PROJECT DEVELOPMENT PHASE

SPRINT-4

TEAM ID	PNT2022TMID04740
PROJECT	Smart waste management system for metropolitan cities

PYTHON SCRIPT:

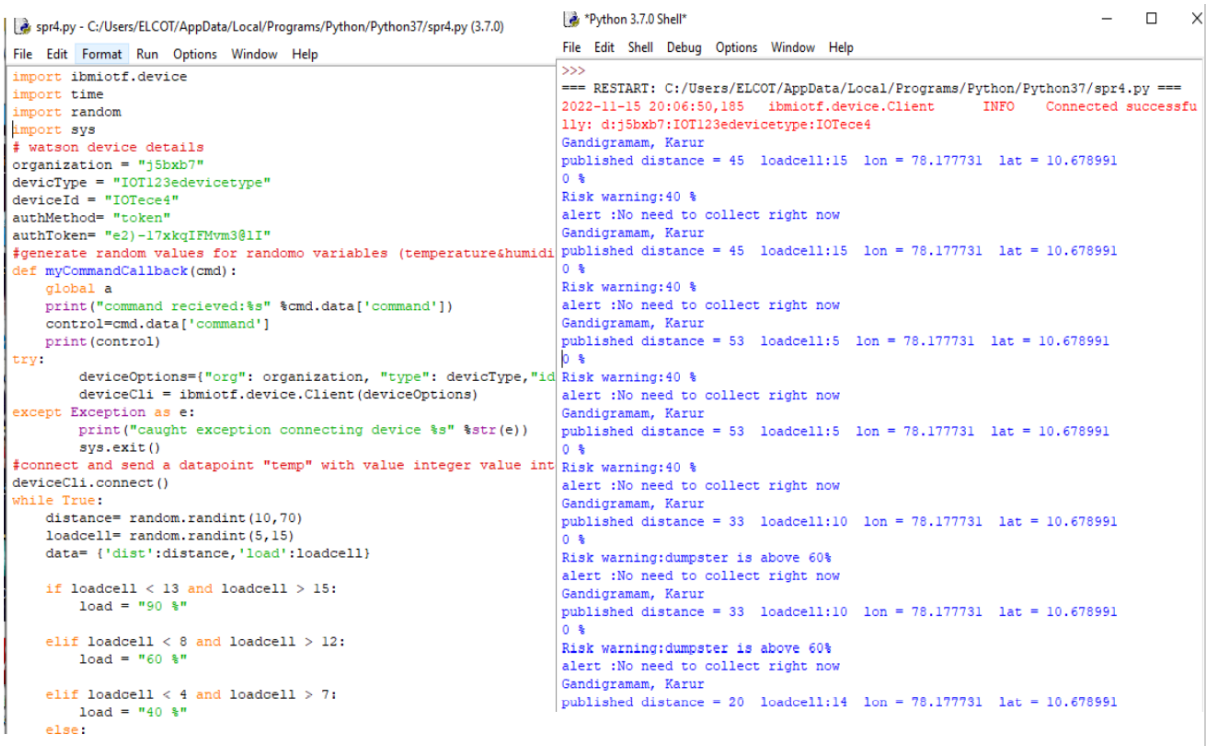
```
import requests

import json

import ibmiotf.application

import ibmiotf.device

import time

import random

import sys

# watson device details

organization = "j5bxb7"

devicType = "IOT123edevicetype"

deviceId = "IOTece4"

authMethod= "token"

authToken= "e2)-17xkqIFMvm3@II"

#generate random values for randomo variables (temperature&humidity)

def myCommandCallback(cmd):

    global a

    print("command recieved:%s" %cmd.data['command'])

    control=cmd.data['command']

    print(control)

try:

    deviceOptions={"org": organization, "type": devicType,"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 "temp" with value integer value into the cloud as a type of event for every 10 seconds
deviceCli.connect()
while True:
    distance= random.randint(10,70)
    loadcell= random.randint(5,15)
    data= {'dist':distance,'load':loadcell}
    if loadcell < 13 and loadcell > 15:
        load = "90 %"
    elif loadcell < 8 and loadcell > 12:
        load = "60 %"
    elif loadcell < 4 and loadcell > 7:
        load = "40 %"
    else:
        load = "0 %"
    if distance < 15:
        dist = 'Risk warning:' 'Dumpster poundage getting high, Time to collect :) 90 %'
    elif distance < 40 and distance >16:
        dist = 'Risk warning:' 'dumpster is above 60%'
    elif distance < 60 and distance > 41:
        dist = 'Risk warning:' '40 %'
    else:
        dist = 'Risk warning:' '17 %'
    if load == "90 %" or distance == "90 %":
        warn = 'alert :' ' Dumpster poundage getting high, Time to collect :)'
    elif load == "60 %" or distance == "60 %":
        warn = 'alert :' 'dumpster is above 60%'
    else :
        warn = 'alert :' 'No need to collect right now '
def myOnPublishCallback(lat=10.678991,long=78.177731):
```

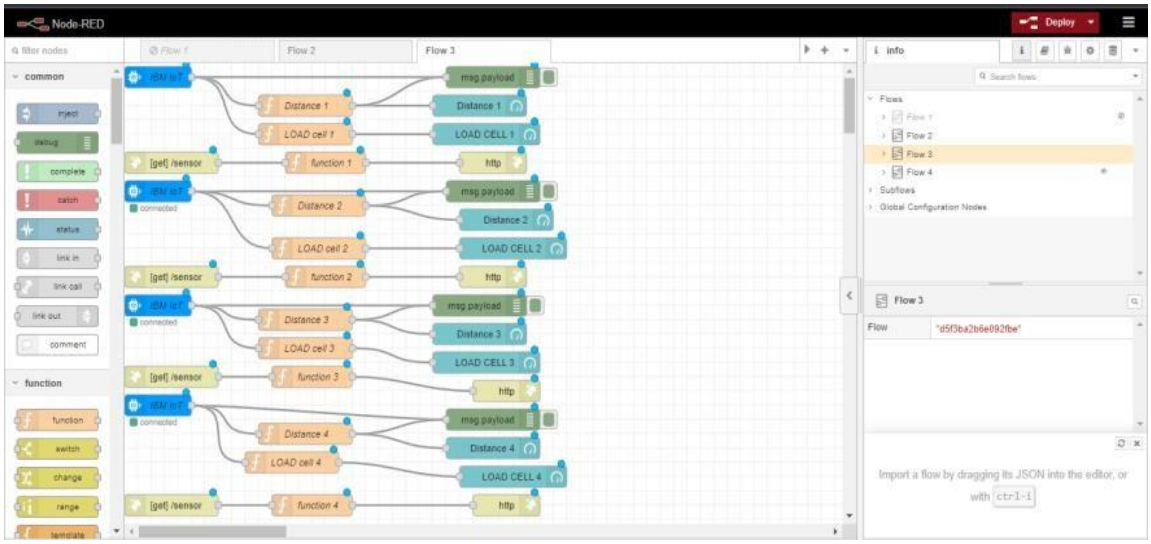
```
    print("Gandigramam, Karur")

    print("published distance = %s " %distance,"loadcell:%s " %loadcell,"lon = %s "%long,"lat = %s" %lat)

    print(load)

    print(dist)

    print(warn)

    time.sleep(10)

    success=deviceCli.publishEvent ("IoTSensor","json",warn,qos=0,on_publish= myOnPublishCallback)

    success=deviceCli.publishEvent ("IoTSensor","json",data,qos=0,on_publish= myOnPublishCallback)

    if not success:

        print("not connected to ibmiot")

        time.sleep(30)

        deviceCli.commandCallback=myCommandCallback

#disconnect the device

deviceCli.disconnect
```

OUTPUT:

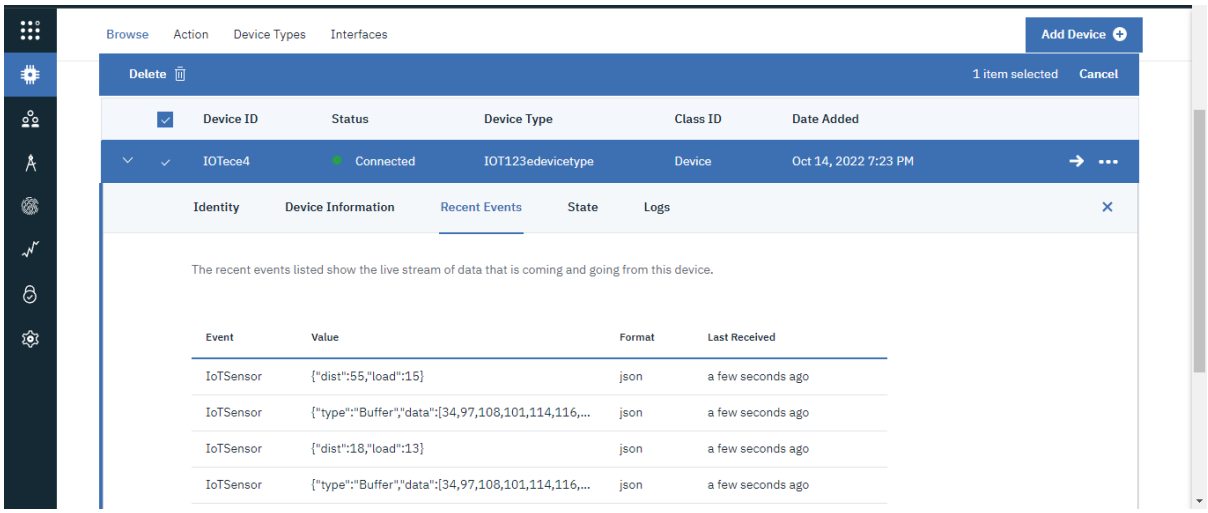
1.PYTHON SIMULATION:



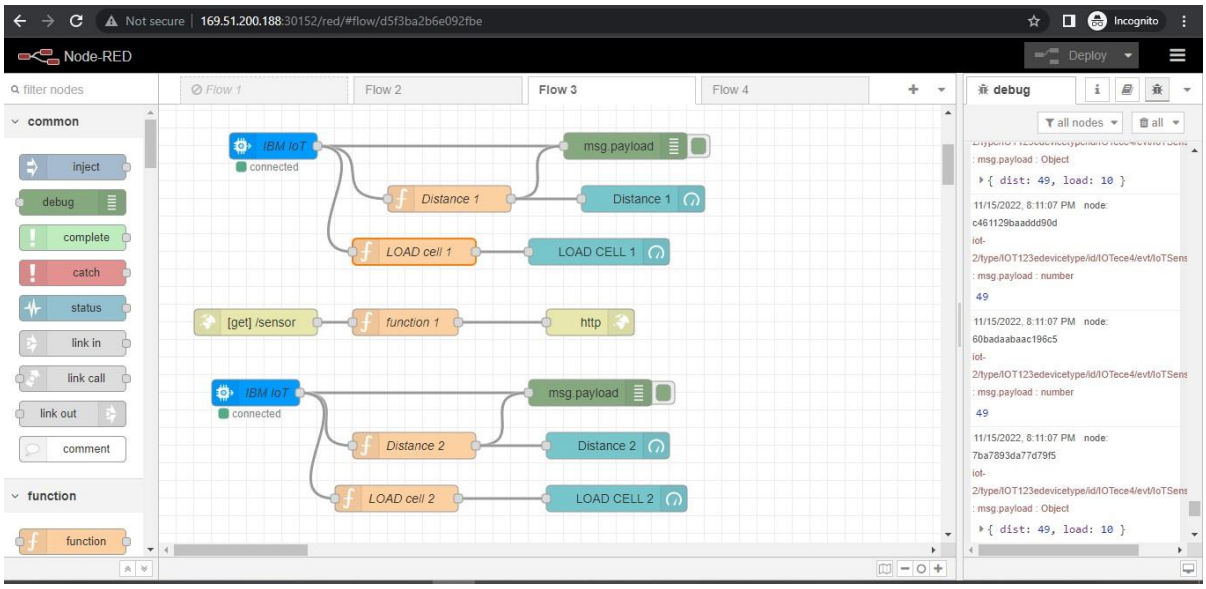
2.Node-RED Connection setup for data transmission from IBM Watson IOT platform to Node-REDdashboard:



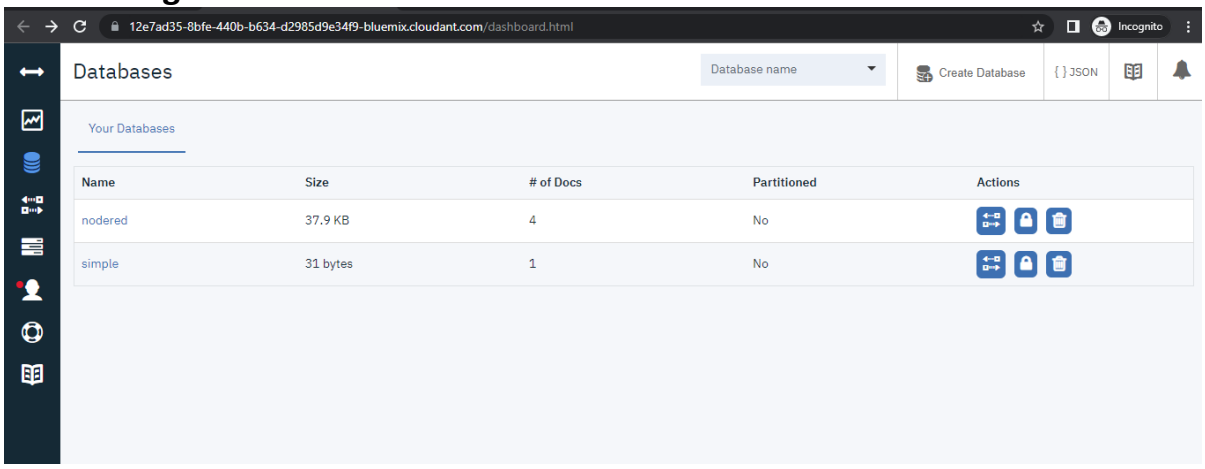
3.Data transfer to IBM Watson IOT platform:

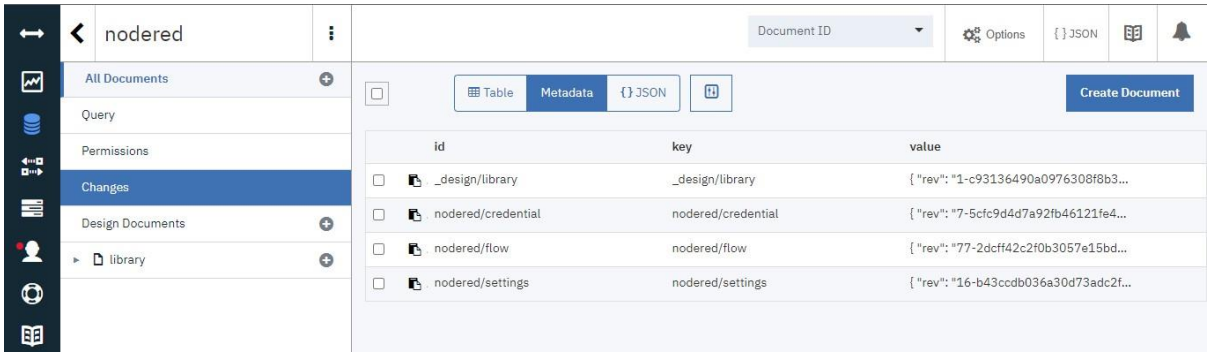


4.Data transfer from IBM Watson IOT platform and python script to Node-RED:

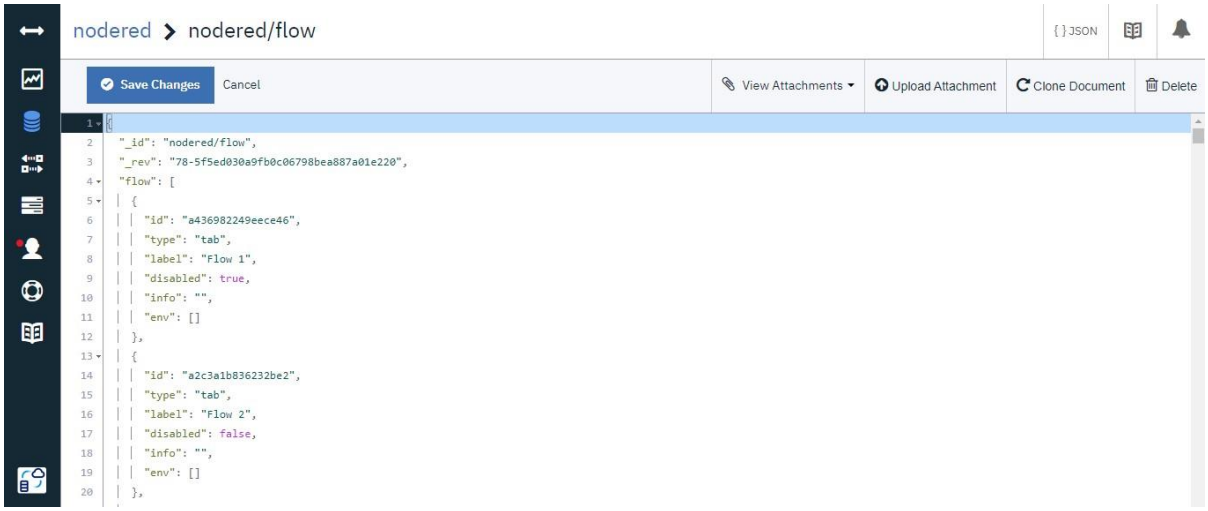


5.Storing database in IBM Cloudant DB:





6.Data Stored in JSON format:




```
{
  "_id": "nodered/flow",
  "_rev": "78-5f5ed030a9fb0c06798bea887a01e220",
  "flow": [
    {
      "id": "a436982249eece46",
      "type": "tab",
      "label": "Flow 1",
      "disabled": true,
      "info": "",
      "env": []
    },
    {
      "id": "a2c3a1b836232be2",
      "type": "tab",
      "label": "Flow 2",
      "disabled": false,
      "info": "",
      "env": []
    },
```


7.Web UI: