

Using Dashboard Nodes For Creating UI:

Date	17 th November 2022
Team ID	PNT2022TMID15034
Project Name	IOT Based Real-Time River Water Quality Monitoring and Control System
Maximum Marks	4 Mark

The screenshot displays the Visual Studio Code (VS Code) interface. The main editor window shows a Python file named `main.py` with the following code:

```
1 #IBM Watson IoT Platform
2 #pip install wiotp-sdk
3 import wiotp.sdk.device
4 import time
5 import random
6 myConfig = {
7     "identity": {
8         "orgId": "93egjg",
9         "typeId": "MyDeviceType",
10        "deviceId": "12345"
11    },
12    "auth": {
13        "token": "12345678"
14    }
15 }
16
17 def myCommandCallback(cmd):
18     print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
19     m=cmd.data['command']
20     if(m=="LIGHT ON"):
21         print("*****LIGHTS ARE ON")
22     else:
23         print("*****LIGHTS ARE OFF")
24
25 client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
26 client.connect()
27
28 while True:
29     tur=random.randint(0,100)
30     ph=random.randint(1,14)
31     myData={'turbidity':tur, 'Ph_Value':ph}
32     client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)
33     print("Published data Successfully: %s", myData)
34     client.commandCallback = myCommandCallback
35     time.sleep(2)
36 client.disconnect()
```

The Run and Output panel on the left shows the execution output of the script:

```
Message received from IBM IoT Platform: lightoff
*****LIGHTS ARE OFF
Published data Successfully: %s {'turbidity': 19, 'Ph_Value': 4}
Message received from IBM IoT Platform: lightoff
*****LIGHTS ARE OFF
Published data Successfully: %s {'turbidity': 85, 'Ph_Value': 3}
Published data Successfully: %s {'turbidity': 99, 'Ph_Value': 7}
Published data Successfully: %s {'turbidity': 33, 'Ph_Value': 2}
Published data Successfully: %s {'turbidity': 87, 'Ph_Value': 14}
Published data Successfully: %s {'turbidity': 28, 'Ph_Value': 5}
Published data Successfully: %s {'turbidity': 25, 'Ph_Value': 7}
Published data Successfully: %s {'turbidity': 69, 'Ph_Value': 9}
Published data Successfully: %s {'turbidity': 87, 'Ph_Value': 3}
Published data Successfully: %s {'turbidity': 44, 'Ph_Value': 7}
Published data Successfully: %s {'turbidity': 34, 'Ph_Value': 8}
Published data Successfully: %s {'turbidity': 93, 'Ph_Value': 12}
Published data Successfully: %s {'turbidity': 44, 'Ph_Value': 6}
Published data Successfully: %s {'turbidity': 55, 'Ph_Value': 10}
Published data Successfully: %s {'turbidity': 78, 'Ph_Value': 8}
Published data Successfully: %s {'turbidity': 75, 'Ph_Value': 14}
Message received from IBM IoT Platform: lighton
*****LIGHTS ARE OFF
Published data Successfully: %s {'turbidity': 78, 'Ph_Value': 4}
Message received from IBM IoT Platform: lighton
*****LIGHTS ARE OFF
Message received from IBM IoT Platform: lighton
*****LIGHTS ARE OFF
Published data Successfully: %s {'turbidity': 85, 'Ph_Value': 13}
Published data Successfully: %s {'turbidity': 96, 'Ph_Value': 7}
Published data Successfully: %s {'turbidity': 34, 'Ph_Value': 4}
Published data Successfully: %s {'turbidity': 47, 'Ph_Value': 11}
Message received from IBM IoT Platform: lightoff
*****LIGHTS ARE OFF
Message received from IBM IoT Platform: lightoff
*****LIGHTS ARE OFF
Published data Successfully: %s {'turbidity': 86, 'Ph_Value': 13}
Published data Successfully: %s {'turbidity': 22, 'Ph_Value': 7}
Published data Successfully: %s {'turbidity': 33, 'Ph_Value': 9}
```

The bottom status bar indicates the current state: Version Control, TODO, Problems, Terminal, Python Packages, Python Console, Packages installed successfully: Installed packages: 'wiotp-sdk' (today 17:24), 23:45, CRLF, UTF-8, 4 spaces, Python.

93eqjp.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform

Browse

Action

Device Types

Interfaces

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By
12345	Connected	MyDeviceType	Device	19 Nov 2022 15:09		sprateekcs01@gmail.com

Identity

Device Information

Recent Events

State

Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
status	{"turbidity":55,"Ph_Value":-3}	json	a few seconds ago
status	{"turbidity":47,"Ph_Value":5}	json	a few seconds ago
status	{"turbidity":52,"Ph_Value":1}	json	a few seconds ago
status	{"turbidity":9,"Ph_Value":9}	json	a few seconds ago
status	{"turbidity":73,"Ph_Value":-14}	json	a few seconds ago

0 Simulations running

node-red-rffuk-2022-11-19.eu-gb.mybluemix.net/red/#flow/046856b586ece4f3

Node-RED

Deploy

filter nodes

common

function

inject

debug

complete

catch

status

link in

link call

link out

comment

function

switch

change

range

template

Flow 1

Flow 2

IBM IoT

Turbidity

Ph_value

msg payload

Turbidity

Turbidity

Ph-Value

ph

node-red-rffuk-2022-11-19.eu-gb.mybluemix.net/red/#flow/046856b586ece4f3

Node-RED

Flow 1 Flow 2

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function
- switch
- change
- range
- template

IBM IoT

Turbidity

Ph_value

Edit function node

Delete Cancel Done

Properties

Name Turbidity

Setup On Start On Message On Stop

```
1 msg.payload=msg.payload.turbidity;
2 global.set('t',msg.payload);
3 return msg;
```

Enabled

node-red-rffuk-2022-11-19.eu-gb.mybluemix.net/red/#flow/046856b586ece4f3

Node-RED

Flow 1 Flow 2

common

- inject
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IBM IoT

Turbidity

Ph_value

Edit function node

Delete Cancel Done

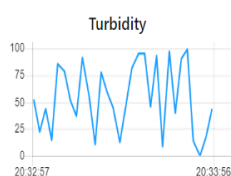
Properties

Name Ph_value

Setup On Start On Message On Stop

```
1 msg.payload=msg.payload.Ph_Value;
2 global.set('p',msg.payload);
3 return msg;
```

Enabled



LIGHT OFF

