Experiment no. 4

Student Name: Rishabh Anand

Branch: CSE-IOT

Semester: 6th

Subject Name: CCIOT Lab

UID: 19BCS4525

Section/Group: 1-A

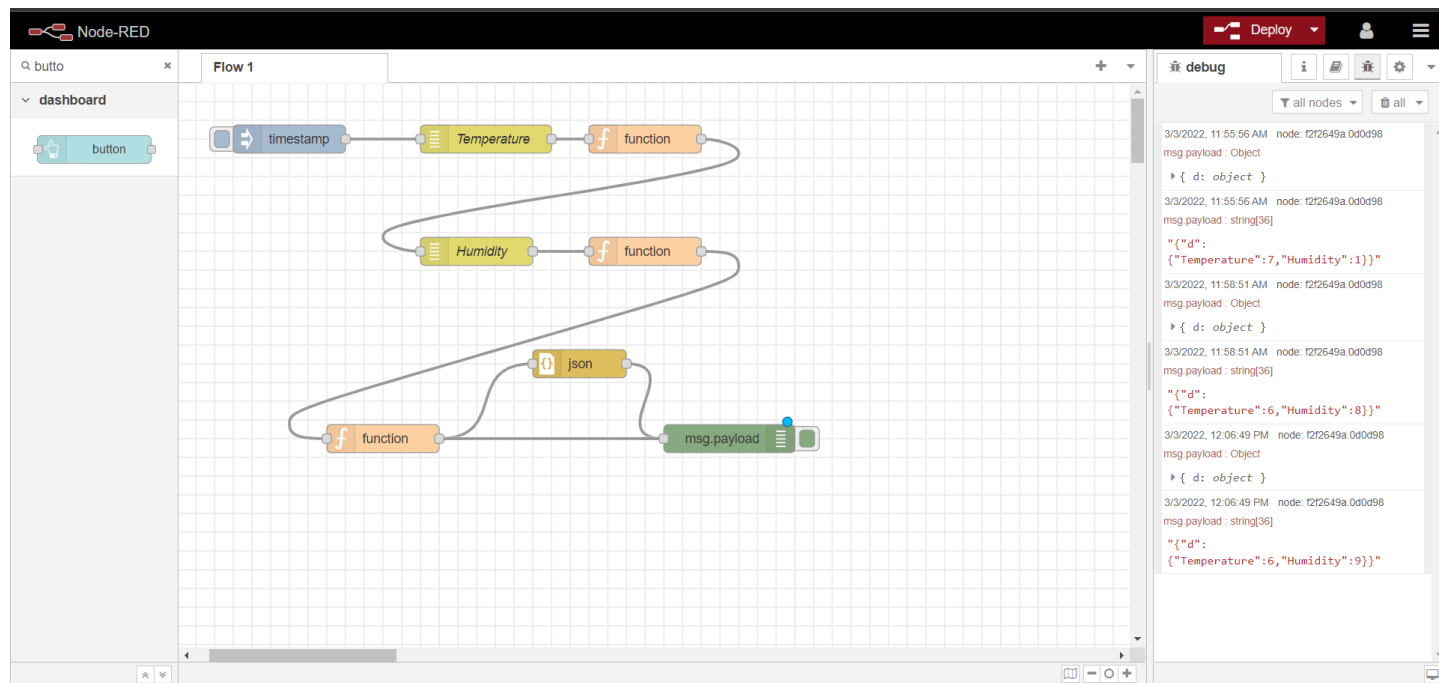**Date of Performance:** 08/03/2022

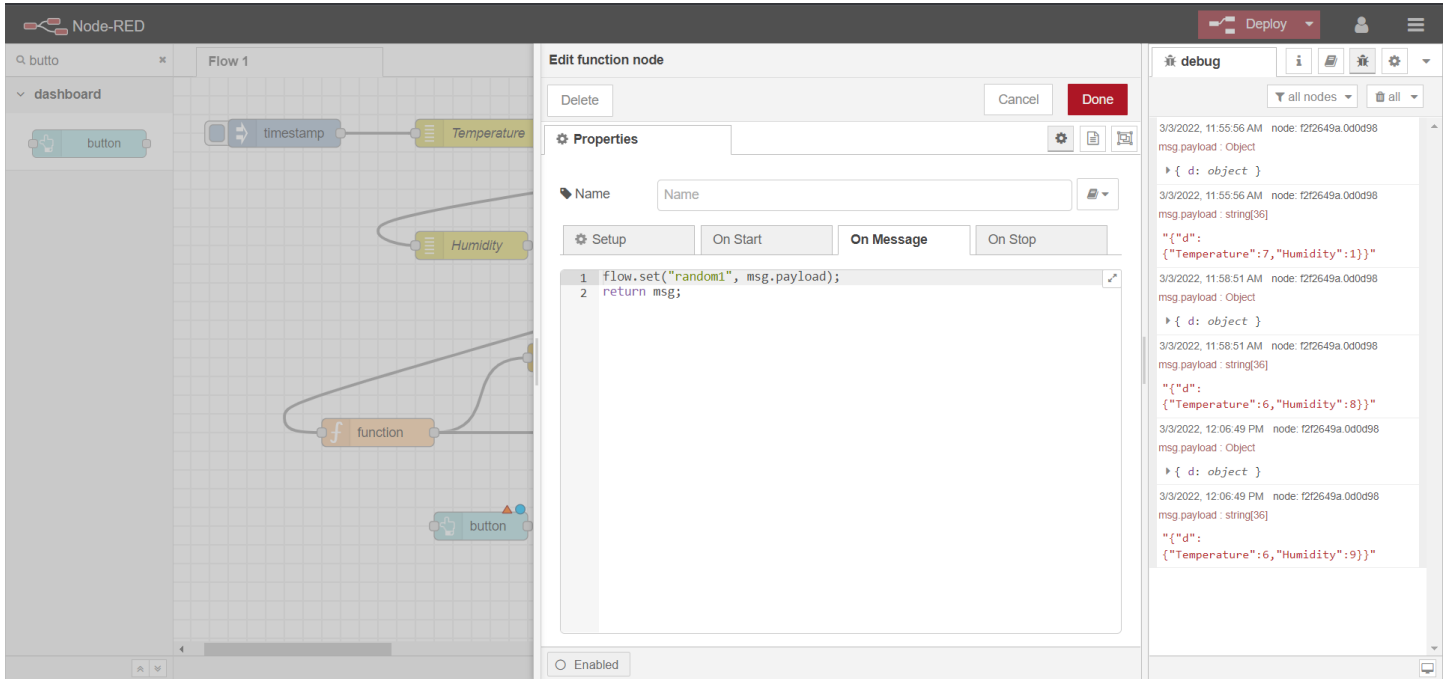**Subject Code:** CSD-387

1. Aim/Overview of the practical: Display Temperature and Humidity Sensor Data in Node-Red Dashboard using Arduino

2. Steps for experiment/practical:

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Screenshot 1:

Node-RED

Deploy

butto ×

dashboard

button

Flow 1

timestamp   Temperature

Humidity

function

button

Edit function node

Delete   Cancel   Done

⚙ Properties

🏷 Name   Name

⚙ Setup   On Start   **On Message**   On Stop

```
1  flow.set("random1", msg.payload);
2  return msg;
```

○ Enabled

debug

▼ all nodes   🗑 all

3/3/2022, 11:55:56 AM   node: f2f2649a.0d0d98
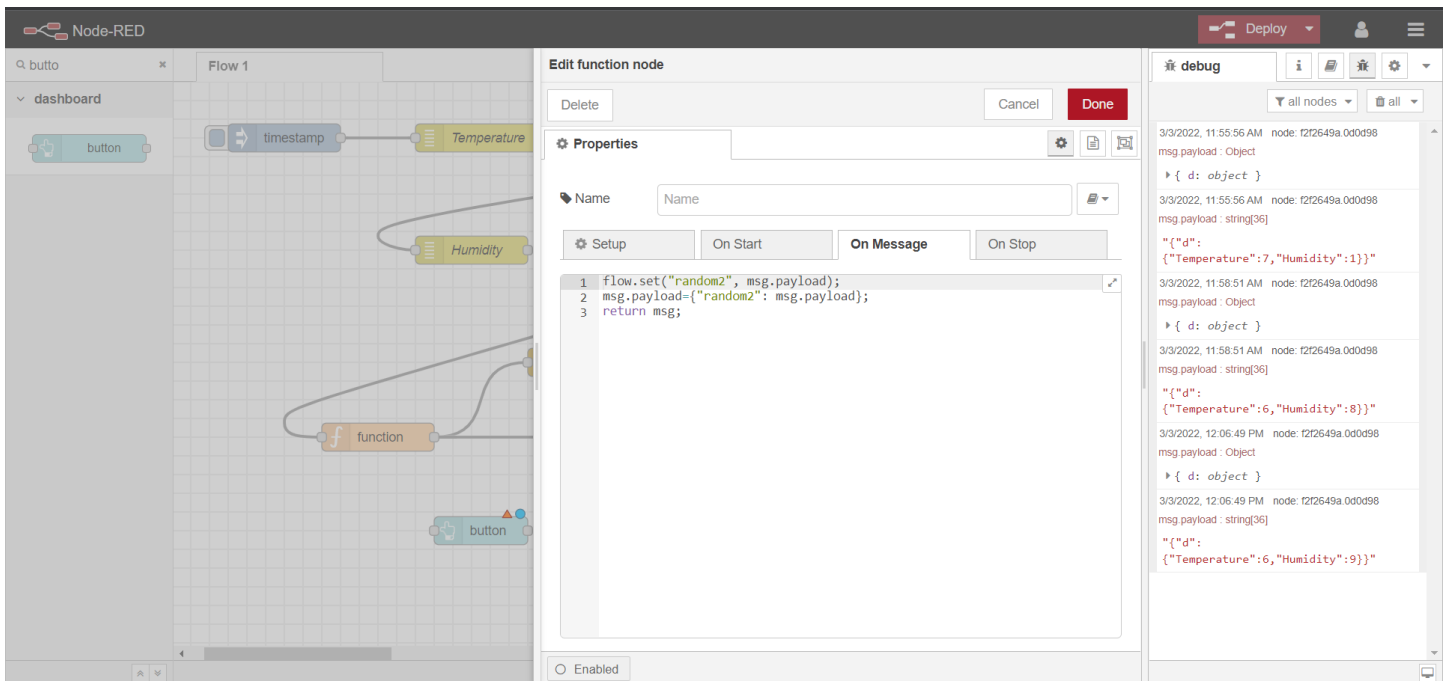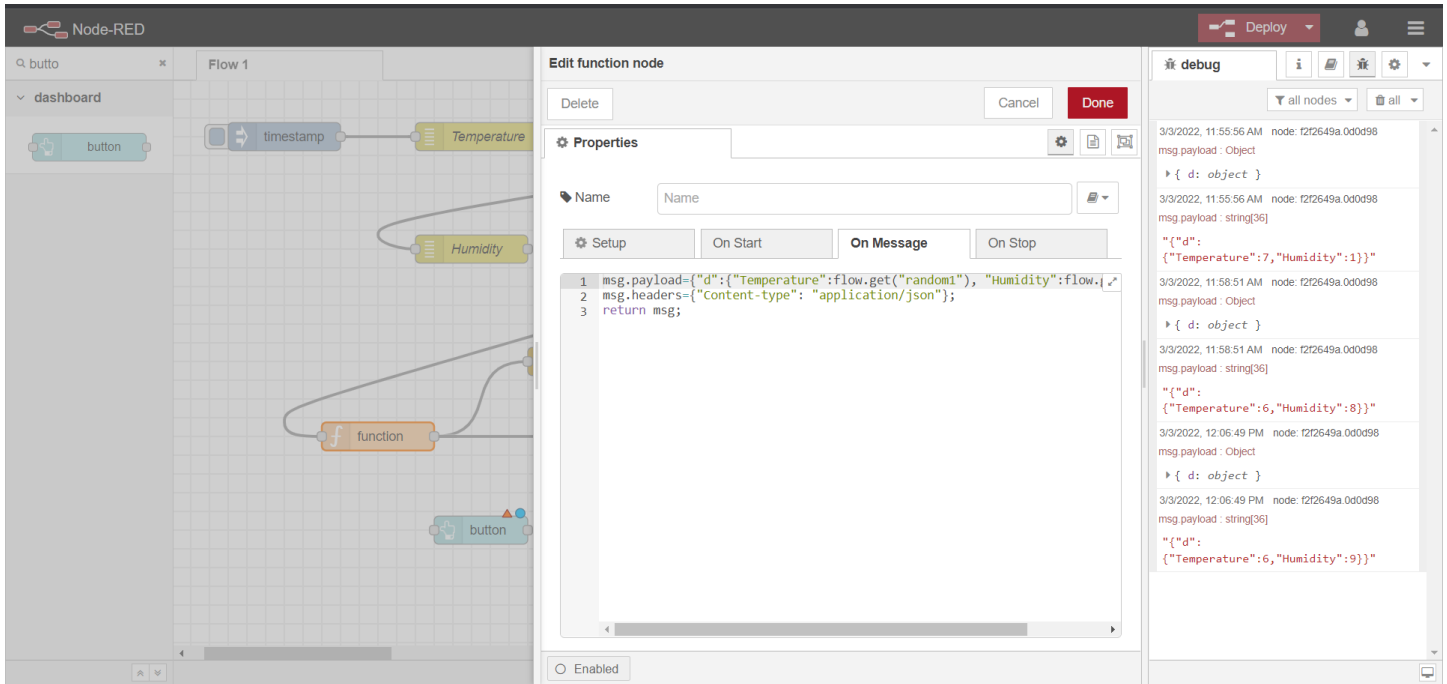msg.payload : Object
▶ { d: object }

3/3/2022, 11:55:56 AM   node: f2f2649a.0d0d98
msg.payload : string[36]

"{"d":
{"Temperature":7,"Humidity":1}}"

3/3/2022, 11:58:51 AM   node: f2f2649a.0d0d98
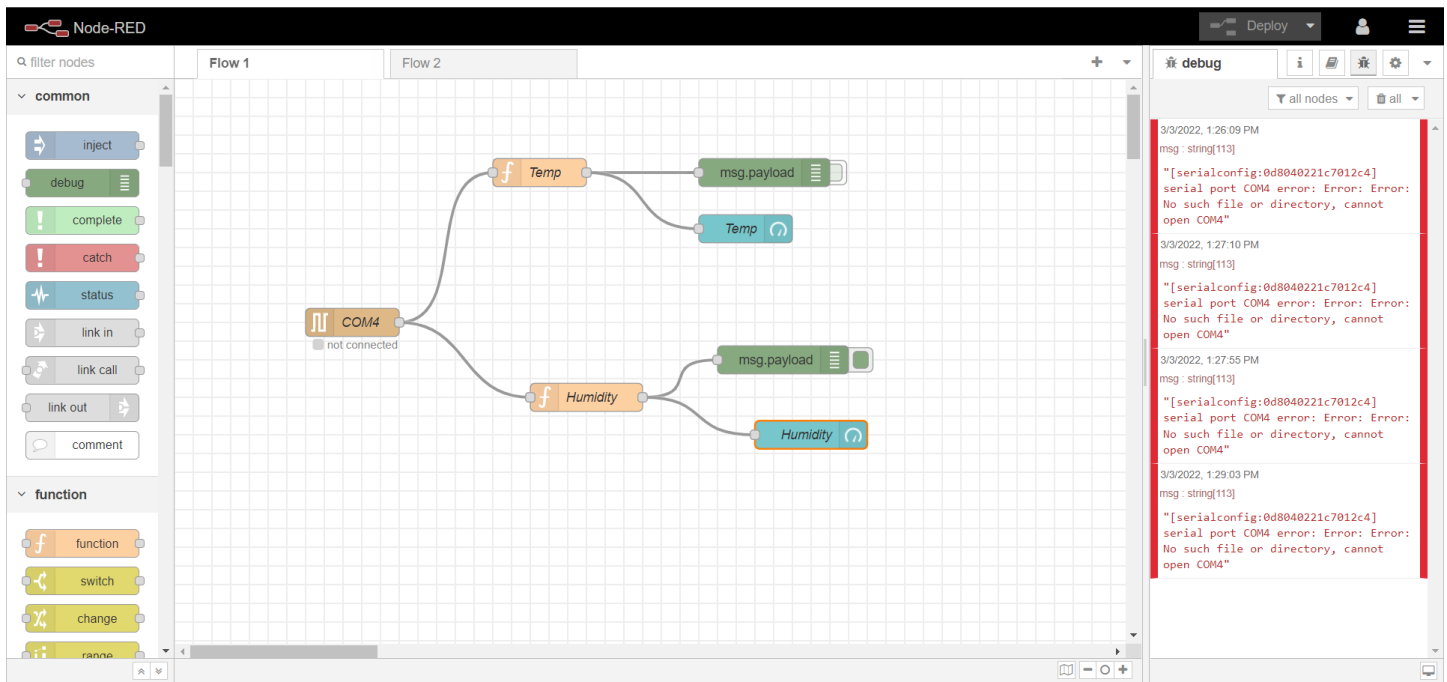msg.payload : Object
▶ { d: object }

3/3/2022, 11:58:51 AM   node: f2f2649a.0d0d98
msg.payload : string[36]

"{"d":
{"Temperature":6,"Humidity":8}}"

3/3/2022, 12:06:49 PM   node: f2f2649a.0d0d98
msg.payload : Object
▶ { d: object }

3/3/2022, 12:06:49 PM   node: f2f2649a.0d0d98
msg.payload : string[36]

"{"d":
{"Temperature":6,"Humidity":9}}"

Screenshot 2:

Node-RED

Deploy

butto ×

dashboard

button

Flow 1

timestamp   Temperature

Humidity

function

button

Edit function node

Delete   Cancel   Done

⚙ Properties

🏷 Name   Name

⚙ Setup   On Start   **On Message**   On Stop

```
1  flow.set("random2", msg.payload);
2  msg.payload={"random2": msg.payload};
3  return msg;
```

○ Enabled

debug

▼ all nodes   🗑 all

3/3/2022, 11:55:56 AM   node: f2f2649a.0d0d98
msg.payload : Object
▶ { d: object }

3/3/2022, 11:55:56 AM   node: f2f2649a.0d0d98
msg.payload : string[36]

"{"d":
{"Temperature":7,"Humidity":1}}"

3/3/2022, 11:58:51 AM   node: f2f2649a.0d0d98
msg.payload : Object
▶ { d: object }

3/3/2022, 11:58:51 AM   node: f2f2649a.0d0d98
msg.payload : string[36]

"{"d":
{"Temperature":6,"Humidity":8}}"

3/3/2022, 12:06:49 PM   node: f2f2649a.0d0d98
msg.payload : Object
▶ { d: object }

3/3/2022, 12:06:49 PM   node: f2f2649a.0d0d98
msg.payload : string[36]

"{"d":
{"Temperature":6,"Humidity":9}}"

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Gauge Circuit:

Serial Port:

Edit serial in node > **Edit serial-port node**

Delete		Cancel	Update

⚙ **Properties**   ⚙ 📄

⤬ Serial Port   COM4   🔍

🔧 Settings   Baud Rate   Data Bits   Parity   Stop Bits
                ▾ 9600   8 ⌄   None ⌄   1 ⌄

               DTR   RTS   CTS   DSR
               auto ⌄   auto ⌄   auto ⌄   auto ⌄

➡) Input

    Optionally wait for a start character of [   ] , then

    Split input   on the character   ⌄   \n

    and deliver   ASCII strings   ⌄

➡ Output

    Add character to output messages [   ]

⇄ Request

    Default response timeout 10000   ms

Tip: the "Split on" character is used to split the input into separate
messages. Can accept chars ($), escape codes (\n), or hex codes
(0x03).

○ Enabled   ❶ 1 node uses this config   On all flows   ⌄

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Temperature Part:

Edit function node

| Delete | | Cancel | Done |

⚙ **Properties**

🏷 Name   Temp

| ⚙ Setup | On Start | **On Message** | On Stop |

```
1  var temp1= msg.payload[6]-48;
2  var temp2= msg.payload[7]-48;
3  var temp3= msg.payload[9]-48;
4  var temp4= msg.payload[10]-48;
5  var result = (temp1*1000)+ (temp2*100) + (temp3*10) + temp4;
6  result = result/100;
7  var result1 = {payload:result};
8  return[result1];
9  return msg;
```

○ Enabled

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Edit gauge node

| Delete | | Cancel | Done |

⚙ **Properties**

| ⊞ Group | [Home] Temp | ✎ |

| ▣ Size | auto |

| ☰ Type | Gauge |

| I Label | temp |

| I Value format | {{value}} |

| I Units | units |

| Range | min 0 | max 10 |

Colour gradient

Sectors | 0 | ... | optional | ... | optional | ... | 10 |

| 🏷 Name | Temp |

○ Enabled

Edit gauge node > **Edit dashboard group node**

| Delete | | Cancel | Update |

⚙ **Properties**   ⚙ 📄

🏷 **Name**   Temp

⊞ **Tab**   Home   ✎

↔ **Width**   6

☑ Display group name

☐ Allow group to be collapsed

○ Enabled   ❶ 1 node uses this config   On all flows

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Edit gauge node > Edit dashboard group node > **Edit dashboard tab node**

Delete   Cancel   Update

⚙ **Properties**   ⚙   📄

🏷 Name   Home

🖼 Icon   dashboard

⊘ State   ◉ Enabled

🚫 Nav. Menu   ◉ Visible

The **Icon** field can be either a Material Design icon *(e.g. 'check', 'close')* or a Font Awesome icon *(e.g. 'fa-fire')*, or a Weather icon *(e.g. 'wi-wu-sunny')*.

You can use the full set of google material icons if you add 'mi-' to the icon name. e.g. 'mi-videogame_asset'.

○ Enabled   ❶ 2 nodes use this config   On all flows   ⌄

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Humidity:

Edit function node

Delete   Cancel   Done

⚙ **Properties**

🏷 Name   Humidity

⚙ Setup   On Start   **On Message**   On Stop

```
1  var hum1= msg.payload[0]-48;
2  var hum2= msg.payload[1]-48;
3  var hum3= msg.payload[3]-48;
4  var hum4= msg.payload[4]-48;
5  var result = (hum1*1000)+ (hum2*100) + (hum3*10) + hum4;
6  result = result/100;
7  var result1 = {payload:result};
8  return[result1];
9  return msg;
```

○ Enabled

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Edit gauge node

| Delete | | Cancel | Done |

⚙ **Properties**

⚙ 📄 🔲

| ⊞ Group | [Home] Humidity ⌄ | ✏ |

| 🔲 Size | auto |

| ☰ Type | Gauge ⌄ |

| ⫯ Label | Humidity |

| ⫯ Value format | {{value}} |

| ⫯ Units | units |

| Range | min 0   max 10 |

| Colour gradient | 🟩 🟨 🟥 |

| Sectors | 0 ... optional ... optional ... 10 |

| 🏷 Name | Humidity |

○ Enabled

Edit gauge node > **Edit dashboard group node**

| Delete | | Cancel | Update |

⚙ **Properties**

🏷 Name   Humidity

▦ Tab   Home   ✏

↔ Width   6

☑ Display group name

☐ Allow group to be collapsed

○ Enabled   ❶ 1 node uses this config   On all flows

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Edit gauge node > Edit dashboard group node > **Edit dashboard tab node**

Delete   Cancel   Update

⚙ **Properties**   ⚙ 📄

🏷 Name   Home

🖼 Icon   dashboard

⊘ State   ⚪ Enabled

👁 Nav. Menu   ⚪ Visible

The **Icon** field can be either a Material Design icon *(e.g. 'check', 'close')* or a Font Awesome icon *(e.g. 'fa-fire')*, or a Weather icon *(e.g. 'wi-wu-sunny')*.

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○ Enabled   ⓘ 2 nodes use this config   On all flows   ⌄

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Button Circuit:

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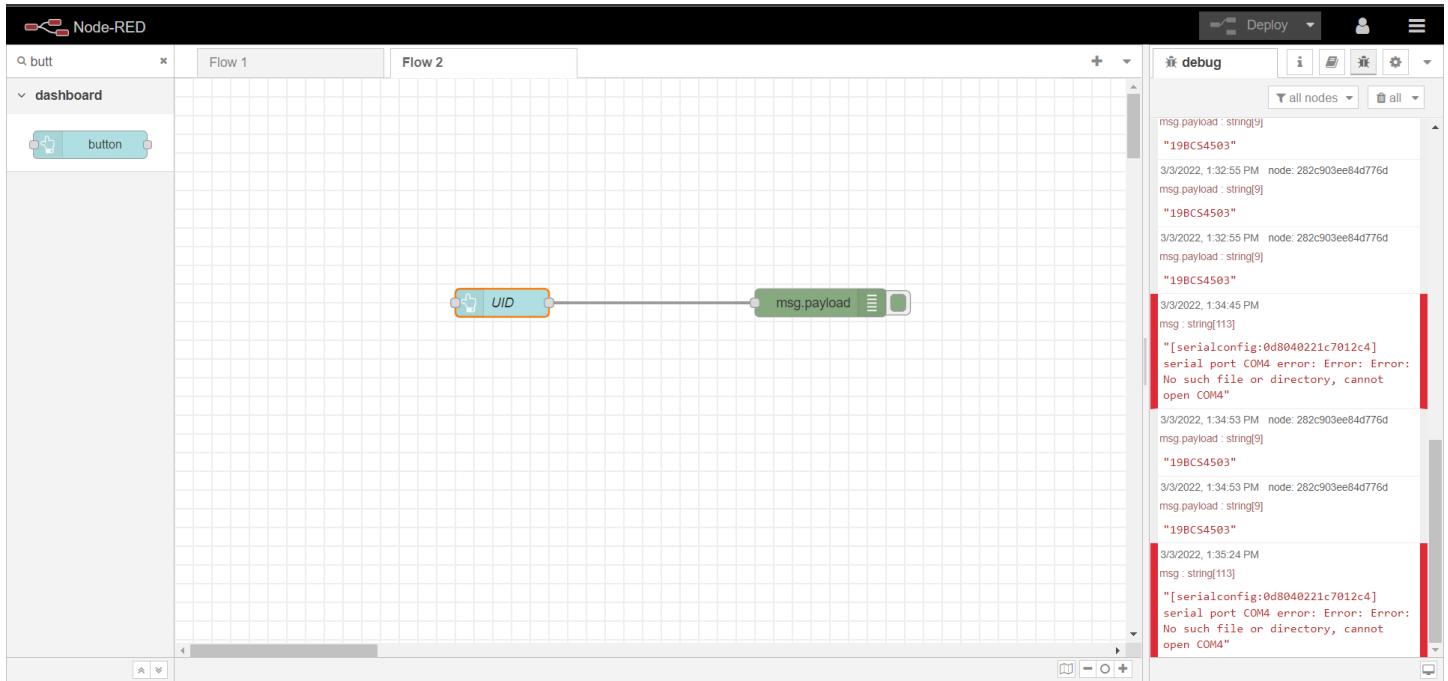
Button Part:

Edit button node

Delete		Cancel	Done

⚙ **Properties**

				⚙	📄	🔲

⊞ Group [Button Home] Button Home ⌄ ✏

🔳 Size auto

🖼 Icon optional icon

I Label 19BCS4503

ℹ Tooltip optional tooltip

💧 Color optional text/icon color

💧 Background optional background color

✉ When clicked, send:

Payload ▼ a_z 19BCS4503

Topic ▼ msg. topic

→ If msg arrives on input, emulate a button click: ☐

🏷 Name UID

◯ Enabled

Edit button node > **Edit dashboard group node**

Delete   Cancel   Update

⚙ **Properties**   ⚙ 📄

🏷 Name   Button Home

⊞ Tab   Button Home   ⌄   ✏

↔ Width   6

                ☑ Display group name

                ☐ Allow group to be collapsed

○ Enabled   ❶ 1 node uses this config   On all flows   ⌄

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Edit button node > Edit dashboard group node > **Edit dashboard tab node**

| Delete | | Cancel | Update |

⚙ **Properties**   ⚙ 📄

🏷 Name | Button Home

🖼 Icon | dashboard

⊘ State | ⬤ Enabled

👁 Nav. Menu | ⬤ Visible

The **Icon** field can be either a Material Design icon *(e.g. 'check', 'close')* or a Font Awesome icon *(e.g. 'fa-fire')*, or a Weather icon *(e.g. 'wi-wu-sunny')*.

You can use the full set of google material icons if you add 'mi-' to the icon name. e.g. 'mi-videogame_asset'.
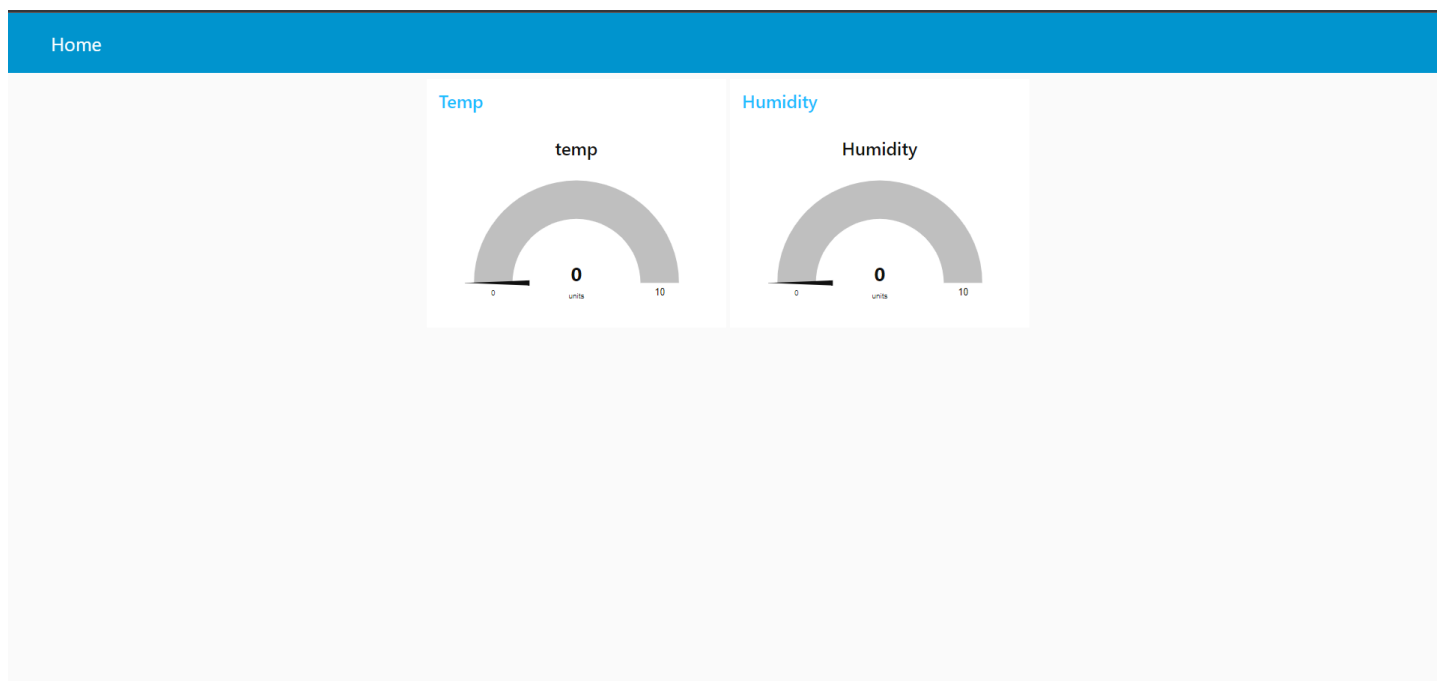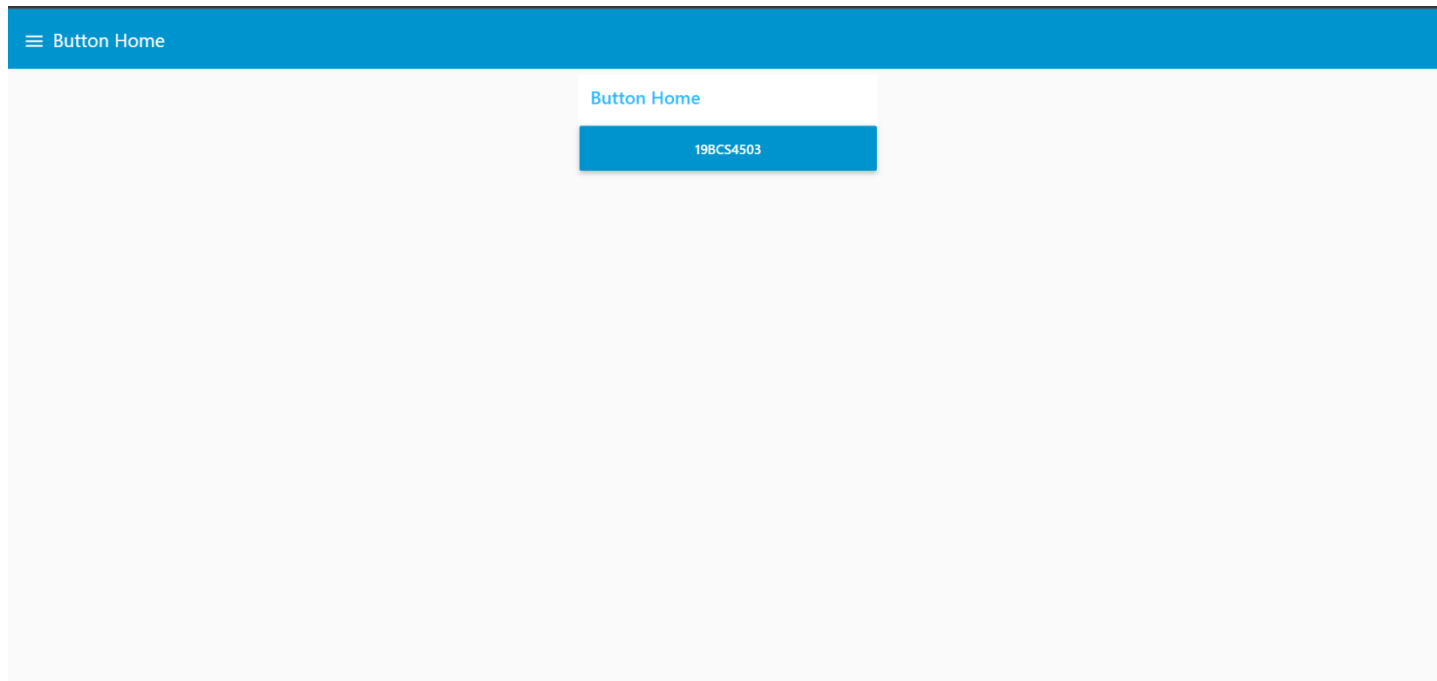
○ Enabled   ⓘ 1 node uses this config   On all flows ⌄

3. Output: Image of sample output to be attached here

Gauge Output:

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Button UI:

Learning outcomes (What I have learnt):

1. Making button and gauges in node red application.

2. Displaying temperature and humidity sensor data in node red.

3. Displaying the outputs through UI dashboard of Node Red.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			