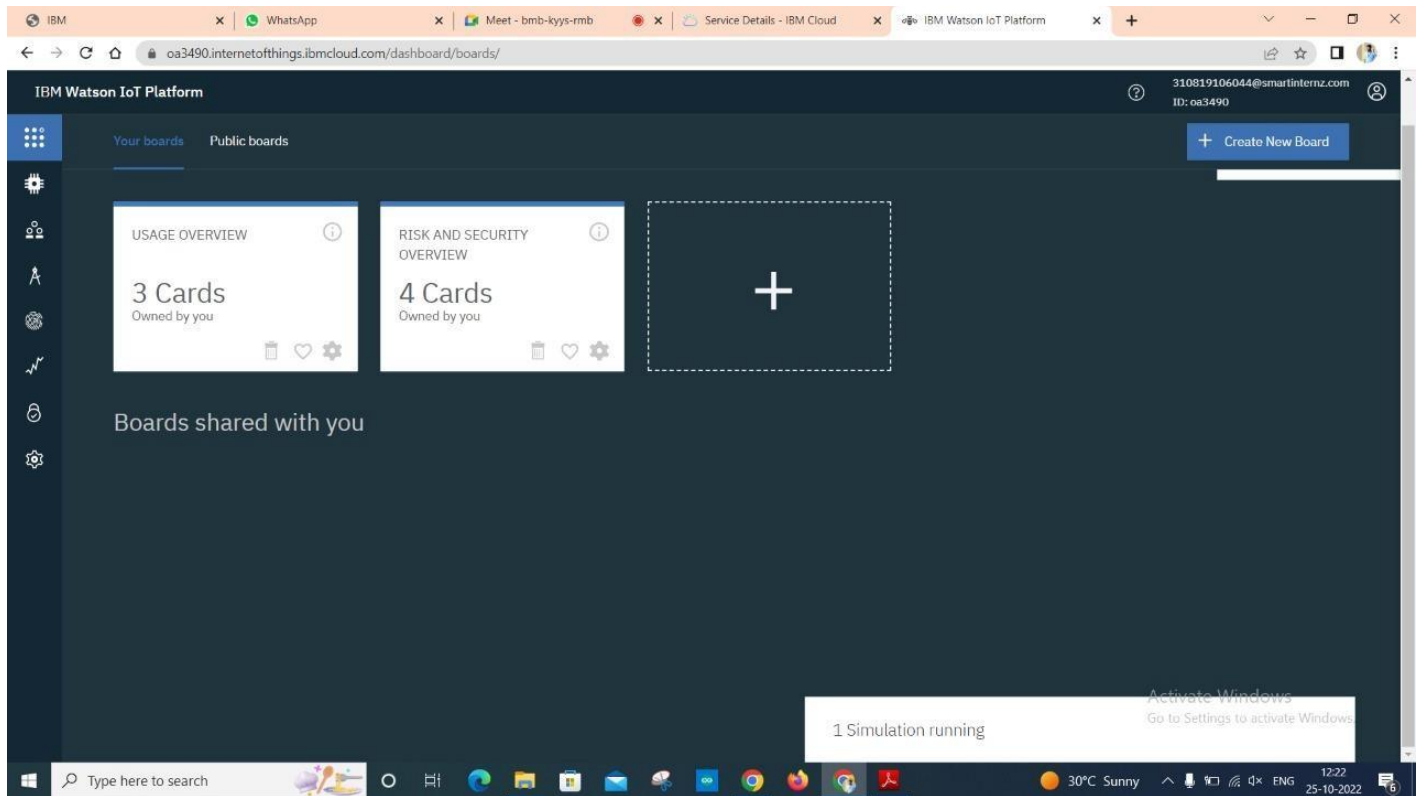
Step 29: Go to devices then click on devices and check the recent events whether the code is running or not.

The screenshot shows the IBM Watson IoT Platform 'Browse' page for devices. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. The main content area displays a table of devices. The first device, '12345', is selected, and the 'Recent Events' tab is active. The table shows the following events:

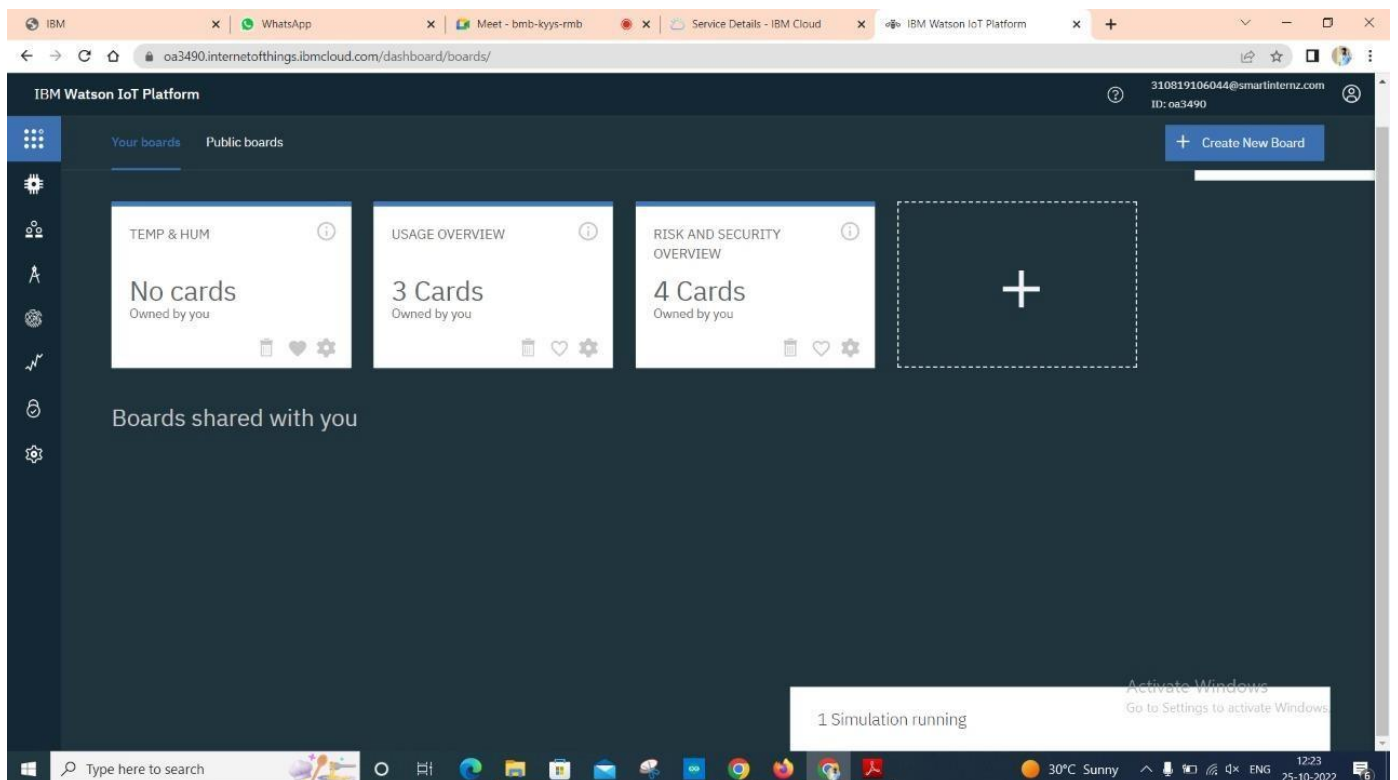
Event	Value	Format	Last Received
event_1	{"Temperature":42,"Humidity":88}	json	a few seconds ago
event_1	{"Temperature":71,"Humidity":36}	json	a few seconds ago
event_1	{"Temperature":3,"Humidity":53}	json	a few seconds ago

At the bottom of the page, it says 'Items per page 50 | 1-1 of 1 item' and '1 of 1 page'. A '1 Simulation running' notification is visible at the bottom right.

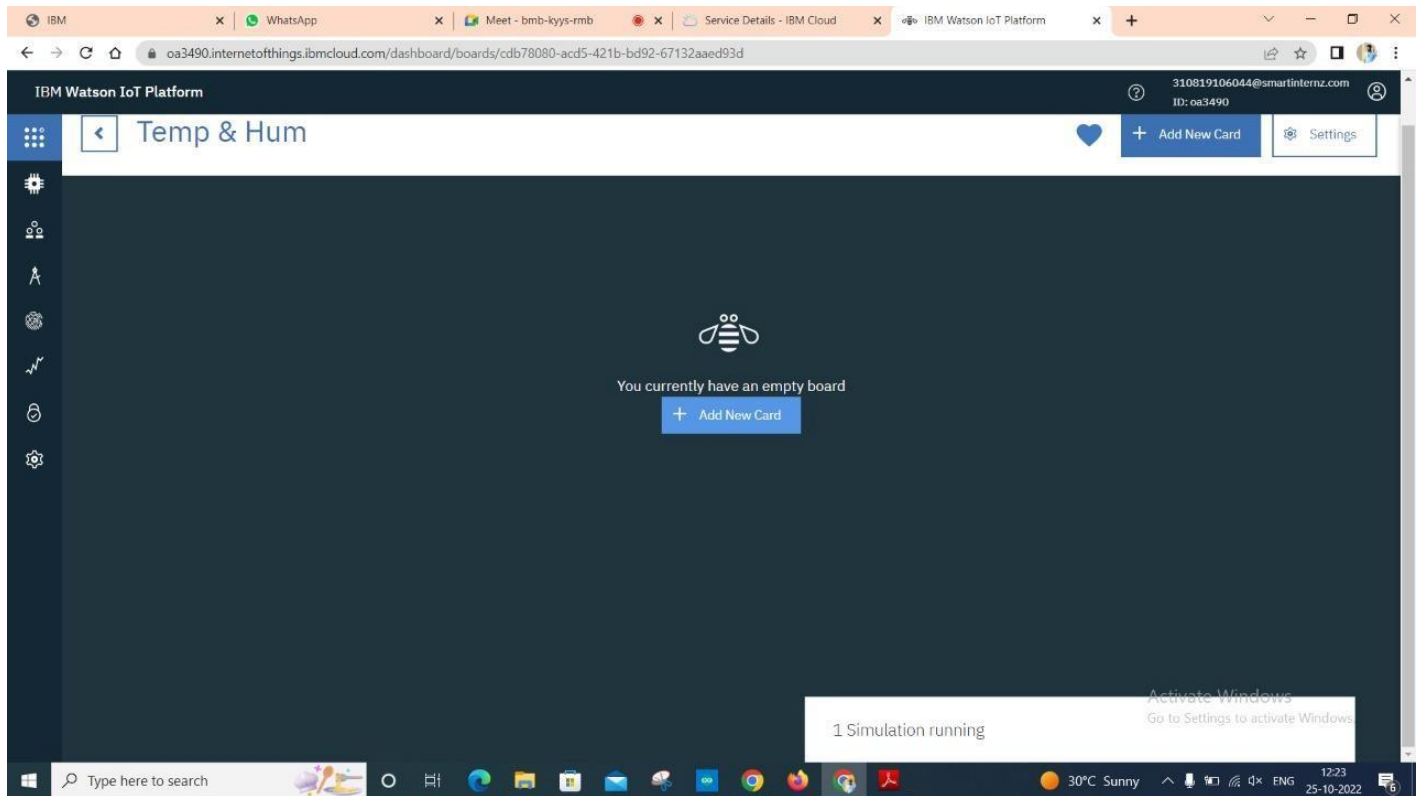
Step 30: Go to Board and click on + Create New Board, fill the details and create a board.



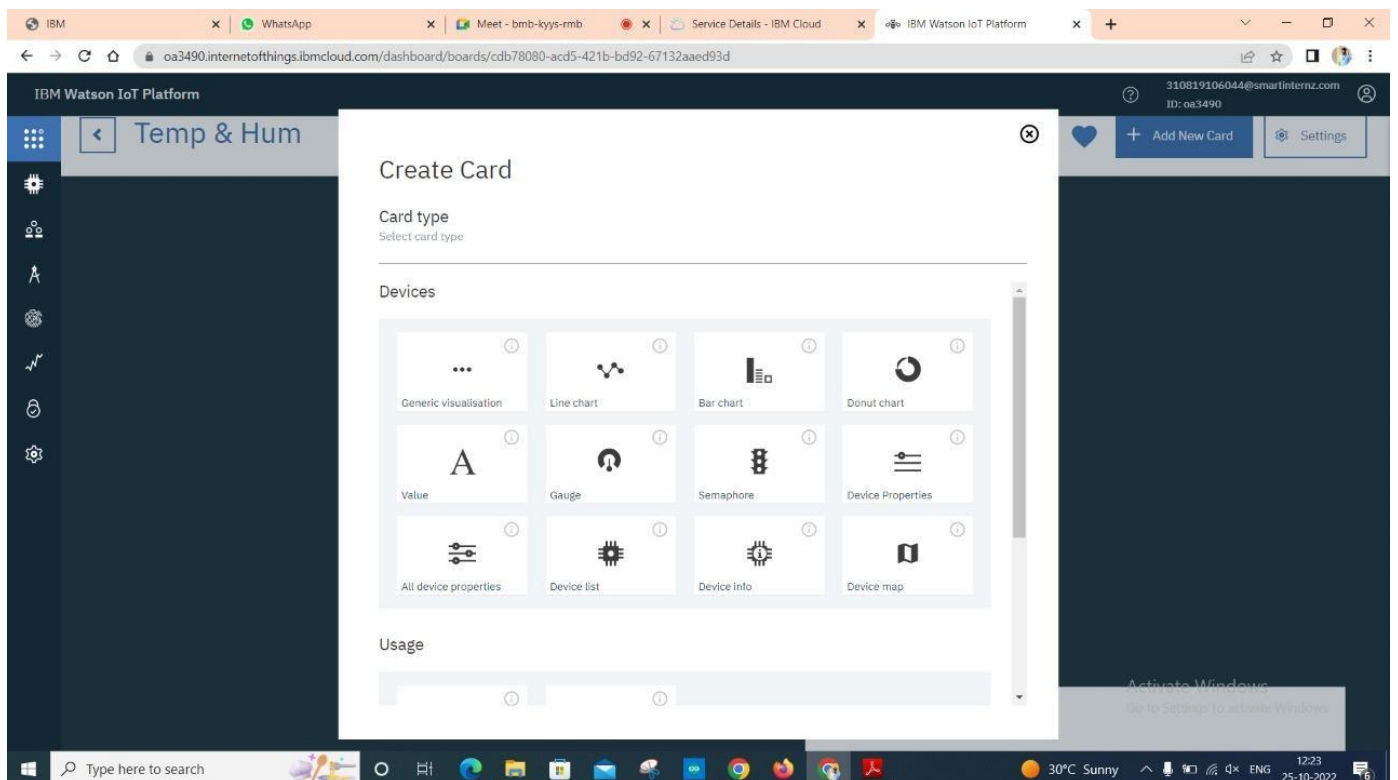
Step 31: Click on the board which is created.



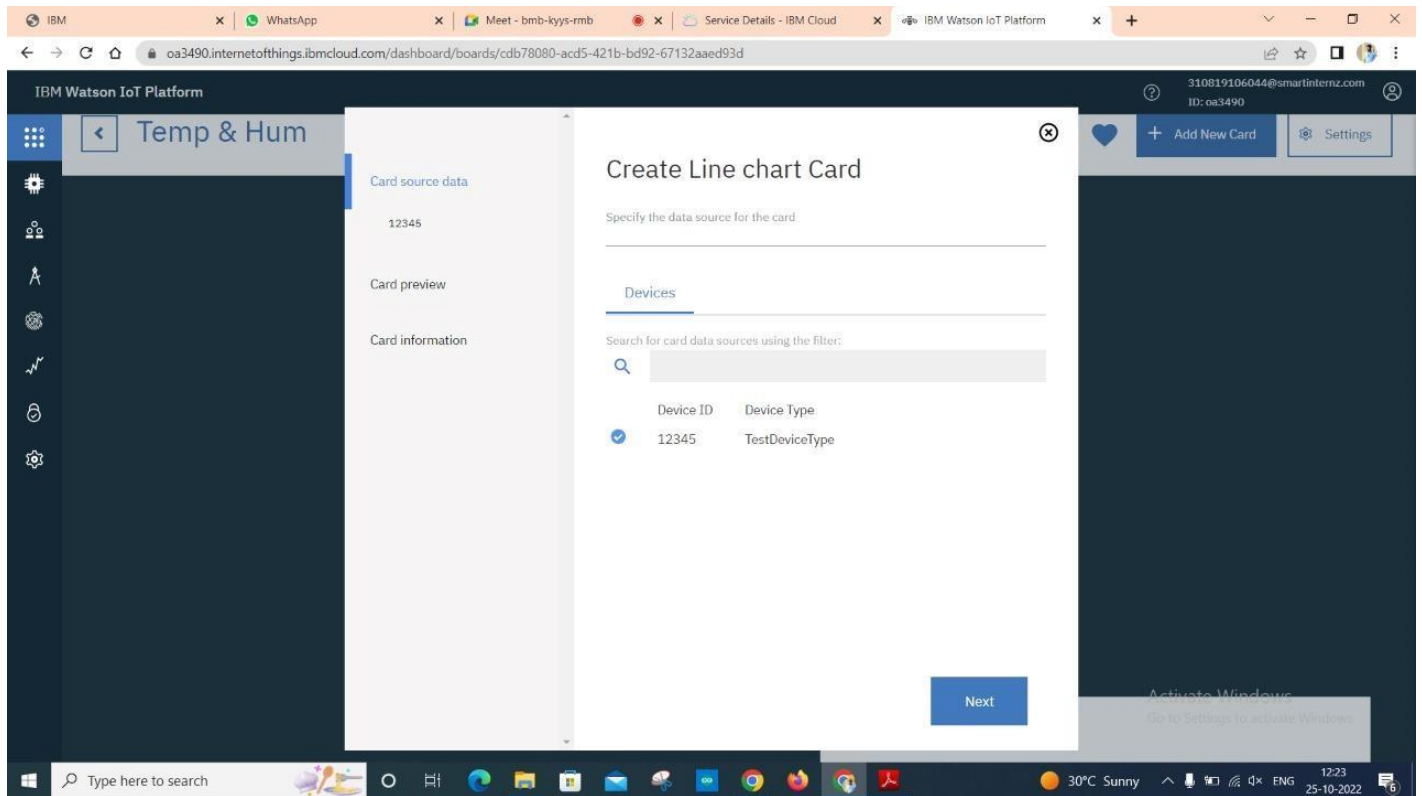
Step 32: Go Add New Card.



Step 33: Choose the Card Type.



Step 34: Choose the device.

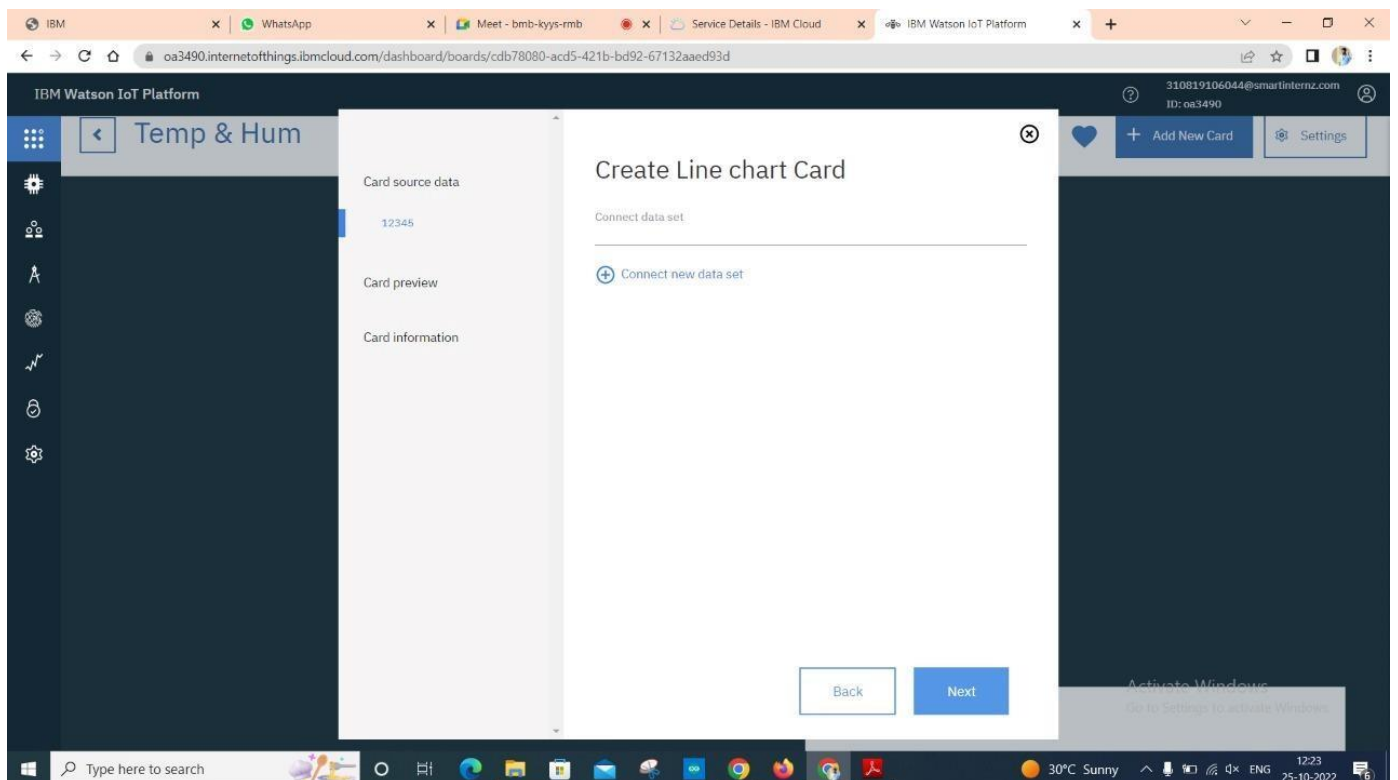


The screenshot shows the IBM Watson IoT Platform interface. A modal window titled "Create Line chart Card" is open, displaying the "Devices" tab. The left sidebar shows the "Temp & Hum" board. The modal window has a "Card source data" section with "12345" selected, and a "Card preview" and "Card information" section. The "Devices" tab shows a search bar and a table of available devices.

Device ID	Device Type
12345	TestDeviceType

The "Next" button is visible at the bottom right of the modal window.

Step 35: Click on Connect new data set.



The screenshot shows the IBM Watson IoT Platform interface. A modal window titled "Create Line chart Card" is open, displaying the "Connect data set" section. The left sidebar shows the "Temp & Hum" board. The modal window has a "Card source data" section with "12345" selected, and a "Card preview" and "Card information" section. The "Connect data set" section shows a "Connect new data set" button. The "Back" and "Next" buttons are visible at the bottom of the modal window.

Step 36: Fill the details to get Temperature graph.

The screenshot shows the 'Create Line chart Card' form in the IBM Watson IoT Platform. The form is titled 'Create Line chart Card' and has a 'Connect data set' section. The 'Event' field is set to 'event_1', the 'Property' field is set to 'Temperature', and the 'Name' field is set to 'Temperature'. The 'Type' dropdown is set to 'Number', and the 'Unit' dropdown is set to 'Max'. The 'Max' value is set to '100'. The form has 'Back' and 'Next' buttons. The background shows a dashboard with a 'Temp & Hum' card and a sidebar with various icons. The top bar shows the user's email '310819106044@smartinternz.com' and ID 'ID: oa3490'.

IBM Watson IoT Platform

Temp & Hum

Card source data

12345

Card preview

Card information

Create Line chart Card

Connect data set

Temperature

Event

event_1

Property

Temperature

Name

Temperature

Type

Number

Unit

Max

100

Back

Next

Step 37: Choose the Colour.

The screenshot shows the 'Create Line chart Card' form in the IBM Watson IoT Platform. The form is titled 'Create Line chart Card' and has a 'Enter title and description of the card' section. The 'Title' field is set to 'Line chart'. The 'Color scheme' dropdown is set to 'Line chart'. The form has 'Back' and 'Submit' buttons. The background shows a dashboard with a 'Temp & Hum' card and a sidebar with various icons. The top bar shows the user's email '310819106044@smartinternz.com' and ID 'ID: oa3490'.

IBM Watson IoT Platform

Temp & Hum

Card source data

12345

Card preview

Card information

Create Line chart Card

Enter title and description of the card

Title

Line chart

Color scheme

Line chart

A line chart to display time series information with historic and live data

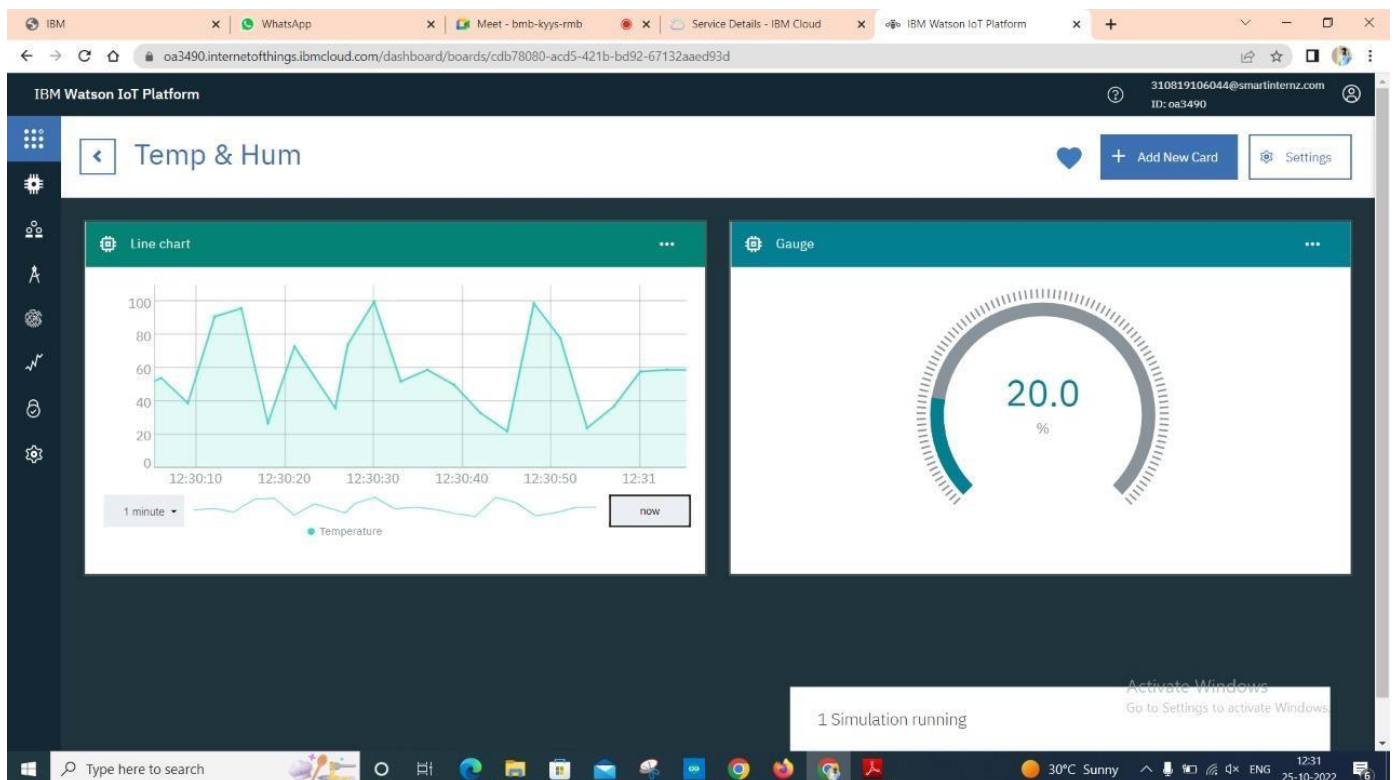
Back

Submit

Step 38: Repeat the same process again to get the Humidity graph.

The screenshot shows the IBM Watson IoT Platform interface. On the left, a sidebar contains icons for various dashboard functions. The main area displays a 'Temp & Hum' dashboard. A modal window titled 'Create Line chart Card' is open, showing options to connect data sets. The 'New data set' section is active, with 'event_1' selected. Below this, there are fields for 'Name' (set to 'New data set'), 'Type' (set to 'Text'), and 'Unit'. At the bottom of the modal are 'Back' and 'Next' buttons. The background shows a Windows taskbar with various application icons and a system tray displaying '30°C Sunny' and the date '25-10-2022'.

Step 39: Here is the Final graph.



Result:

An IBM Watson cloud for IoT and a device is created successfully.