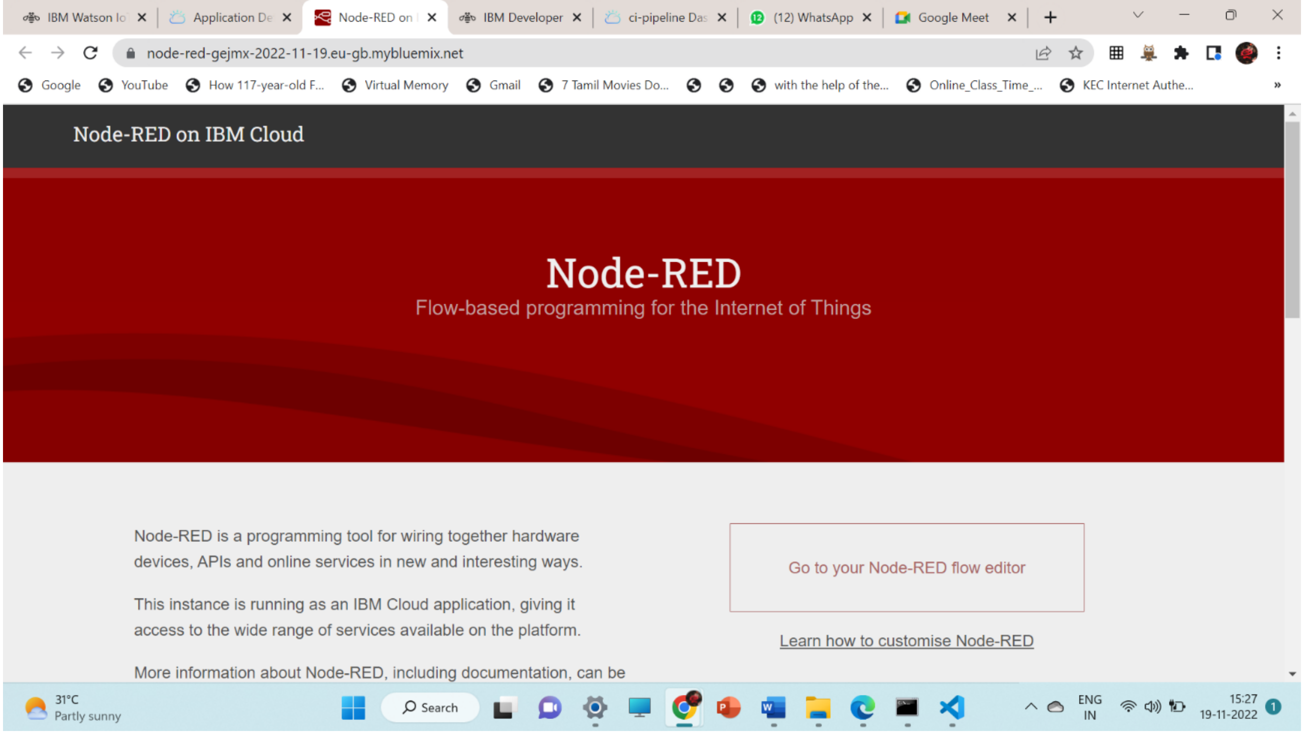
SPRINT 2:

Date	29 October 2022
Team ID	PNT2022TMID04463
Project Name	Project – Smart Farmer-IoT Enabled smart Farming Application

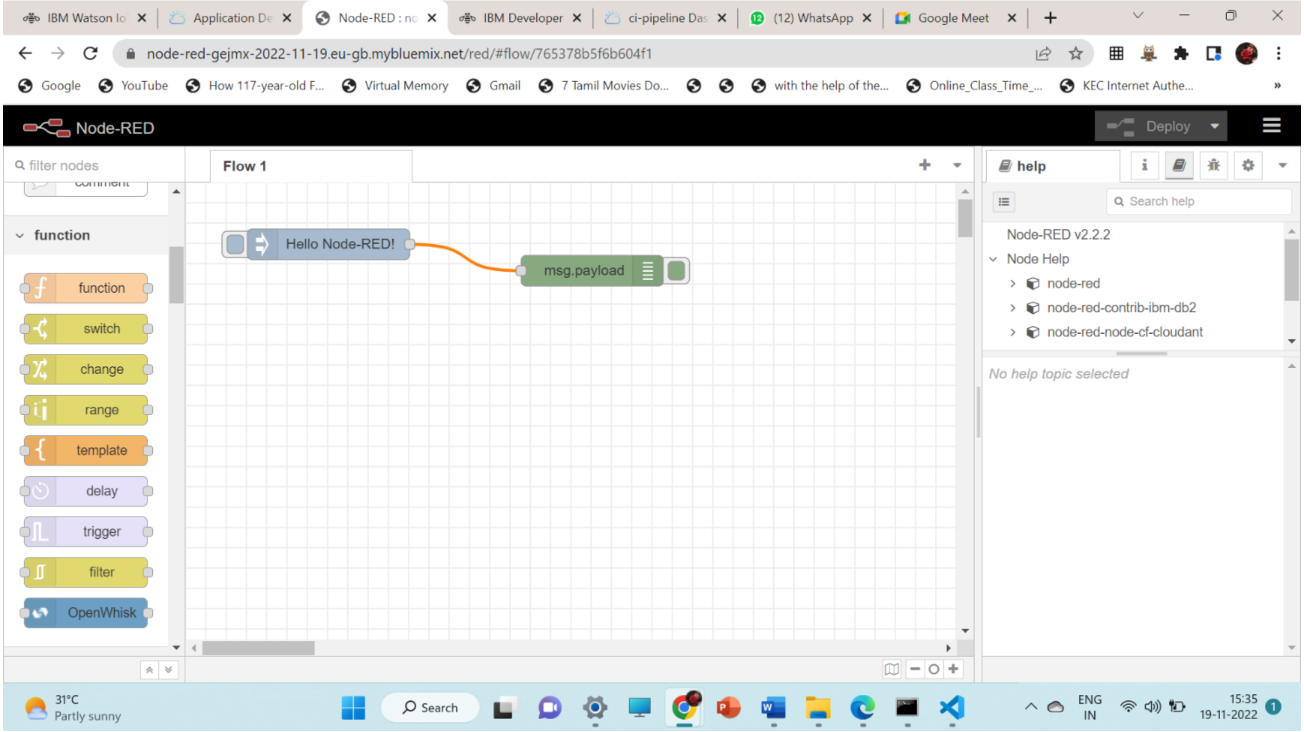
NODE-RED:



Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.

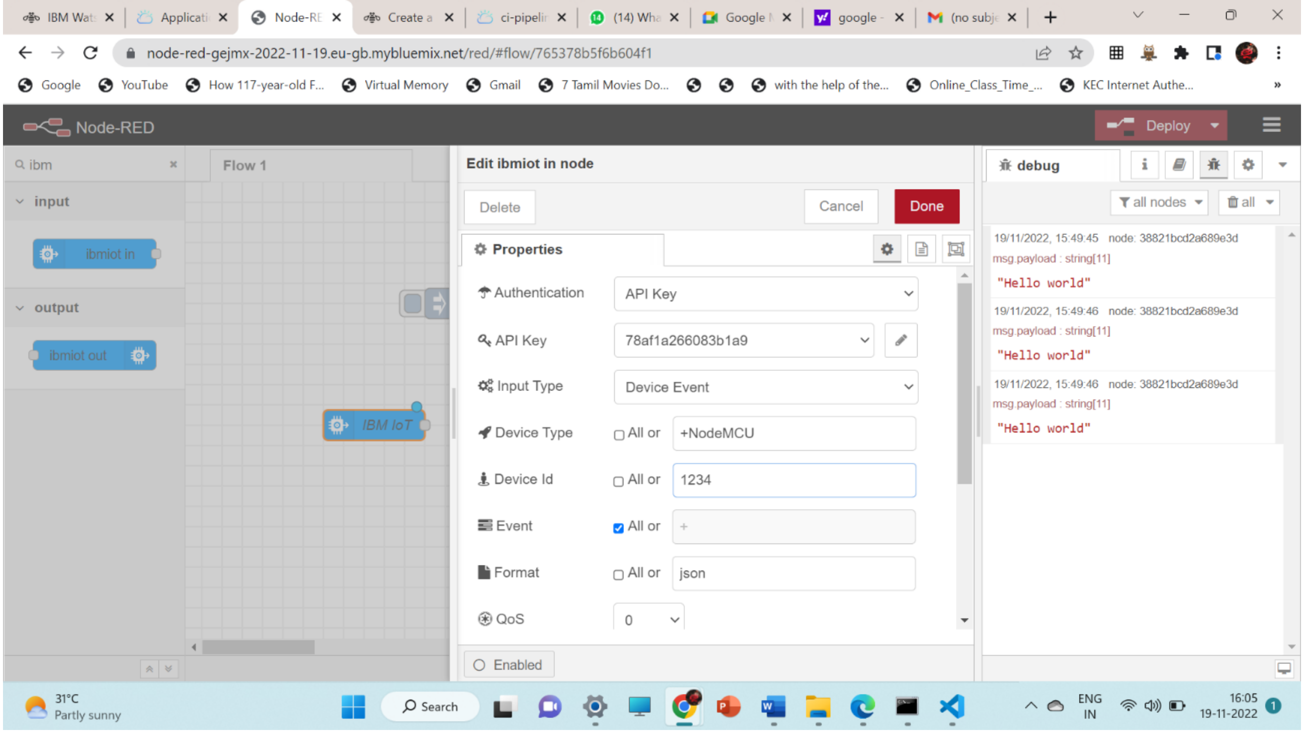
This instance is running as an IBM Cloud application, giving it access to the wide range of services available on the platform.

More information about Node-RED, including documentation, can be



Configuration of Node-Red to collect IBM cloud data

The node IBM IoT App In is added to the Node-Red workflow. Then the appropriate device credentials obtained earlier are entered into the node to connect and fetch device telemetry to Node-Red.



Edit ibmiot in node

Authentication: API Key

API Key: 78af1a266083b1a9

Input Type: Device Event

Device Type: □ All or +NodeMCU

Device Id: □ All or 1234

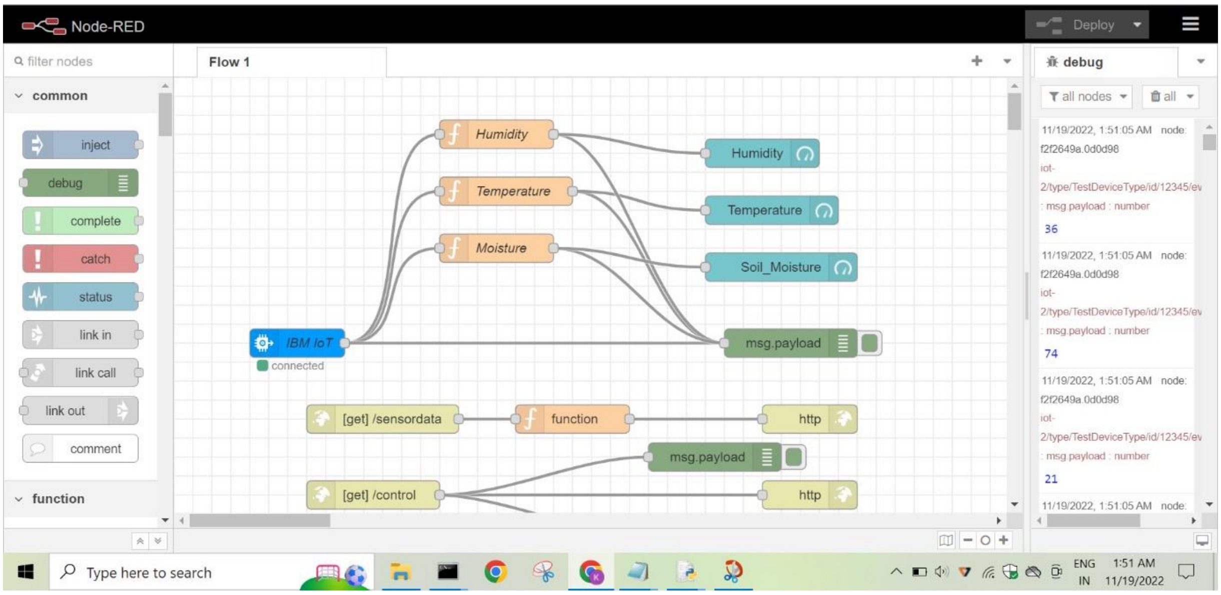
Event: ☑ All or +

Format: □ All or json

QoS: 0

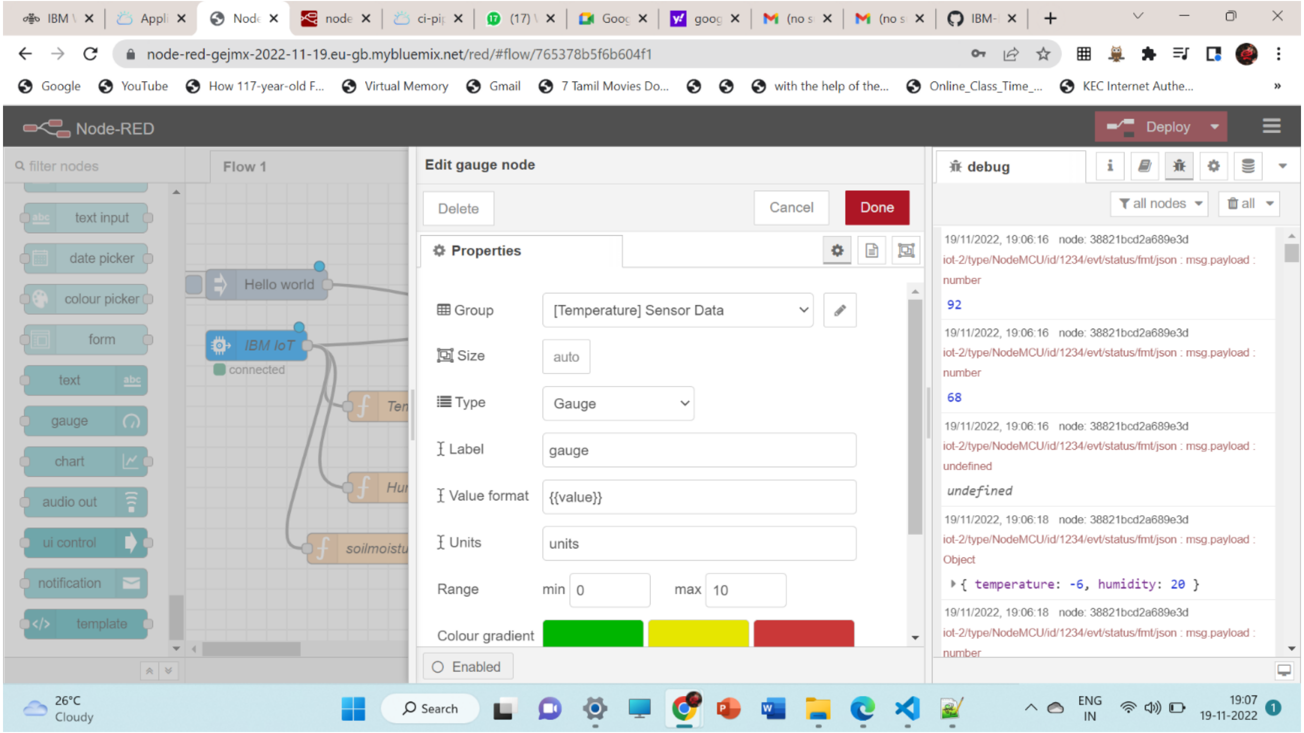
```
19/11/2022, 15:49:45   node: 38821bcd2a689e3d
msg.payload : string[11]
"Hello world"
19/11/2022, 15:49:46   node: 38821bcd2a689e3d
msg.payload : string[11]
"Hello world"
19/11/2022, 15:49:46   node: 38821bcd2a689e3d
msg.payload : string[11]
"Hello world"
```

- Once it is connected Node-Red receives data from the device
- Display the data using debug node for verification
- Connect function node and write the Java script code to get each reading separately.
- The Java script code for the function node is: msg.payload=msg.payload.d.temperature return msg;
- Finally connect Gauge nodes from dashboard to see the data in UI



```
11/19/2022, 1:51:05 AM   node:
f2f2649a.0d0d98
iot-
2/type/TestDeviceType/id/12345/ev
: msg.payload : number
36

11/19/2022, 1:51:05 AM   node:
f2f2649a.0d0d98
iot-
2/type/TestDeviceType/id/12345/ev
: msg.payload : number
74

11/19/2022, 1:51:05 AM   node:
f2f2649a.0d0d98
iot-
2/type/TestDeviceType/id/12345/ev
: msg.payload : number
21

11/19/2022, 1:51:05 AM   node:
```

Nodes connected in following manner to get each reading separately



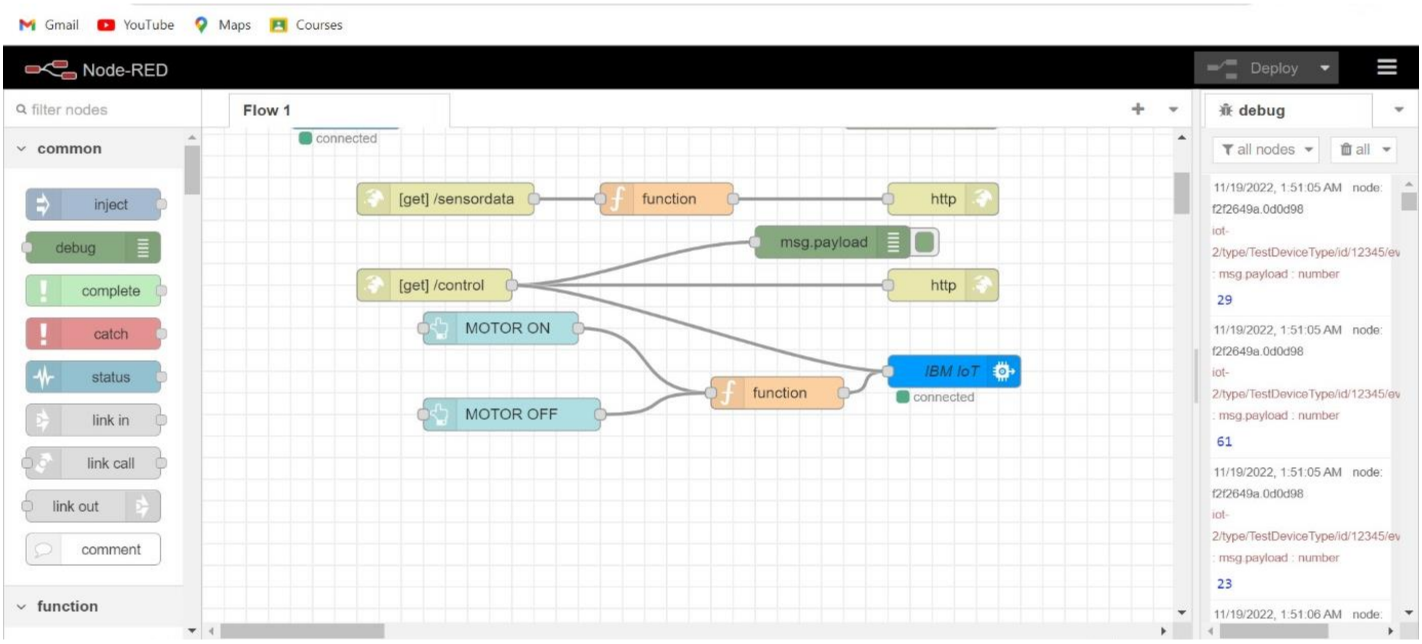
Edit gauge node

Group	[Temperature] Sensor Data
Size	auto
Type	Gauge
Label	gauge
Value format	{{value}}
Units	units
Range	min 0 max 10
Colour gradient	🟩 🟨 🟥

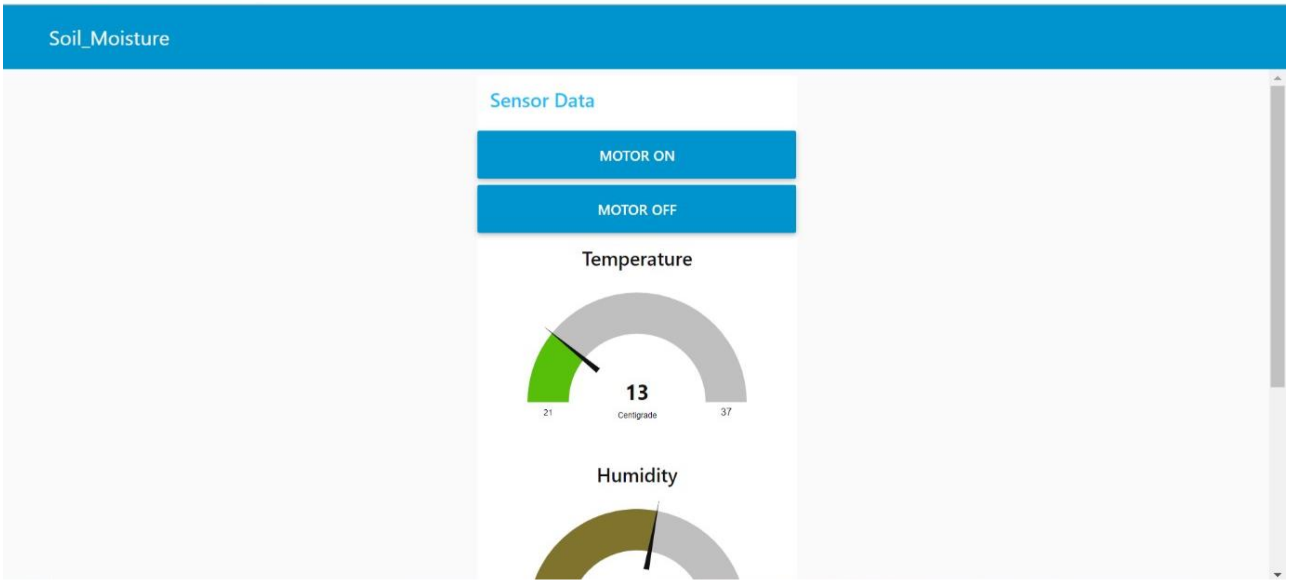
debug

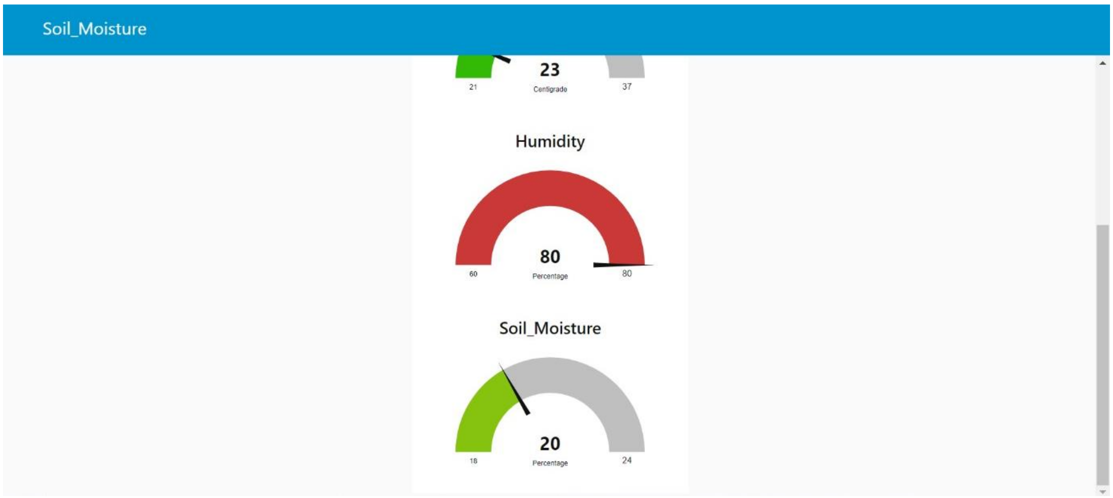
all nodes · all

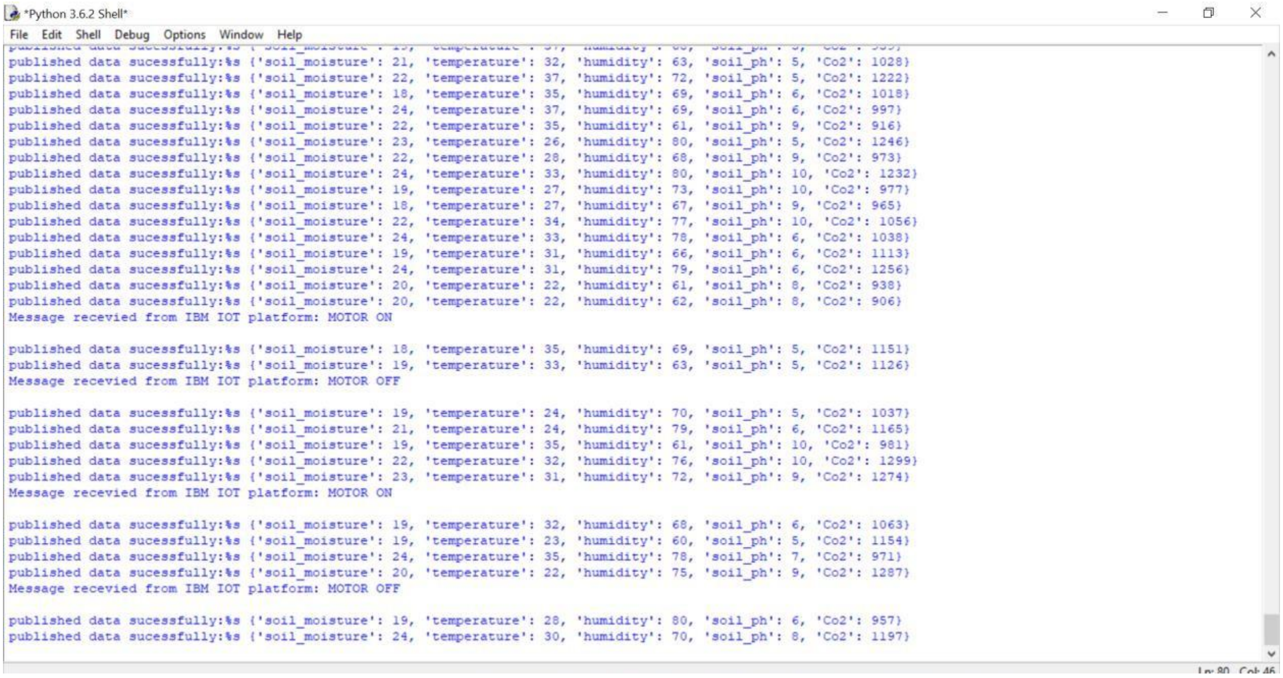
```
19/11/2022, 19:06:16   node: 38821bcd2a689e3d
iot-2/type/NodeMCU/id/1234/evt/status/fmt/json : msg.payload :
number
92

19/11/2022, 19:06:16   node: 38821bcd2a689e3d
iot-2/type/NodeMCU/id/1234/evt/status/fmt/json : msg.payload :
number
68

19/11/2022, 19:06:16   node: 38821bcd2a689e3d
iot-2/type/NodeMCU/id/1234/evt/status/fmt/json : msg.payload :
undefined
undefined

19/11/2022, 19:06:18   node: 38821bcd2a689e3d
iot-2/type/NodeMCU/id/1234/evt/status/fmt/json : msg.payload :
Object
▸{ temperature: -6, humidity: 20 }

19/11/2022, 19:06:18   node: 38821bcd2a689e3d
iot-2/type/NodeMCU/id/1234/evt/status/fmt/json : msg.payload :
number
```



```
11/19/2022, 1:51:05 AM  node:
f2f2649a.0d0d98
iot-
2/type/TestDeviceType/id/12345/ev
: msg.payload : number
29
11/19/2022, 1:51:05 AM  node:
f2f2649a.0d0d98
iot-
2/type/TestDeviceType/id/12345/ev
: msg.payload : number
61
11/19/2022, 1:51:05 AM  node:
f2f2649a.0d0d98
iot-
2/type/TestDeviceType/id/12345/ev
: msg.payload : number
23
11/19/2022, 1:51:06 AM  node:
```







```
published data sucessfully:%s {'soil_moisture': 21, 'temperature': 32, 'humidity': 63, 'soil_ph': 5, 'Co2': 1028}
published data sucessfully:%s {'soil_moisture': 22, 'temperature': 37, 'humidity': 72, 'soil_ph': 5, 'Co2': 1222}
published data sucessfully:%s {'soil_moisture': 18, 'temperature': 35, 'humidity': 69, 'soil_ph': 6, 'Co2': 1018}
published data sucessfully:%s {'soil_moisture': 24, 'temperature': 37, 'humidity': 69, 'soil_ph': 6, 'Co2': 997}
published data sucessfully:%s {'soil_moisture': 22, 'temperature': 35, 'humidity': 61, 'soil_ph': 9, 'Co2': 916}
published data sucessfully:%s {'soil_moisture': 23, 'temperature': 26, 'humidity': 80, 'soil_ph': 5, 'Co2': 1246}
published data sucessfully:%s {'soil_moisture': 22, 'temperature': 28, 'humidity': 68, 'soil_ph': 9, 'Co2': 973}
published data sucessfully:%s {'soil_moisture': 24, 'temperature': 33, 'humidity': 80, 'soil_ph': 10, 'Co2': 1232}
published data sucessfully:%s {'soil_moisture': 19, 'temperature': 27, 'humidity': 73, 'soil_ph': 10, 'Co2': 977}
published data sucessfully:%s {'soil_moisture': 18, 'temperature': 27, 'humidity': 67, 'soil_ph': 9, 'Co2': 965}
published data sucessfully:%s {'soil_moisture': 22, 'temperature': 34, 'humidity': 77, 'soil_ph': 10, 'Co2': 1056}
published data sucessfully:%s {'soil_moisture': 24, 'temperature': 33, 'humidity': 78, 'soil_ph': 6, 'Co2': 1038}
published data sucessfully:%s {'soil_moisture': 19, 'temperature': 31, 'humidity': 66, 'soil_ph': 6, 'Co2': 1113}
published data sucessfully:%s {'soil_moisture': 24, 'temperature': 31, 'humidity': 79, 'soil_ph': 6, 'Co2': 1256}
published data sucessfully:%s {'soil_moisture': 20, 'temperature': 22, 'humidity': 61, 'soil_ph': 8, 'Co2': 938}
published data sucessfully:%s {'soil_moisture': 20, 'temperature': 22, 'humidity': 62, 'soil_ph': 8, 'Co2': 906}
Message recevied from IBM IOT platform: MOTOR ON

published data sucessfully:%s {'soil_moisture': 18, 'temperature': 35, 'humidity': 69, 'soil_ph': 5, 'Co2': 1151}
published data sucessfully:%s {'soil_moisture': 19, 'temperature': 33, 'humidity': 63, 'soil_ph': 5, 'Co2': 1126}
Message recevied from IBM IOT platform: MOTOR OFF

published data sucessfully:%s {'soil_moisture': 19, 'temperature': 24, 'humidity': 70, 'soil_ph': 5, 'Co2': 1037}
published data sucessfully:%s {'soil_moisture': 21, 'temperature': 24, 'humidity': 79, 'soil_ph': 6, 'Co2': 1165}
published data sucessfully:%s {'soil_moisture': 19, 'temperature': 35, 'humidity': 61, 'soil_ph': 10, 'Co2': 981}
published data sucessfully:%s {'soil_moisture': 22, 'temperature': 32, 'humidity': 76, 'soil_ph': 10, 'Co2': 1299}
published data sucessfully:%s {'soil_moisture': 23, 'temperature': 31, 'humidity': 72, 'soil_ph': 9, 'Co2': 1274}
Message recevied from IBM IOT platform: MOTOR ON

published data sucessfully:%s {'soil_moisture': 19, 'temperature': 32, 'humidity': 68, 'soil_ph': 6, 'Co2': 1063}
published data sucessfully:%s {'soil_moisture': 19, 'temperature': 23, 'humidity': 60, 'soil_ph': 5, 'Co2': 1154}
published data sucessfully:%s {'soil_moisture': 24, 'temperature': 35, 'humidity': 78, 'soil_ph': 7, 'Co2': 971}
published data sucessfully:%s {'soil_moisture': 20, 'temperature': 22, 'humidity': 75, 'soil_ph': 9, 'Co2': 1287}
Message recevied from IBM IOT platform: MOTOR OFF

published data sucessfully:%s {'soil_moisture': 19, 'temperature': 28, 'humidity': 80, 'soil_ph': 6, 'Co2': 957}
published data sucessfully:%s {'soil_moisture': 24, 'temperature': 30, 'humidity': 70, 'soil_ph': 8, 'Co2': 1197}
```