##########
Assignment
##########

Assignment 3
****

:Question: Water tank level and light intensity visualization.

Code
====
Python code::

```
'''
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    Reg. no. : 18BCG10024.
'''

import wiotp.sdk.device
import time
import random

myConfig = {
  "identity": {
    "orgId": "cljthj",
    "typeId": "Device",
    "deviceId":"12345"
  },
  "auth": {
    "token": "12345678"
  }
}

def myCommandCallback(cmd):
  print(
    "Message received, but I don't want it. You handle this one: {0}".format(
      cmd.data['command']
    )
  )

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

i = 0
try:
  while i < 4:
    i += 1

    keyIp = input('\nPress [Enter] to continue or [q] [Enter] to quit: ')
    print('')
    if (keyIp == 'q'):
      break
```

```python
    myData={
        'watertanklevel': random.randint(0,100),
        'lightintensity':random.randint(0,100),
    }
    client.publishEvent(
        eventId="status",
        msgFormat="json",
        data=myData,
        qos=0,
        onPublish=None,
    )
    print("Published data successfully: {0}".format(myData))
    client.commandCallback = myCommandCallback
    time.sleep(2)

  print('Exiting ...\n')
except KeyboardInterrupt:
  print('Exiting ...\n')

client.disconnect()
```

Screenshots
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Screenshot 1

Node-RED Deploy ▼ ☰

🔍 filter nodes | ⊘ Flow 1 | Edit function node | ☀ debug ℹ 📄 🐞 ⚙ ▼

common

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

function

- function
- switch

IBM IoT
■ connected

Edit function node

Delete   Cancel   **Done**

⚙ Properties   ⚙ 📄 ▣

🏷 Name   `WaterTankLevel`   ▣▼

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

```
1  msg.payload = msg.payload.watertanklevel;
2  return msg;
```

⭘ Enabled

Debug panel:

▼ all nodes   🗑 all ▼

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : Object
▸ { watertanklevel: 40,
lightintensity: 65 }

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : number
40

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : number
65

10/12/2021, 15:50:42 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : Object
▸ { watertanklevel: 72,
lightintensity: 43 }

Screenshot 2

Node-RED Deploy ▼ ☰

🔍 filter nodes | ⊘ Flow 1 | Edit function node | ☀ debug ℹ 📄 🐞 ⚙ ▼

common

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

function

- function
- switch

IBM IoT
■ connected

Edit function node

Delete   Cancel   **Done**

⚙ Properties   ⚙ 📄 ▣

🏷 Name   `LightIntensity`   ▣▼

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

```
1  msg.payload = msg.payload.lightintensity;
2  return msg;
```

⭘ Enabled

Debug panel:

▼ all nodes   🗑 all ▼

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : Object
▸ { watertanklevel: 40,
lightintensity: 65 }

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : number
40

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : number
65

10/12/2021, 15:50:42 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : Object
▸ { watertanklevel: 72,
lightintensity: 43 }

Screenshot 1

Node-RED Deploy

filter nodes | Flow 1 | CloudantDemo

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

function
- function
- switch

IBM IoT
connected

Water
LightInte

Edit gauge node

Delete | Cancel | Done

⚙ **Properties**

⊞ Group	[Assignment3] WebUI	✎
⊡ Size	9 x 8	
☰ Type	Level	
Ⅰ Label	Water Tank Level	
Ⅰ Value format	{{value}} %	
Ⅰ Units	%	
Range	min 0 max 100	
</> Class	Optional CSS class name(s) for widget	
🏷 Name		

○ Enabled

debug   i

all nodes | all

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
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10/12/2021, 15:50:42 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : Object
▸ { watertanklevel: 72,
lightintensity: 43 }

Screenshot 2

Node-RED Deploy

filter nodes | Flow 1 | CloudantDemo

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

function
- function
- switch

IBM IoT
connected

Water
LightInte

Edit chart node

Delete | Cancel | Done

⚙ **Properties**

⊞ Group	[Assignment3] WebUI	✎
⊡ Size	13 x 8	
Ⅰ Label	Light intensity	
⬚ Type	Line chart	☐ enlarge points
X-axis	last 1 minutes OR 30 points	
X-axis Label	▾ HH:mm:ss	☐ as UTC
Y-axis	min max	
Legend	None	Interpolate linear
Series Colours		

○ Enabled

debug   i

all nodes | all

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : Object
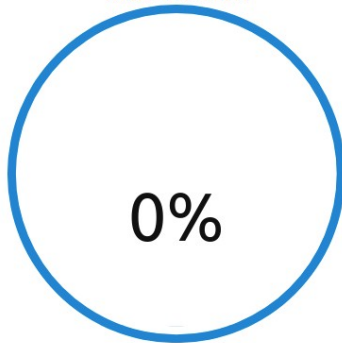▸ { watertanklevel: 40,
lightintensity: 65 }

10/12/2021, 15:50:04 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
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iot-2/type/Device/id/12345/evt/status/fmt/json :
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10/12/2021, 15:50:42 node: fef29536a33ce51a
iot-2/type/Device/id/12345/evt/status/fmt/json :
msg.payload : Object
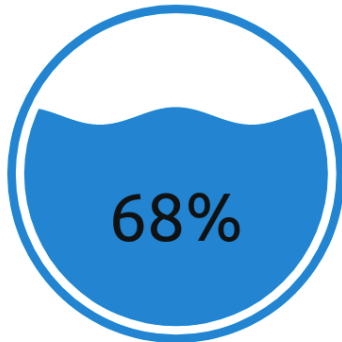▸ { watertanklevel: 72,
lightintensity: 43 }

Assignment3

WebUI

Water Tank Level

0%

Light intensity

Light seems to be switched off.

Assignment3

WebUI

Water Tank Level

68%

Light intensity