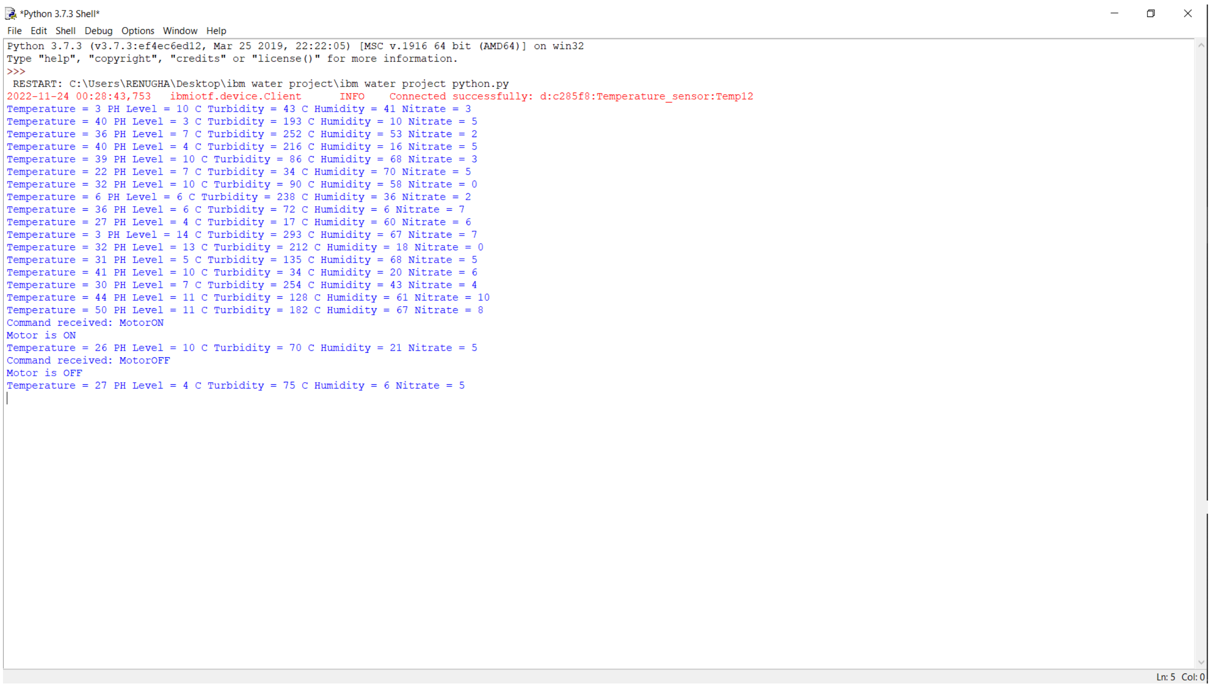
TEAM ID: PNT2022TMID42599
PROJECT: Real time water quality monitoring and control system

Publish Data to cloud and integrate it to the web and app

Python code:

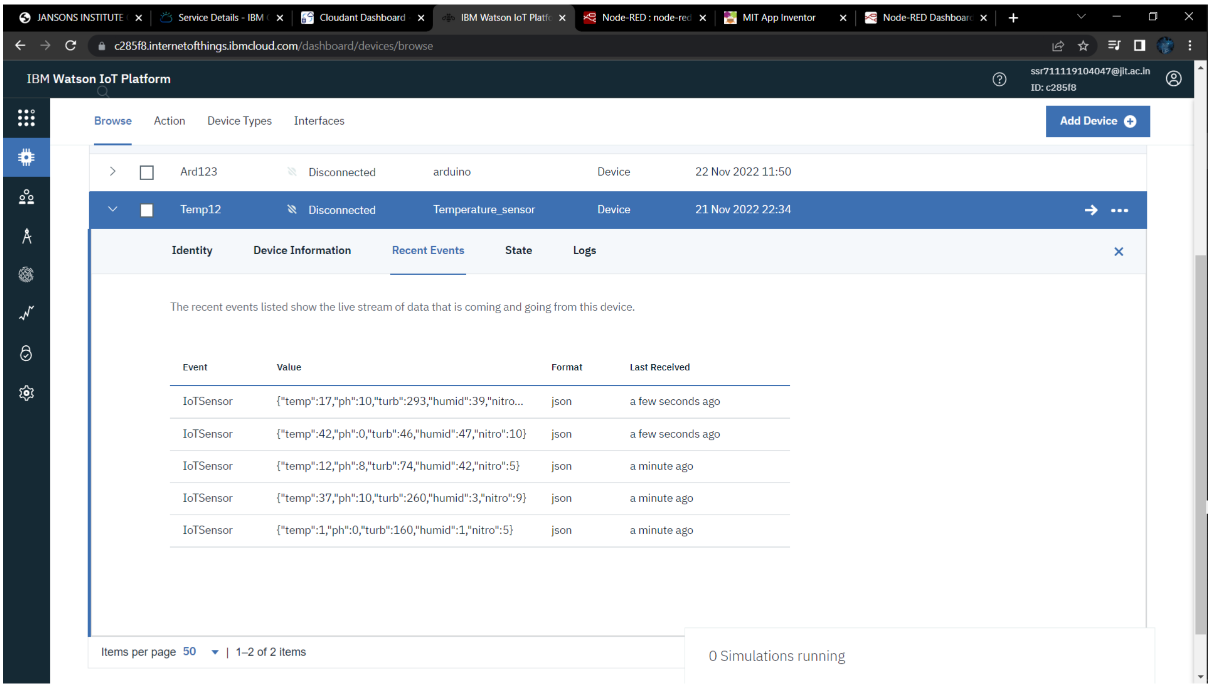
```
import requests
import json
import ibmiotf.application
import ibmiotf.device
import time
import random
import sys


#Provide your IBM Watson Device Credentials
organization = "c285f8"
deviceType = "Temperature_sensor"
deviceId = "Temp12"
authMethod = "token"
authToken = "Temp0123"


# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    control=cmd.data['command']
    if control=="MotorON":
        print("Motor is ON")
    if control=="MotorOFF":
        print("Motor is OFF")

try:
   deviceOptions = {"org": organization, "type": deviceType, "id": deviceId,
"auth-method": authMethod, "auth-token": authToken}
   deviceCli = ibmiotf.device.Client(deviceOptions)



#..............................................
except Exception as e:
   print("Caught exception connecting device: %s" % str(e))
   sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an
event of type
deviceCli.connect()
while True:
 #Get Sensor Data from DHT11
   temp=random.randint(0,50)
   ph=random.randint(0,14)
   turb=random.randint(0,300)
   humid=random.randint(0,70)
   nitro=random.randint(0,10)
   data = {'temp': temp, 'ph' : ph, 'turb': turb, 'humid': humid, 'nitro': nitro }
 #print data

   def myOnPublishCallback():
      print ("Temperature = %s" % temp, "PH Level = %s C" % ph, "Turbidity = %s
C" % turb,"Humidity = %s" % humid,"Nitrate = %s" % nitro )

   success=deviceCli.publishEvent("IoTSensor", "json", data,
qos=0,on_publish=myOnPublishCallback)
   if not success:
     print("Not connected to Iotf")
   time.sleep(10)

   deviceCli.commandCallback = myCommandCallback
```

```
# Disconnect the device and application from the cloud
deviceCli.disconnect()
```



```
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 22:22:05) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> 
 RESTART: C:\Users\RENUGHA\Desktop\ibm water project\ibm water project python.py
2022-11-24 00:28:43,753   ibmiotf.device.Client      INFO    Connected successfully: d:c285f8:Temperature_sensor:Temp12
Temperature = 3 PH Level = 10 C Turbidity = 43 C Humidity = 41 Nitrate = 3
Temperature = 40 PH Level = 3 C Turbidity = 193 C Humidity = 10 Nitrate = 5
Temperature = 36 PH Level = 7 C Turbidity = 252 C Humidity = 53 Nitrate = 2
Temperature = 40 PH Level = 4 C Turbidity = 216 C Humidity = 16 Nitrate = 5
Temperature = 39 PH Level = 10 C Turbidity = 86 C Humidity = 68 Nitrate = 3
Temperature = 22 PH Level = 7 C Turbidity = 34 C Humidity = 70 Nitrate = 5
Temperature = 32 PH Level = 10 C Turbidity = 90 C Humidity = 58 Nitrate = 0
Temperature = 6 PH Level = 6 C Turbidity = 238 C Humidity = 36 Nitrate = 2
Temperature = 36 PH Level = 6 C Turbidity = 72 C Humidity = 6 Nitrate = 7
Temperature = 27 PH Level = 4 C Turbidity = 17 C Humidity = 60 Nitrate = 6
Temperature = 3 PH Level = 14 C Turbidity = 293 C Humidity = 67 Nitrate = 7
Temperature = 32 PH Level = 13 C Turbidity = 212 C Humidity = 18 Nitrate = 0
Temperature = 31 PH Level = 5 C Turbidity = 135 C Humidity = 68 Nitrate = 5
Temperature = 41 PH Level = 10 C Turbidity = 34 C Humidity = 20 Nitrate = 6
Temperature = 30 PH Level = 7 C Turbidity = 254 C Humidity = 43 Nitrate = 4
Temperature = 44 PH Level = 11 C Turbidity = 128 C Humidity = 61 Nitrate = 10
Temperature = 50 PH Level = 11 C Turbidity = 182 C Humidity = 67 Nitrate = 8
Command received: MotorON
Motor is ON
Temperature = 26 PH Level = 10 C Turbidity = 70 C Humidity = 21 Nitrate = 5
Command received: MotorOFF
Motor is OFF
Temperature = 27 PH Level = 4 C Turbidity = 75 C Humidity = 6 Nitrate = 5
```

Simulation data to IBM watson



□	Ard123	Disconnected	arduino	Device	22 Nov 2022 11:50
□	Temp12	Disconnected	Temperature_sensor	Device	21 Nov 2022 22:34

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

Event	Value	Format	Last Received
IoTSensor	{"temp":17,"ph":10,"turb":293,"humid":39,"nitro...	json	a few seconds ago
IoTSensor	{"temp":42,"ph":0,"turb":46,"humid":47,"nitro":10}	json	a few seconds ago
IoTSensor	{"temp":12,"ph":8,"turb":74,"humid":42,"nitro":5}	json	a minute ago
IoTSensor	{"temp":37,"ph":10,"turb":260,"humid":3,"nitro":9}	json	a minute ago
IoTSensor	{"temp":1,"ph":0,"turb":160,"humid":1,"nitro":5}	json	a minute ago

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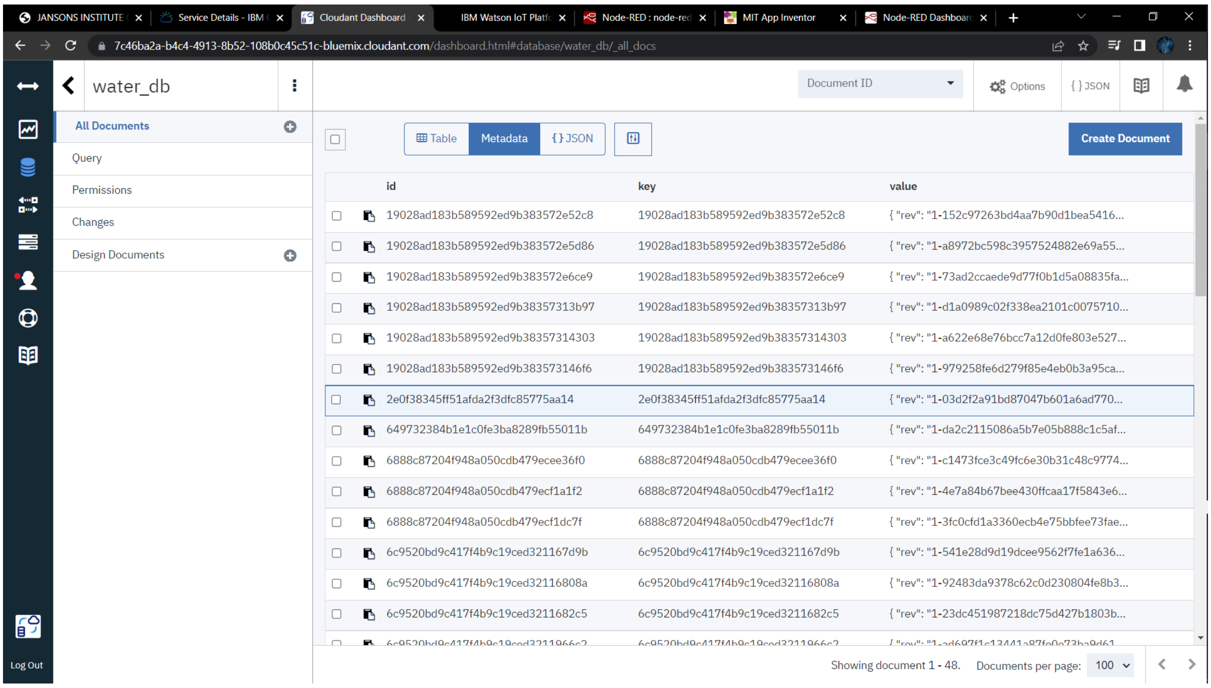
0 Simulations running

Cloudant DB for saving the data form the sensors



id	key	value
19028ad183b589592ed9b383572e52c8	19028ad183b589592ed9b383572e52c8	{ "rev": "1-152c97263bd4aa7b90d1bea5416...
19028ad183b589592ed9b383572e5d86	19028ad183b589592ed9b383572e5d86	{ "rev": "1-a8972bc598c3957524882e69a55...
19028ad183b589592ed9b383572e6ce9	19028ad183b589592ed9b383572e6ce9	{ "rev": "1-73ad2ccaede9d77f0b1d5a08835fa...
19028ad183b589592ed9b38357313b97	19028ad183b589592ed9b38357313b97	{ "rev": "1-d1a0989c02f338ea2101c0075710...
19028ad183b589592ed9b38357314303	19028ad183b589592ed9b38357314303	{ "rev": "1-a622e68e76bcc7a12d0fe803e527...
19028ad183b589592ed9b383573146f6	19028ad183b589592ed9b383573146f6	{ "rev": "1-979258fe6d279f85e4eb0b3a95ca...
2e0f38345ff51afda2f3dfc85775aa14	2e0f38345ff51afda2f3dfc85775aa14	{ "rev": "1-03d2f2a91bd87047b601a6ad770...
649732384b1e1c0fe3ba8289fb55011b	649732384b1e1c0fe3ba8289fb55011b	{ "rev": "1-da2c2115086a5b7e05b888c1c5af...
6888c87204f948a050cdb479ecee36f0	6888c87204f948a050cdb479ecee36f0	{ "rev": "1-c1473fce3c49fc6e30b31c48c9774...
6888c87204f948a050cdb479ecf1a1f2	6888c87204f948a050cdb479ecf1a1f2	{ "rev": "1-4e7a84b67bee430ffcaa17f5843e6...
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6c9520bd9c417f4b9c19ced321167d9b	6c9520bd9c417f4b9c19ced321167d9b	{ "rev": "1-541e28d9d19dcee9562f7fe1a636...
6c9520bd9c417f4b9c19ced32116808a	6c9520bd9c417f4b9c19ced32116808a	{ "rev": "1-92483da9378c62c0d230804fe8b3...
6c9520bd9c417f4b9c19ced3211682c5	6c9520bd9c417f4b9c19ced3211682c5	{ "rev": "1-23dc451987218dc75d427b1803b...
6c9520bd9c417f4b9c19ced3211966c2	6c9520bd9c417f4b9c19ced3211966c2	{ "rev": "1-ad697f1c13441a87fe0e73ba9d61

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