SPRINT - 3

Date	12 NOV 2022
Team ID	PNT2022TMID01880
Project Name	Smart Waste Management System for Metropolitan Cities

1, Simulate python code in Python IDE software to transmit data to IBM Watson IOT platform

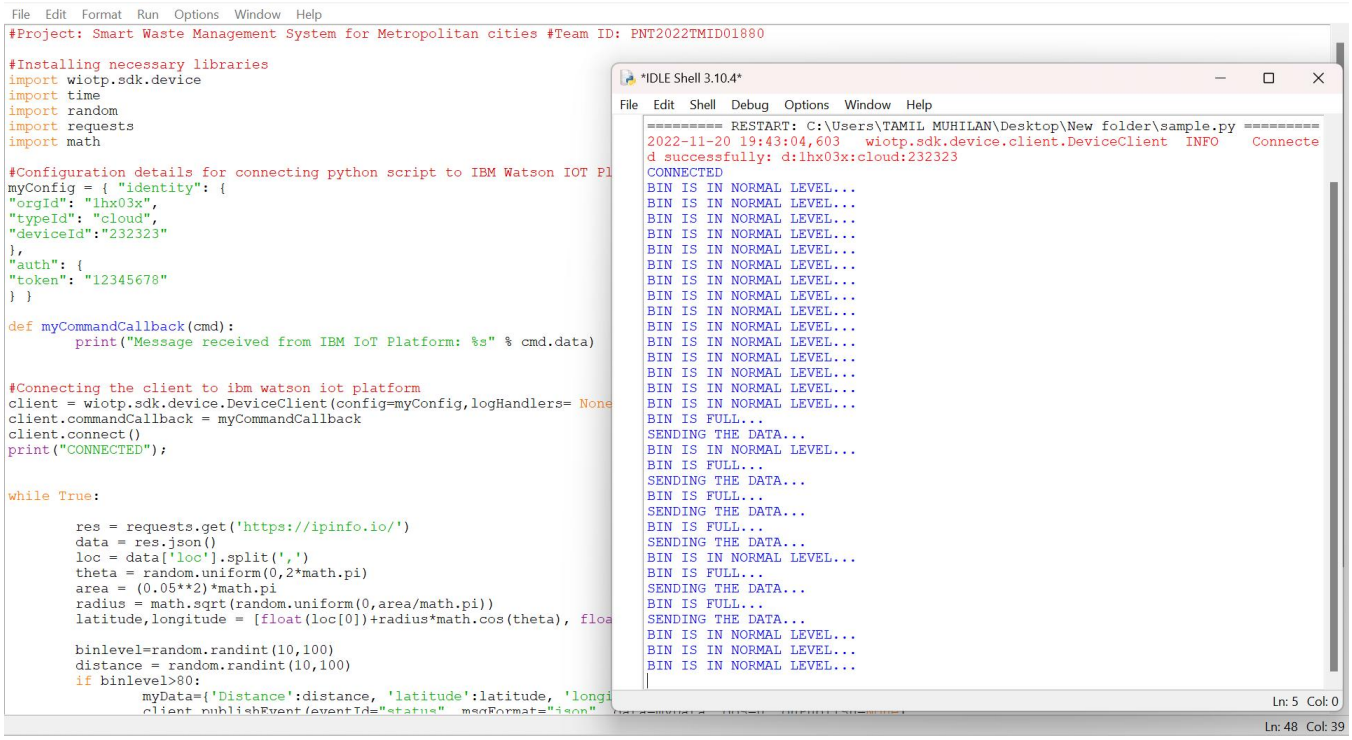
Python code:

smartbin.py:

```
#Project: Smart Waste Management System for Metropolitan cities #Team ID: PNT2022TMID01880

#Installing necessary libraries
import wiotp.sdk.device
import time
import random
import requests
import math

#Configuration details for connecting python script to IBM Watson IOT Platform
myConfig = { "identity": {
"orgId": "1hx03x",
"typeId": "cloud",
"deviceId":"232323"
},
"auth": {
"token": "12345678"
} }

def myCommandCallback(cmd):
        print("Message received from IBM IoT Platform: %s" % cmd.data)


#Connecting the client to ibm watson iot platform
client = wiotp.sdk.device.DeviceClient(config=myConfig,logHandlers= None)
```

```
client.commandCallback = myCommandCallback
client.connect()
print("CONNECTED");



while True:

        res = requests.get('https://ipinfo.io/')
        data = res.json()
        loc = data['loc'].split(',')
        theta = random.uniform(0,2*math.pi)
        area = (0.05**2)*math.pi
        radius = math.sqrt(random.uniform(0,area/math.pi))
        latitude,longitude = [float(loc[0])+radius*math.cos(theta), float(loc[1])+radius*math.sin(theta)]

        binlevel=random.randint(10,100)
        distance = random.randint(10,100)
        if binlevel>80:
                myData={'Distance':distance, 'latitude':latitude, 'longitude':longitude,'binlevel':binlevel}
                client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,
onPublish=None)
                client.commandCallback = myCommandCallback
                print("BIN IS FULL...")
                print("SENDING THE DATA...")
                time.sleep(2)
        else :
                print("BIN IS IN NORMAL LEVEL...")
                time.sleep(2)

#Disconnect the client connection
client.disconnect()
```

Python IDE output:



```
File  Edit  Format  Run  Options  Window  Help
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        if binlevel>80:
                myData={'Distance':distance, 'latitude':latitude, 'longi
                client.publishEvent(eventId="status"  msgFormat="json"
```

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IDLE Shell 3.10.4

File Edit Shell Debug Options Window Help

```
========= RESTART: C:\Users\TAMIL MUHILAN\Desktop\New folder\sample.py =========
2022-11-20 19:43:04,603   wiotp.sdk.device.client.DeviceClient  INFO    Connecte
d successfully: d:1hx03x:cloud:232323
CONNECTED
BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
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BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
BIN IS FULL...
SENDING THE DATA...
BIN IS IN NORMAL LEVEL...
BIN IS FULL...
SENDING THE DATA...
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BIN IS FULL...
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BIN IS FULL...
SENDING THE DATA...
BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
BIN IS IN NORMAL LEVEL...
```

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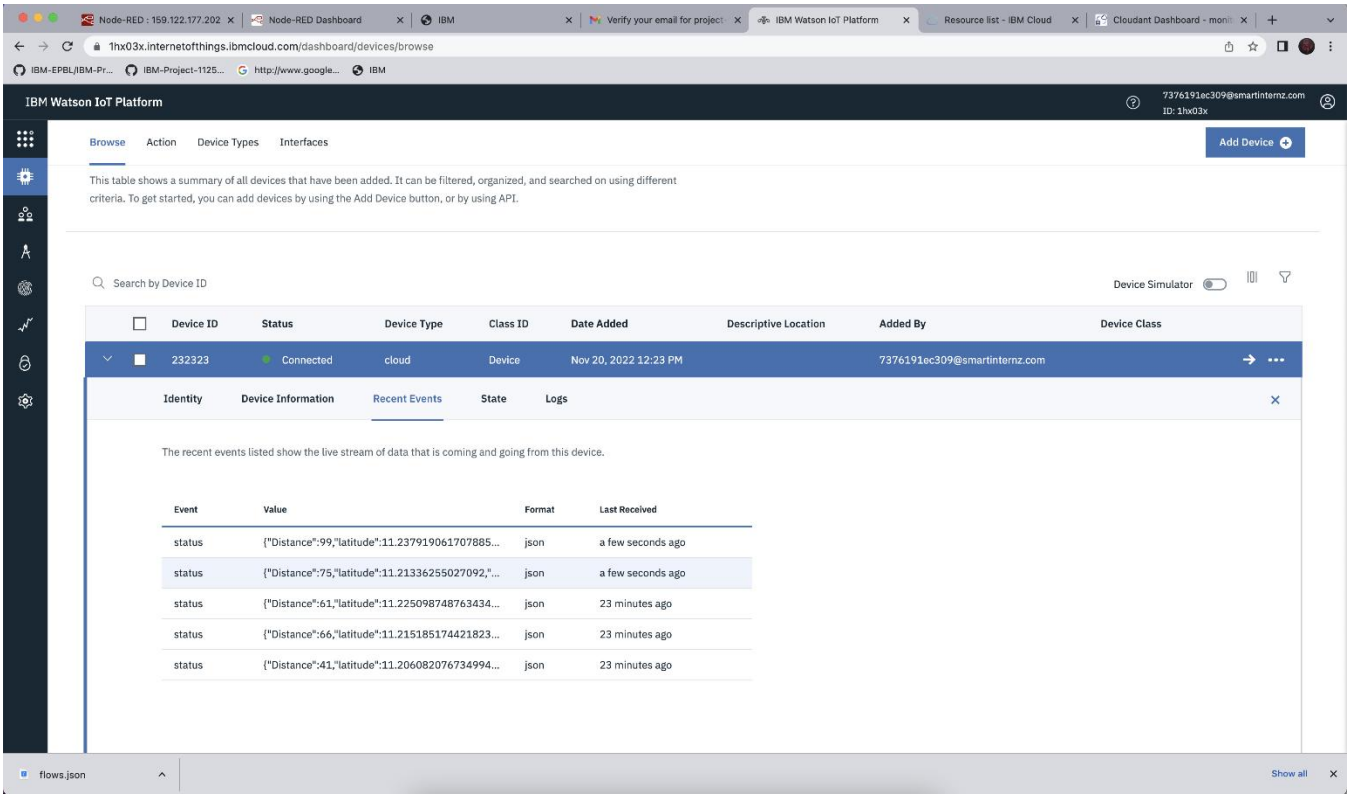
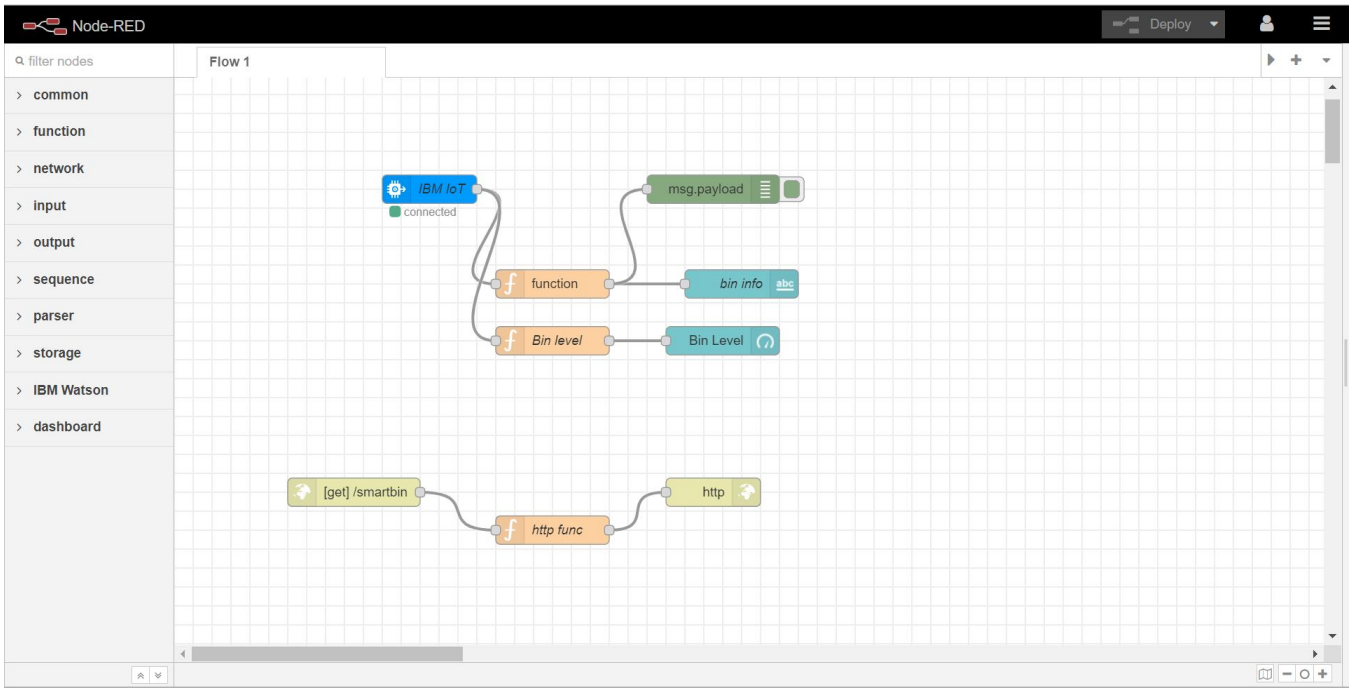
2. Data is transferred to IBM Watson IoT platform.

IBM Platform output:



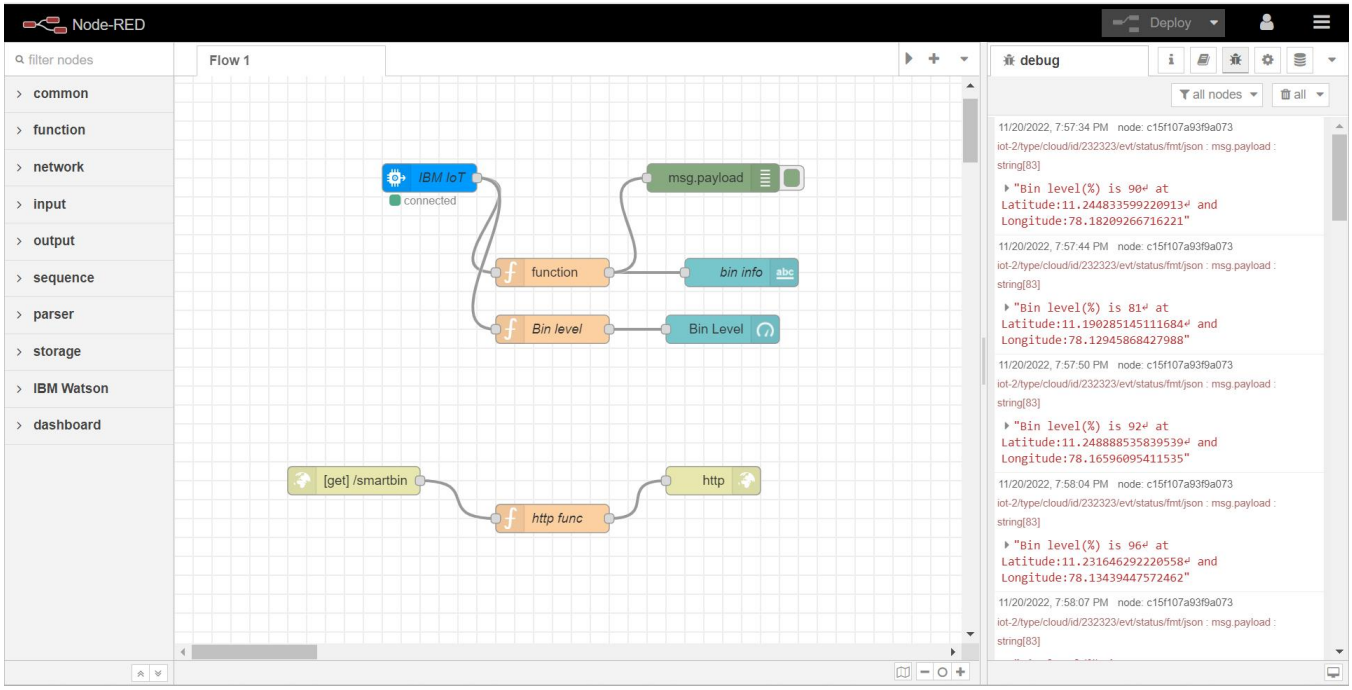
3. Data transfer from IBM Watson IOT platform and Python IDE to Node RED.

Node-RED:



4. Node-RED Connection setup for data transmission from IBM Watson IoT platform to Node-RED dashboard and viewing in Web UI .

Node-RED:



Web UI: