SmartBridge Externship

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Assignment 3: Develop a code to upload the water tank level and light intensity values to the IBM IoT platform and visualize them in the web application.

Python code:

```python
import wiotp.sdk.device

import time

import random

myConfig = {

  "identity": {

    "orgId": "x012hb",

    "typeId": "VITDevice",

    "deviceId":"500062"

  },

  "auth": {

    "token": "12345678"

  }

}


def myCommandCallback(cmd):

  print("Message received from IBM IoT Platform: %s" % cmd.data['command'])

  m=cmd.data['command']


client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)

client.connect()



"""

Understanding Water Level and Light Intensity Working:
```
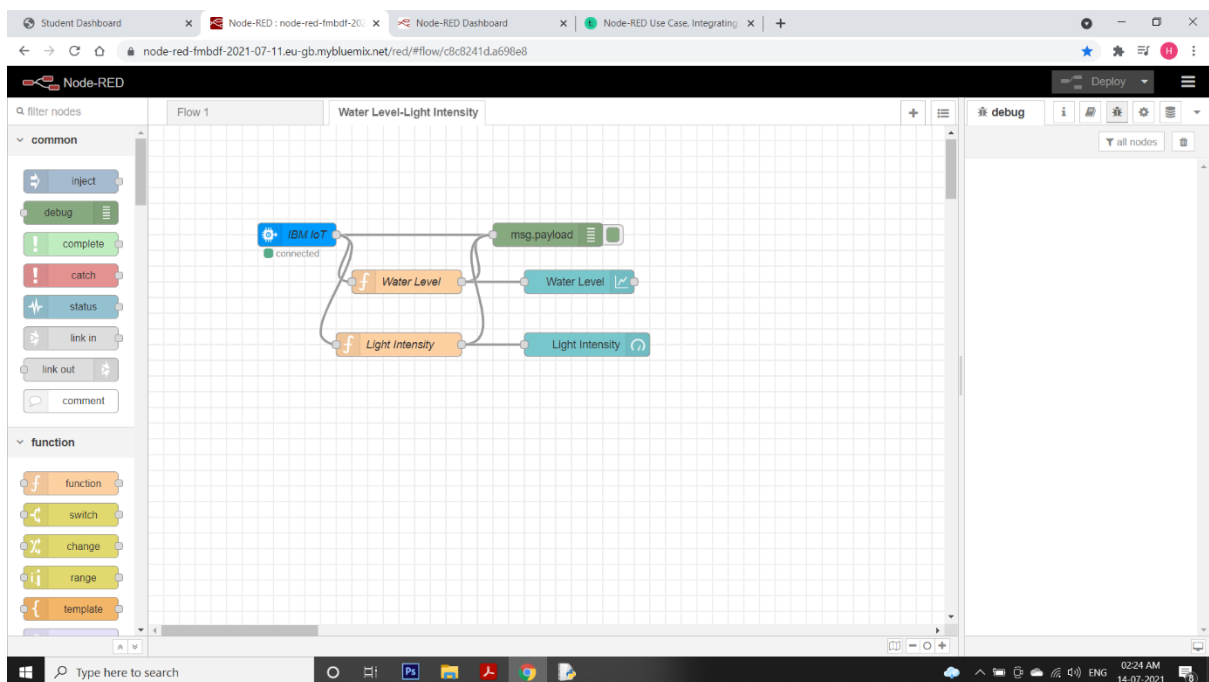
Let Water Level be 500 litres tank capacity (Take Water Level= 'water':w).

Let Light Intensity be measured in percentage (Take Light Intensity= 'light:l).

Corresponding to the water level, the light intensity is determined-

For Example: If the Water Level is full(500L), Light Intensity will be maximum(100%).

"""

```python
while True:
    w=random.randint(0,500)
    l=(w/500)*100
    myData={'water':w, 'light':l}
    client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
    print("Published data Successfully: %s", myData)
    client.commandCallback = myCommandCallback
    time.sleep(2)
client.disconnect()
```

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Python code screenshot

Node setup in Node Red

Debug messages-1

Data Visualization-1

Debug messages- 2

Data visualization- 2

We configure the python shell to node-red by providing the required credentials under "myConfig" in the python code. Now, using "chart" dashboard for Water level and "gauge" dashboard for light intensity, we can visualise the water level (in litres) and the corresponding light intensity (in percentage).

The python program is written in such a way that light intensity directly depends on water level.

For example: Assuming 500 litres to be full capacity for the water tank, and if 500 litres water is present then light intensity will be 100%. And if there's no water present, light intensity will be 0%.