

Department of Computer Science and Engineering

Smart Farmer-IOT Enabled Smart Farming Application

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BUILD A WEB APPLICATION USING NODE-RED SERVICE

TITLE	Smart Farmer-IOT Enabled Smart Farming Application
DOMAIN NAME	INTERNET OF THINGS
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BUILD A WEB APPLICATION USING NODE-RED SERVICE

STEP 1

The screenshot shows a web browser window displaying the IBM Watson IoT Platform. The URL in the address bar is `ck2tf0.internetofthings.ibmcloud.com/dashboard/devices/drilldown/NodeMCU1234?returnTo=/devices/browse`. The page title is "Device Drilldown - 1234". On the left, there is a sidebar with icons for Back, Device Credentials, Connection Information, Recent Events, State, Device Information, Metadata, Diagnostics, Connection Logs, and Device Actions. The main content area shows "Device Credentials" for a NodeMCU device with ID 1234, using "use-token-auth" authentication method and token 87654321. A warning message states: "⚠ Authentication tokens are non-recoverable. If you misplace this token, you will need to re-register the device to generate a new authentication token." Below this is a "Connection Information" section with Device ID 1234 and Device Type NodeMCU. The bottom of the screen shows a taskbar with several open files and system status indicators.

STEP 2:

The screenshot shows the IBM Watson IoT Platform dashboard. In the top navigation bar, there are several tabs including 'IBM', 'IBM-E', 'IBM-P', 'IBM-F', 'soil-si', 'soil-sr', 'Smart', 'cloud', 'Service', 'IBM X', 'IBM C', 'IBM A', 'Node', 'node', 'o-pip', 'IBM-P', and a '+' button. The main title is 'IBM Watson IoT Platform' with the sub-title '510419104054@smartinternz.com' and 'ID: ck2tfo'. Below the title, there are four tabs: 'Browse', 'Action', 'Device Types', and 'Interfaces'. On the far right, there is a blue button labeled 'Add Device' with a '+' icon. The central area is titled 'Browse Devices' with two buttons: 'All Devices' (highlighted in blue) and 'Diagnose'. A note below the buttons states: '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.' There is a search bar labeled 'Search by Device ID' and a 'Device Simulator' toggle switch. The main table has columns: 'Device ID', 'Status', 'Device Type', 'Class ID', 'Date Added', and 'Descriptive Location'. Two entries are listed:

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
1234	Disconnected	NodeMCU	Device	10 Nov 2022 11:38	
12345	Disconnected	NodeMCU	Device	6 Nov 2022 16:26	

At the bottom of the table, there are buttons for 'Items per page' (set to 50), a page number indicator '1 of 1 page', and navigation arrows. The bottom of the dashboard features a dark footer bar with various icons and status information, including '82°F Cloudy', 'Show all', and system metrics like 'ENG IN' and '11:40 AM 11/10/2022'.

STEP 3:

This screenshot shows the same IBM Watson IoT Platform dashboard, but the focus is on device ID 12345. The device details are displayed in a modal window. The top part of the modal shows the device's basic information: ID 12345, Status (Disconnected), Device Type (NodeMCU), Class ID (Device), and Date Added (6 Nov 2022 16:26). Below this, there are tabs for 'Identity', 'Device Information', 'Recent Events', 'State', and 'Logs'. The 'Device Information' tab is selected. A note below the tabs says: 'The recent events listed show the live stream of data that is coming and going from this device.' Below this note, there is a table with columns: 'Event', 'Value', 'Format', and 'Last Received'. The table is currently empty. At the bottom of the modal, there is a message 'Waiting for device events...' and a status indicator '0 Simulations running'. The bottom of the dashboard features a dark footer bar with various icons and status information, including '82°F Cloudy', 'Show all', and system metrics like 'ENG IN' and '11:42 AM 11/10/2022'.

STEP 4 :

Device Type: NodeMCU

Event type name: eventflow

Schedule: Every Minute

Payload:

```
0 {  
1   "randomNumber": random(0, 100),  
2   "temp": random(50,110),  
3   "hum": random(60,100)  
4 }  
5
```

Cancel Save

STEP 5 :

Create Line chart Card

Card source data: 12345

Card preview

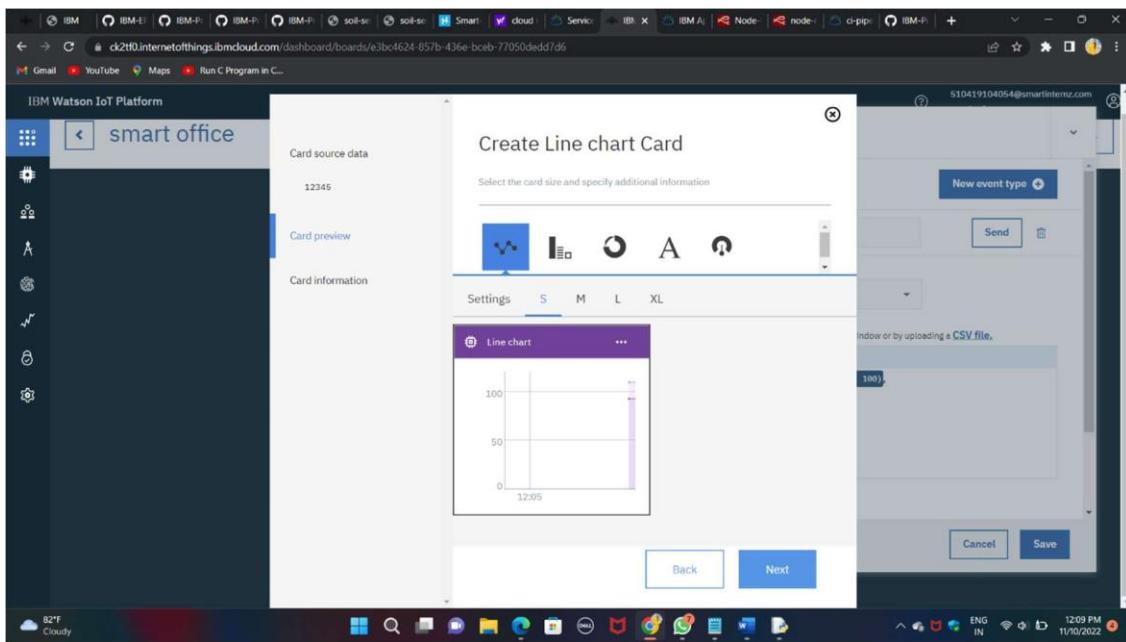
Card information

New event type

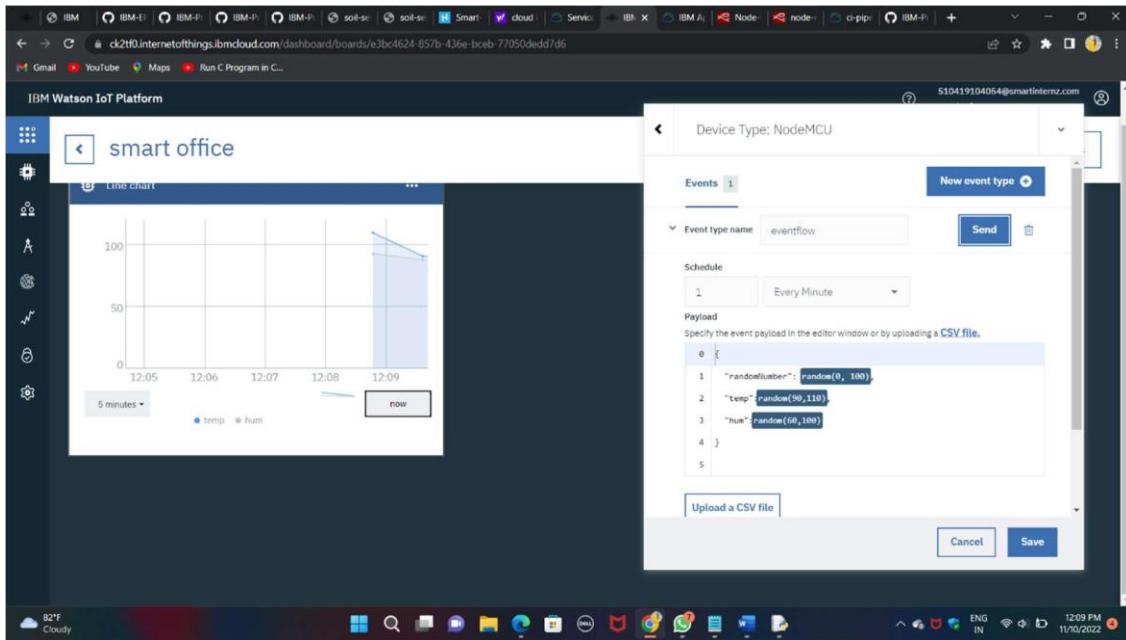
Send

Cancel Save

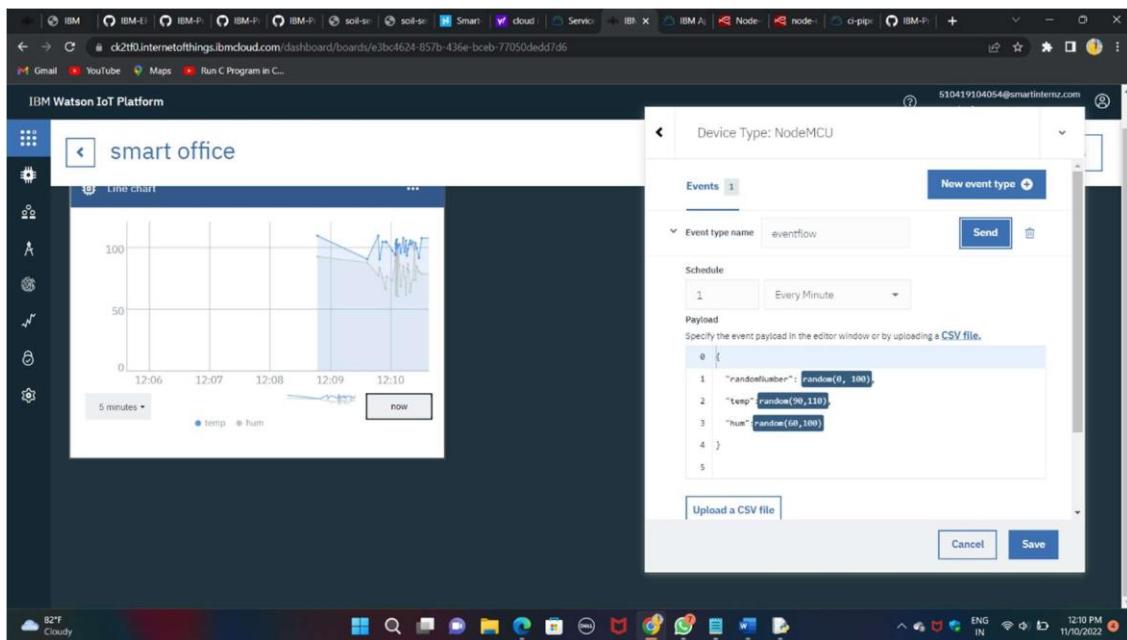
STEP 6 :



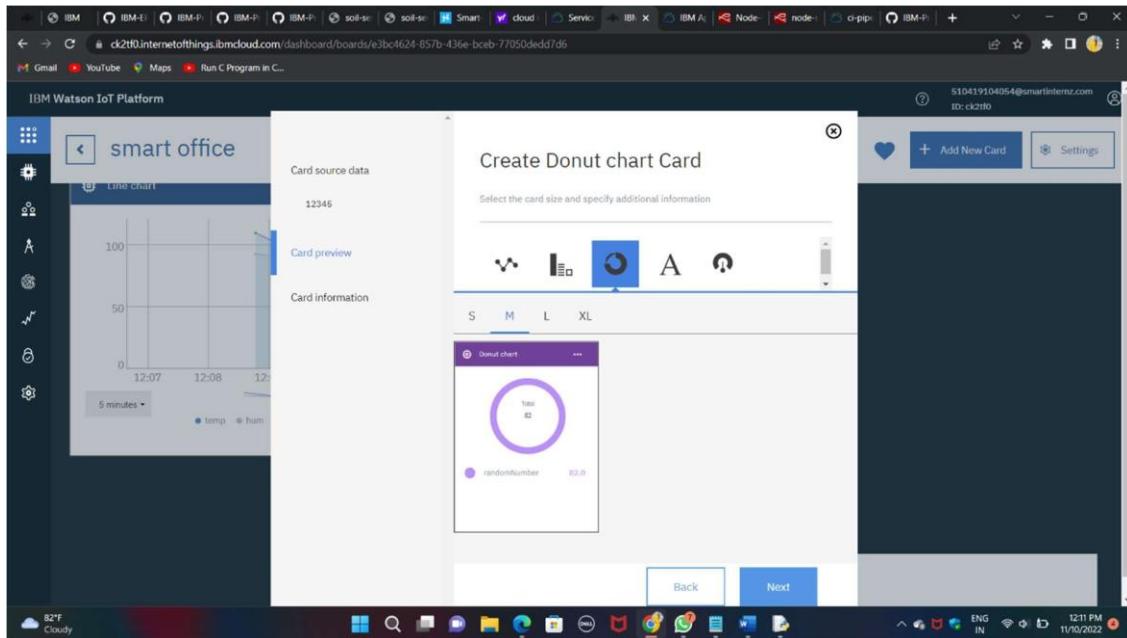
STEP 7 :



STEP 8 :



STEP 9 :



STEP 10 :

The screenshot shows the IBM Watson IoT Platform dashboard for a board named "smart office". On the left, there's a timeline from 12:10 to 12:14 with a "5 minutes" dropdown. Below it is a "Donut chart" showing a total of 6 for "randomNumber". To the right is a "Gauge" showing a value of 10.0. The main panel displays a "Line chart" for "temp" and "hum". In the top right, the "Simulations" section shows "2/50 Simulations Running" and a list for "Device Type NodeMCU" with one entry "NodeMCU_1" and ID "12345". A button for "Create Simulated Device" is also present.

STEP 11 :

The screenshot shows the IBM Watson IoT Platform dashboard for the same "smart office" board. The layout has changed to three separate cards: a "Line chart" on the left, a "Donut chart" in the middle, and a "Gauge" on the right. The "Line chart" shows data for "temp" and "hum" over the last 5 minutes. The "Donut chart" shows a total of 10 for "randomNumber". The "Gauge" shows a value of 10.0. At the bottom of the dashboard, a message says "2 Simulations running".

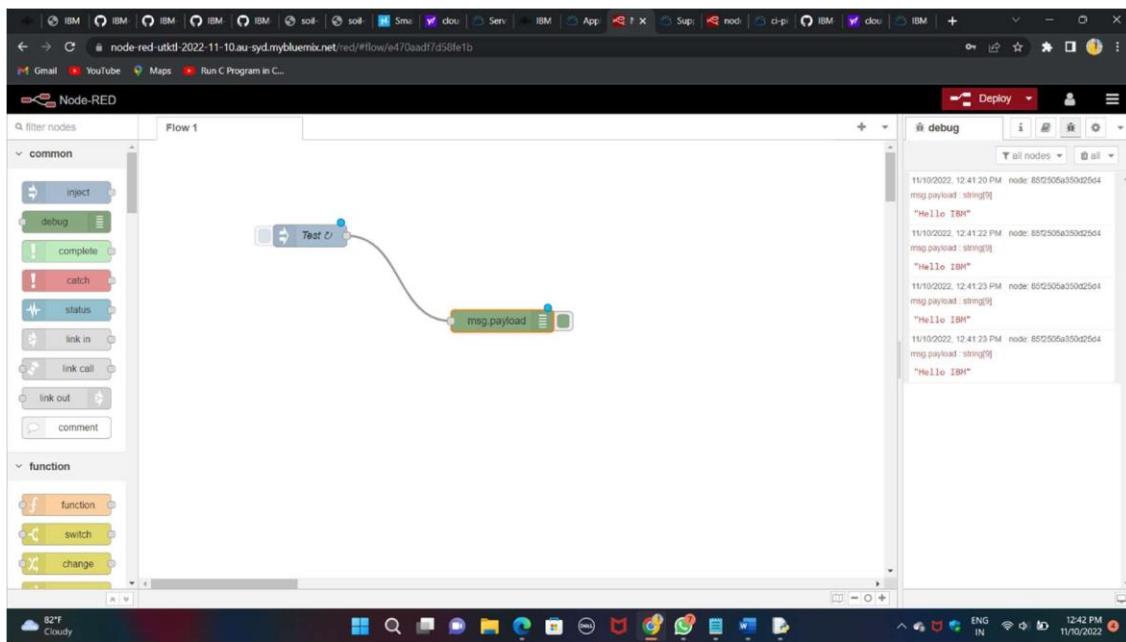
STEP 12 :

The screenshot shows the IBM Cloud Resource list interface. The left sidebar contains a tree view of resources categorized by type: Compute, Containers, Networking, Storage, AI / Machine Learning, Analytics, Blockchain, and Databases. Under Compute, three Node.js instances are listed: 'Node RED NYISA 2022-11-06', 'Node RED QIQUIS 2022-11-08', and 'Node RED UTKL 2022-11-10'. Each instance has a green 'Started' status and is located in Sydney. The main table lists these resources with columns for Name, Group, Location, Product, Status, and Tags. A 'Create resource' button is visible at the top right. The bottom of the screen shows a Windows taskbar with various icons.

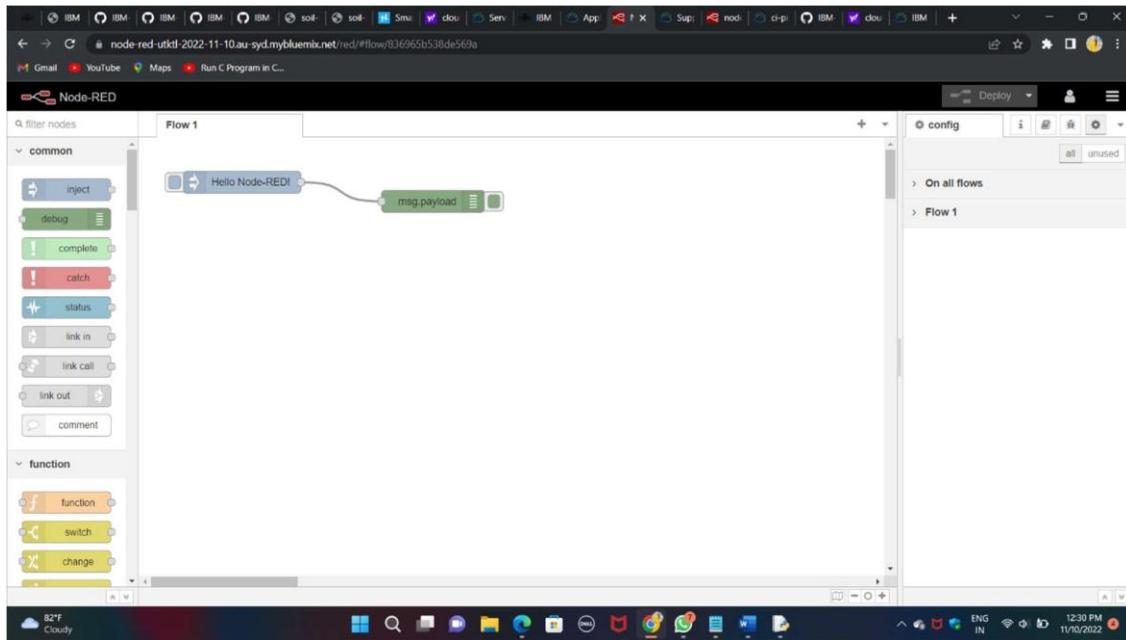
STEP 13 :

The screenshot shows the IBM Cloud App details page for the 'Node RED UTKL 2022-11-10' application. The top navigation bar includes links for Catalog, Manage, and Details. The main content area is divided into several sections: 'Getting started' (Overview tab selected), 'Instances' (Health: 100%, 1/1 instance(s) are running), 'Runtime cost' (\$0.00), and 'Runtime' (Node.js, Total MB allocation: 256, 1.25 GB still available). Other sections include 'Connections' (1 connection listed) and 'Logs'. A message at the top states: 'IBM Cloud Foundry Public is being deprecated. Please see [full details](#).'

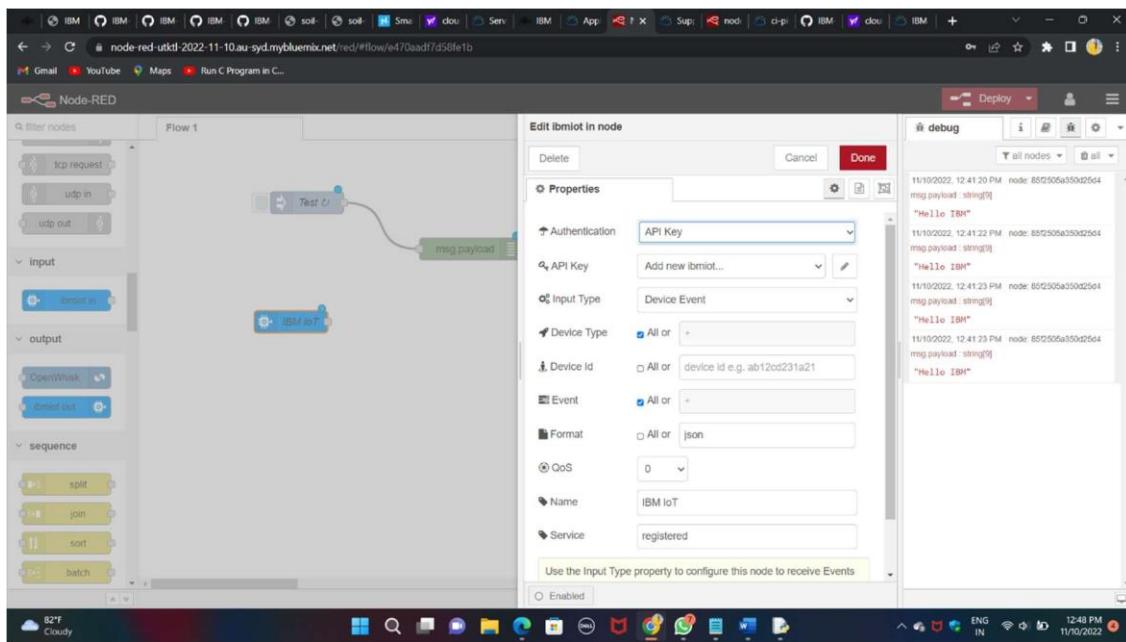
STEP 14 :



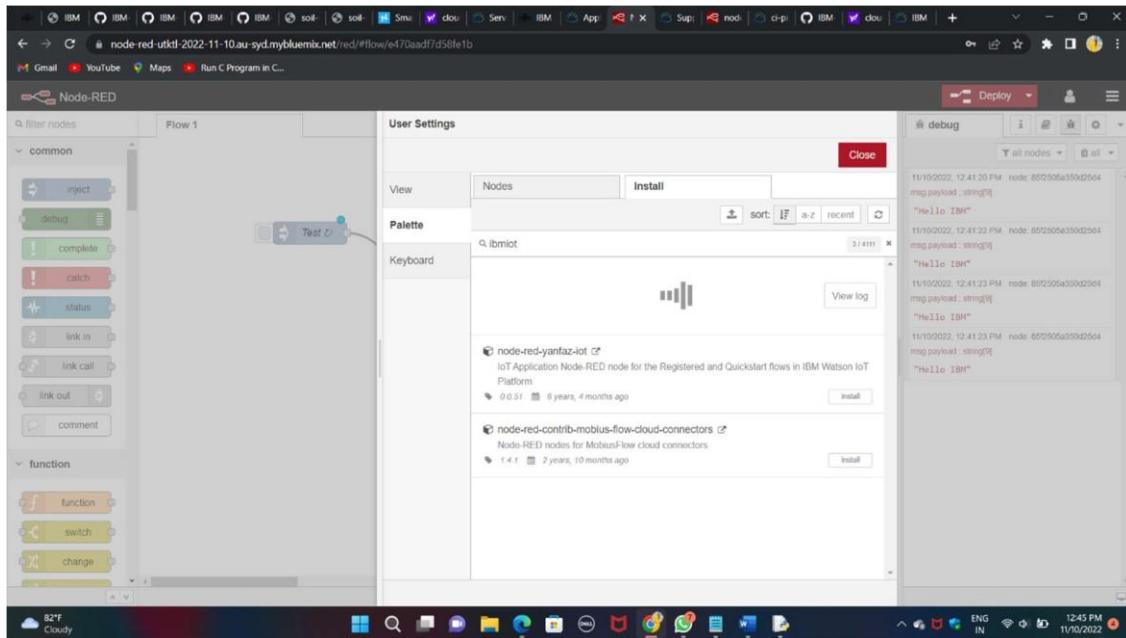
STEP 15 :



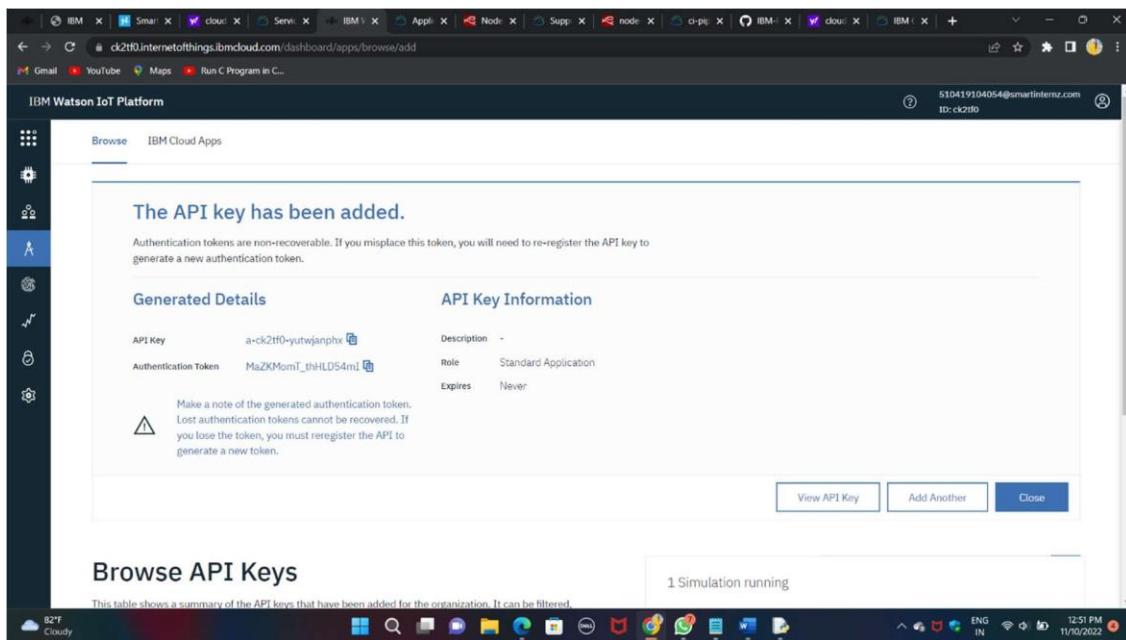
STEP 16 :



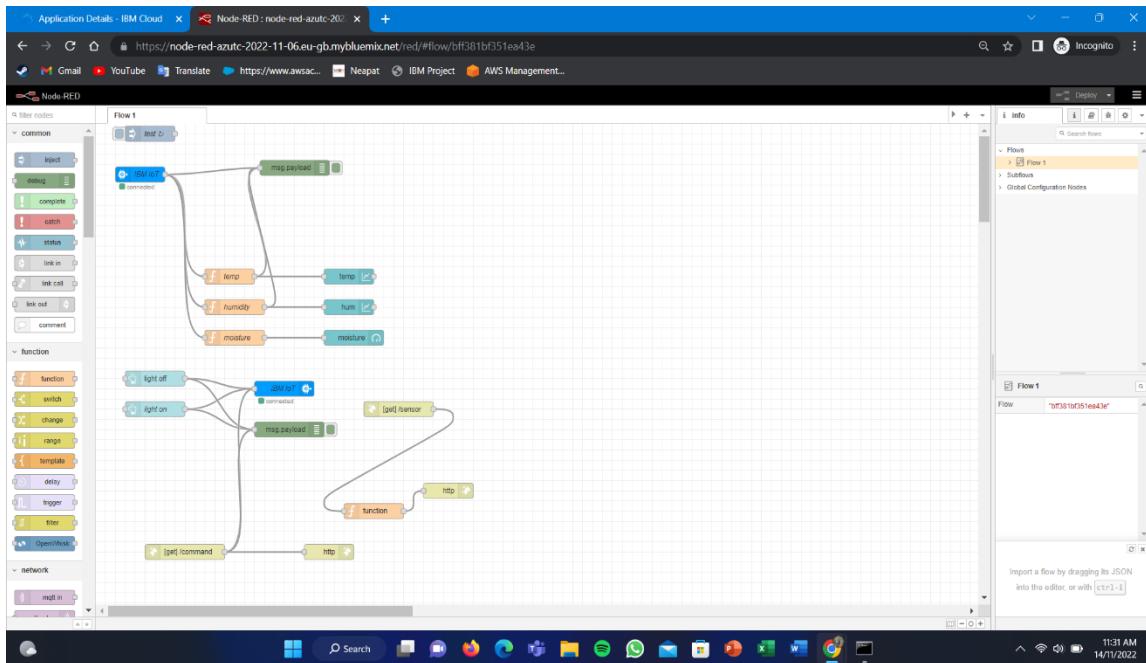
STEP 17 :



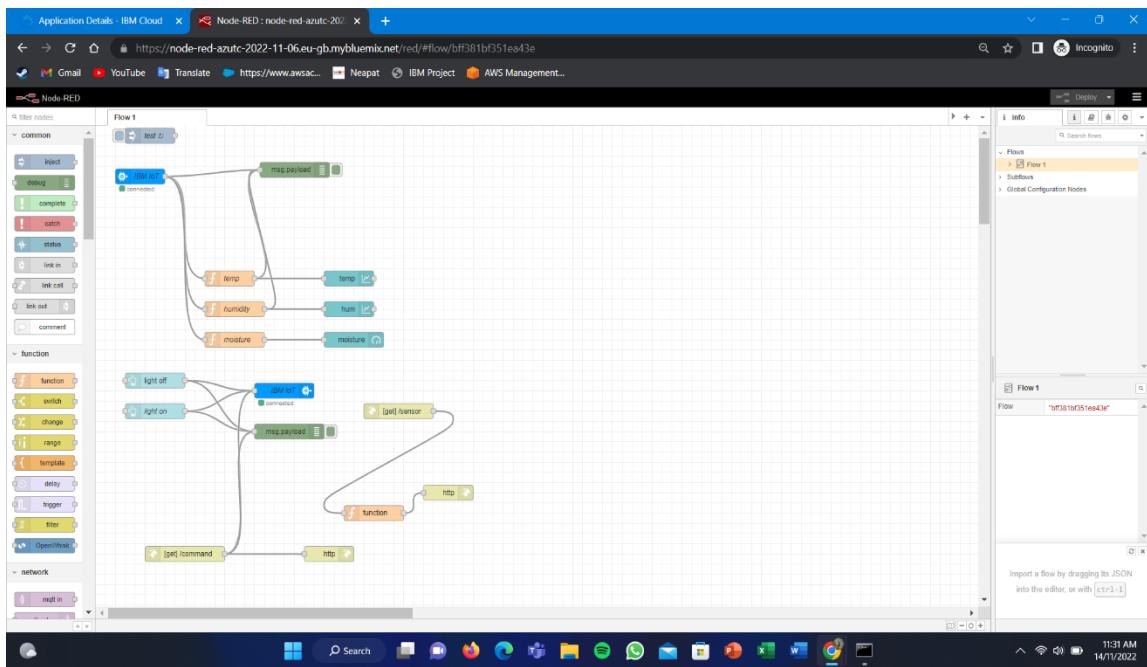
STEP 18 :



STEP 19 :



STEP 20 :



FINALLY, WE BUILD an APPLICATION USING
NODE-RED