

SPRINT – 3

Assignment Date	15 NOVEMBER 2022
Team ID	PNT2022TMID42272
Project Tittle	Smart Waste Management system for metropolitan cities

Create a node red application UI.

Code:

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random
import sys
#Provide your IBM Watson Device Credentials
organization = "a7mbs7"
deviceType = "Smartgarbagebins"
deviceId = "Bin1"
authMethod = "token"
authToken = "Sakthi@2001"
# Initialize GPIO
def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    status=cmd.data['command']
    if status == "lighton":
        print("led in on")
    else :
```

```

    print ("led 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 oftype "greeting" 10 times
deviceCli.connect()

while True:
    #Get Sensor Data from DHT11
    time.sleep(5)
    ult_son=random.randint(0,80)
    weight=random.randint(0,100)
    lat = round(random.uniform(12.03, 13.50), 6)
    lon = round(random.uniform(80.80, 85.90), 6)
    data = {'Ultrasonic' : ult_son, 'Weight' : weight , 'lat' : lat,'lon':lon}
    #print data
    def myOnPublishCallback():
        print ("Published Ultrasonic :%s Cm" %ult_son, "Weight:%s kg "
%weight, "lat: %s" %lat,"lon: %s" %lon)
        success = deviceCli.publishEvent("IoTSensor", "json", data, qos=0,
on_publish=myOnPublishCallback)
        if not success:5
        print("Not connected to IoT")
        time.sleep(1)

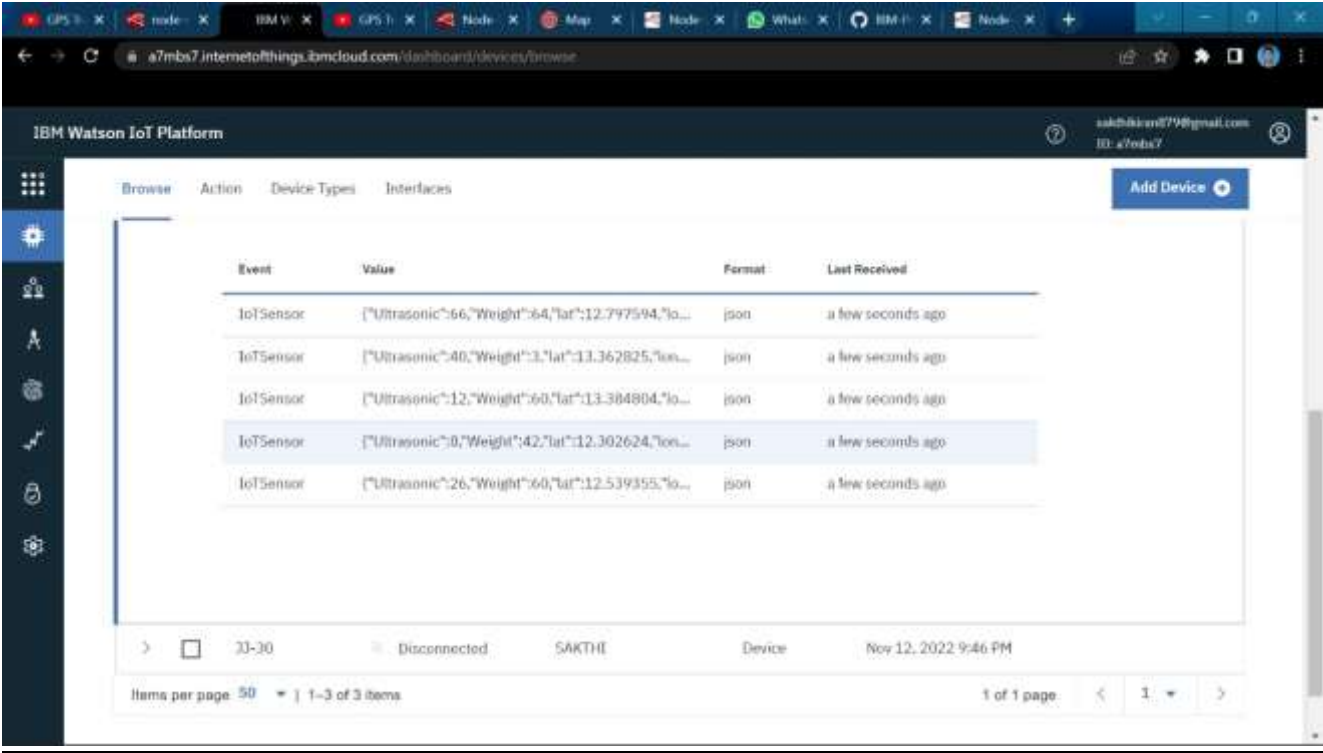
```

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

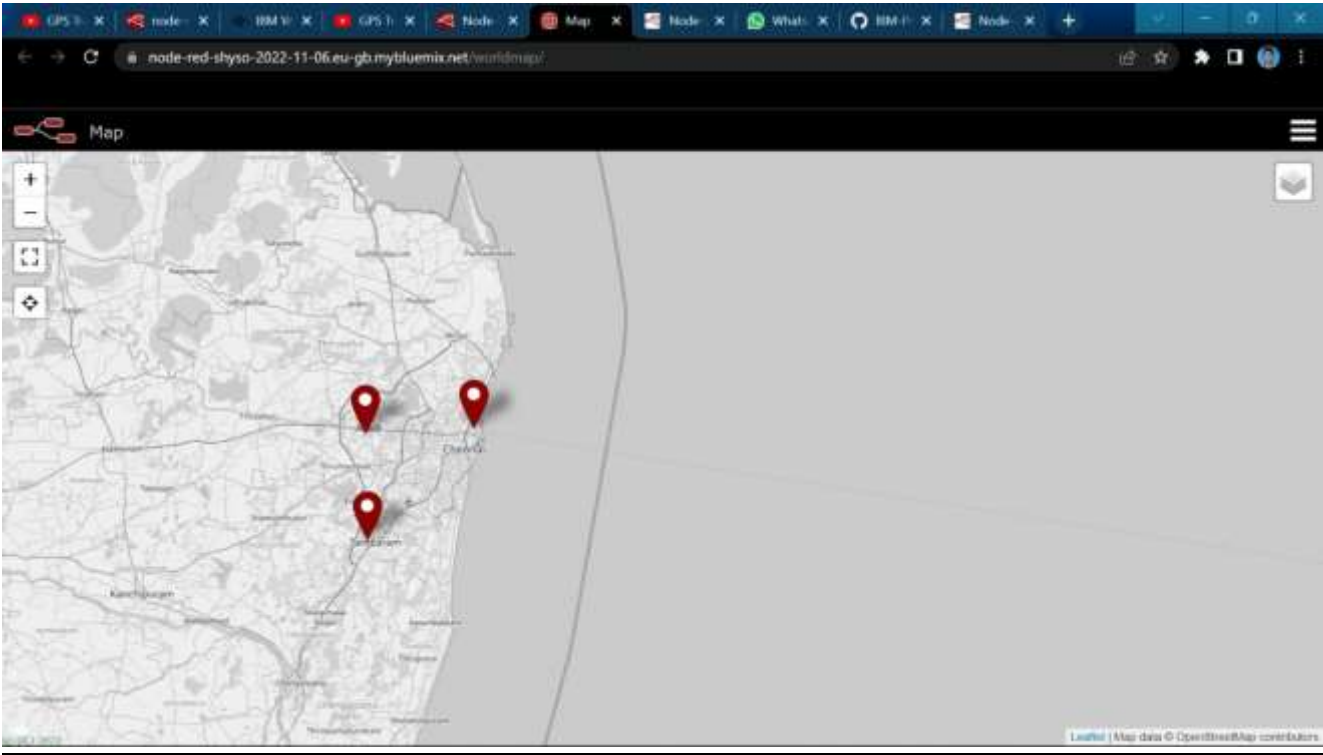
Python Output:

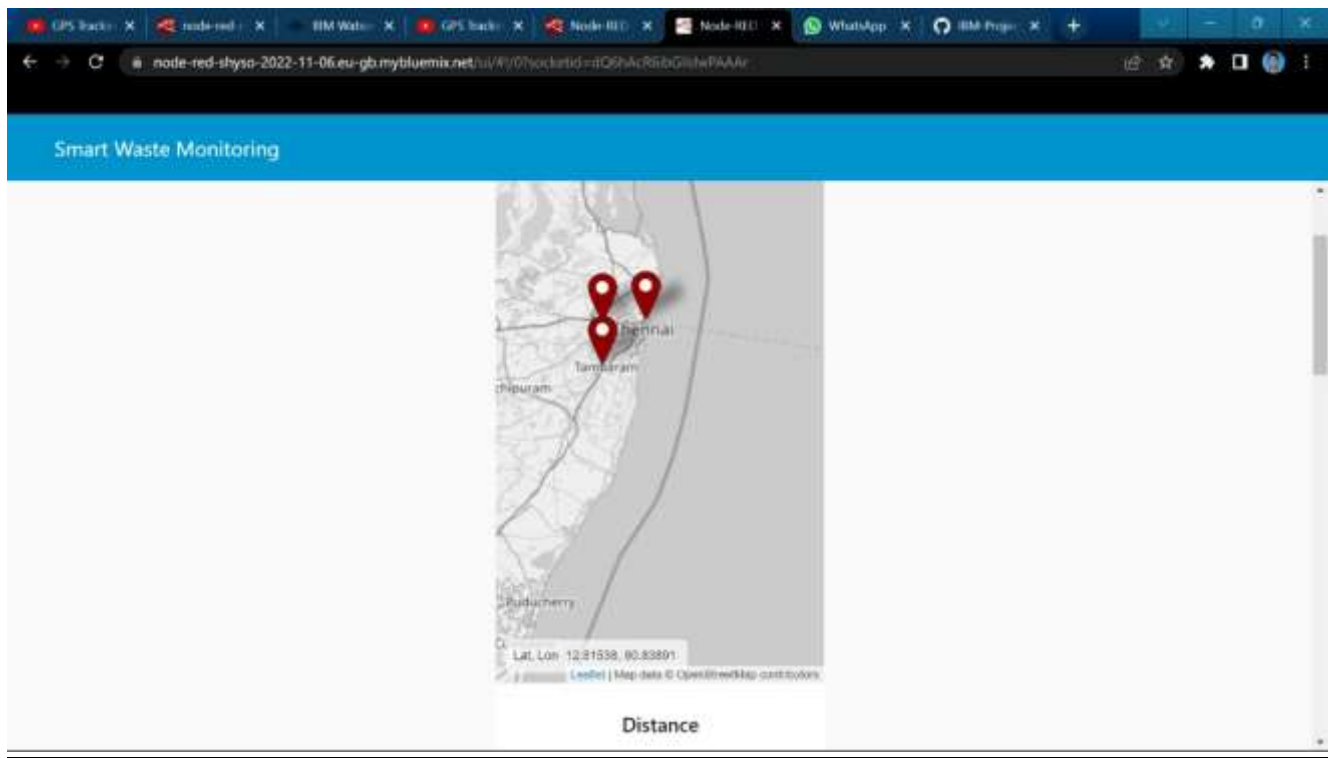
File	Id	Shell	Debug	Options	Window	Help
Published Ultrasonic	119	On	Weight:194 kg	lat: 13.042804 lon: 81.75996		
Published Ultrasonic	128	On	Weight:96 kg	lat: 13.152704 lon: 81.589303		
Published Ultrasonic	148	On	Weight:17 kg	lat: 12.3003 lon: 82.557853		
Published Ultrasonic	150	On	Weight:84 kg	lat: 12.723803 lon: 85.083139		
Published Ultrasonic	128	On	Weight:13 kg	lat: 12.262693 lon: 81.709150		
Published Ultrasonic	134	On	Weight:31 kg	lat: 12.912404 lon: 84.481679		
Published Ultrasonic	149	On	Weight:21 kg	lat: 13.063945 lon: 81.008956		
Published Ultrasonic	10	On	Weight:65 kg	lat: 12.910833 lon: 82.580219		
Published Ultrasonic	138	On	Weight:57 kg	lat: 13.281238 lon: 81.501323		
Published Ultrasonic	179	On	Weight:94 kg	lat: 12.713913 lon: 83.590587		
Published Ultrasonic	184	On	Weight:128 kg	lat: 13.016945 lon: 85.233295		
Published Ultrasonic	18	On	Weight:15 kg	lat: 12.902573 lon: 84.252482		
Published Ultrasonic	122	On	Weight:127 kg	lat: 12.88435 lon: 80.935229		
Published Ultrasonic	113	On	Weight:93 kg	lat: 12.464750 lon: 82.385753		
Published Ultrasonic	122	On	Weight:161 kg	lat: 12.465191 lon: 81.9176		
Published Ultrasonic	118	On	Weight:8 kg	lat: 13.31219 lon: 84.673749		
Published Ultrasonic	114	On	Weight:41 kg	lat: 12.897688 lon: 93.95843		
Published Ultrasonic	173	On	Weight:21 kg	lat: 12.765916 lon: 81.121809		
Published Ultrasonic	176	On	Weight:89 kg	lat: 12.485634 lon: 85.797305		
Published Ultrasonic	167	On	Weight:30 kg	lat: 12.466667 lon: 85.585165		
Published Ultrasonic	154	On	Weight:33 kg	lat: 12.295802 lon: 82.987133		
Published Ultrasonic	121	On	Weight:61 kg	lat: 12.349312 lon: 81.816453		
Published Ultrasonic	115	On	Weight:85 kg	lat: 13.42882 lon: 85.101653		
Published Ultrasonic	117	On	Weight:176 kg	lat: 13.350439 lon: 84.924882		
Published Ultrasonic	141	On	Weight:99 kg	lat: 12.122203 lon: 82.095696		
Published Ultrasonic	180	On	Weight:147 kg	lat: 12.320411 lon: 85.312242		
Published Ultrasonic	159	On	Weight:85 kg	lat: 13.025076 lon: 82.442493		
Published Ultrasonic	131	On	Weight:58 kg	lat: 12.573036 lon: 82.023028		
Published Ultrasonic	161	On	Weight:92 kg	lat: 12.173432 lon: 85.616471		
Published Ultrasonic	183	On	Weight:20 kg	lat: 13.421729 lon: 83.691535		
Published Ultrasonic	174	On	Weight:45 kg	lat: 13.469798 lon: 84.772026		
Published Ultrasonic	174	On	Weight:43 kg	lat: 13.357722 lon: 83.90607		
Published Ultrasonic	145	On	Weight:15 kg	lat: 12.100642 lon: 84.944771		
Published Ultrasonic	165	On	Weight:29 kg	lat: 12.585533 lon: 85.863565		
Published Ultrasonic	119	On	Weight:100 kg	lat: 13.469128 lon: 93.152936		
Published Ultrasonic	148	On	Weight:70 kg	lat: 13.16196 lon: 82.081189		
Published Ultrasonic	160	On	Weight:18 kg	lat: 12.471403 lon: 80.985271		
Published Ultrasonic	118	On	Weight:65 kg	lat: 12.623412 lon: 81.955765		
Published Ultrasonic	178	On	Weight:60 kg	lat: 12.266646 lon: 83.276115		
Published Ultrasonic	144	On	Weight:36 kg	lat: 12.599836 lon: 85.200905		
Published Ultrasonic	152	On	Weight:47 kg	lat: 12.715786 lon: 82.161736		
Published Ultrasonic	148	On	Weight:75 kg	lat: 12.45651 lon: 81.426264		
Published Ultrasonic	149	On	Weight:29 kg	lat: 12.644952 lon: 84.772957		
Published Ultrasonic	148	On	Weight:31 kg	lat: 13.134231 lon: 82.323981		

IBM Watson Output:

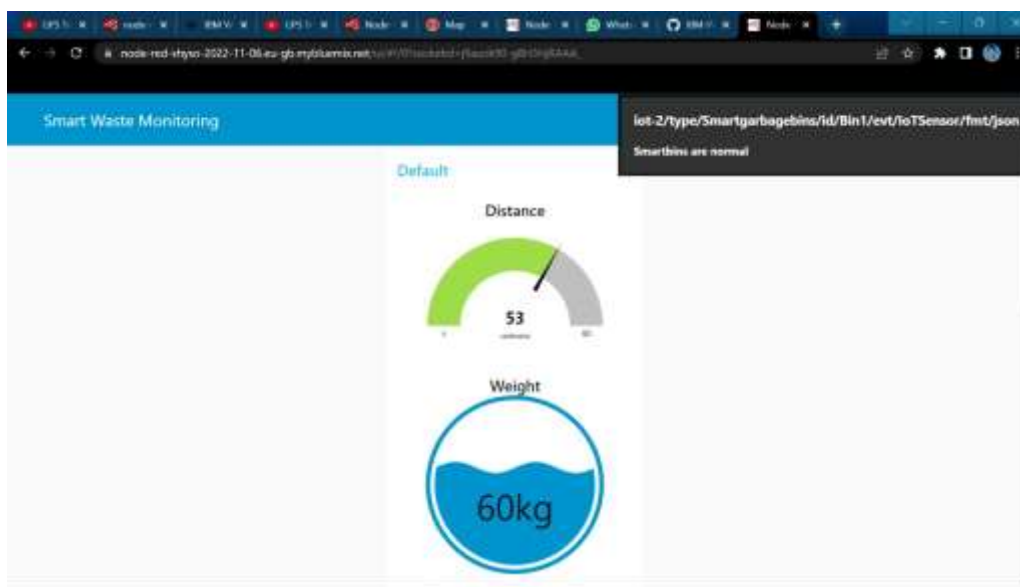
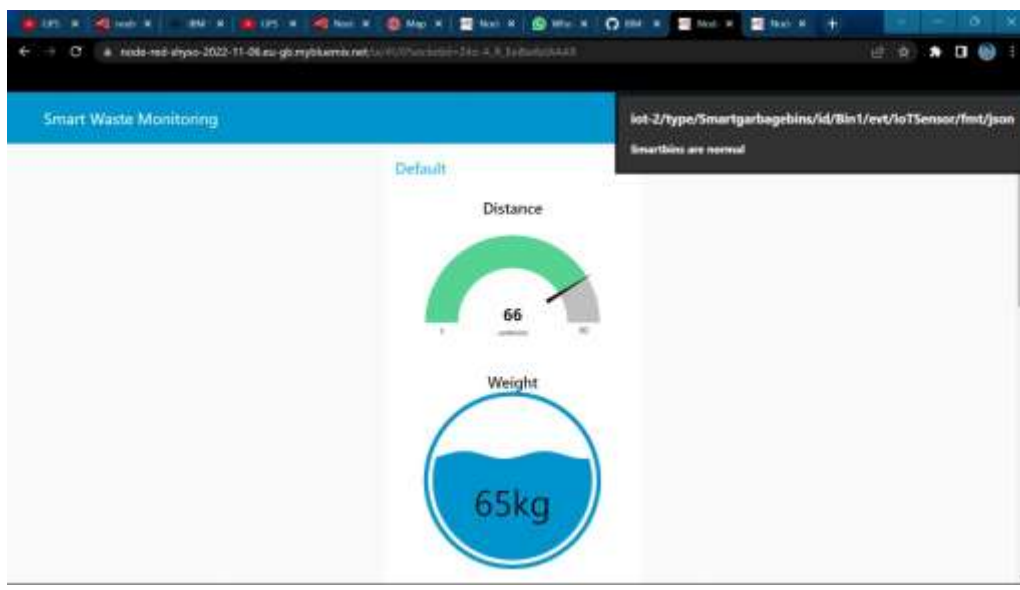


Web UI map:

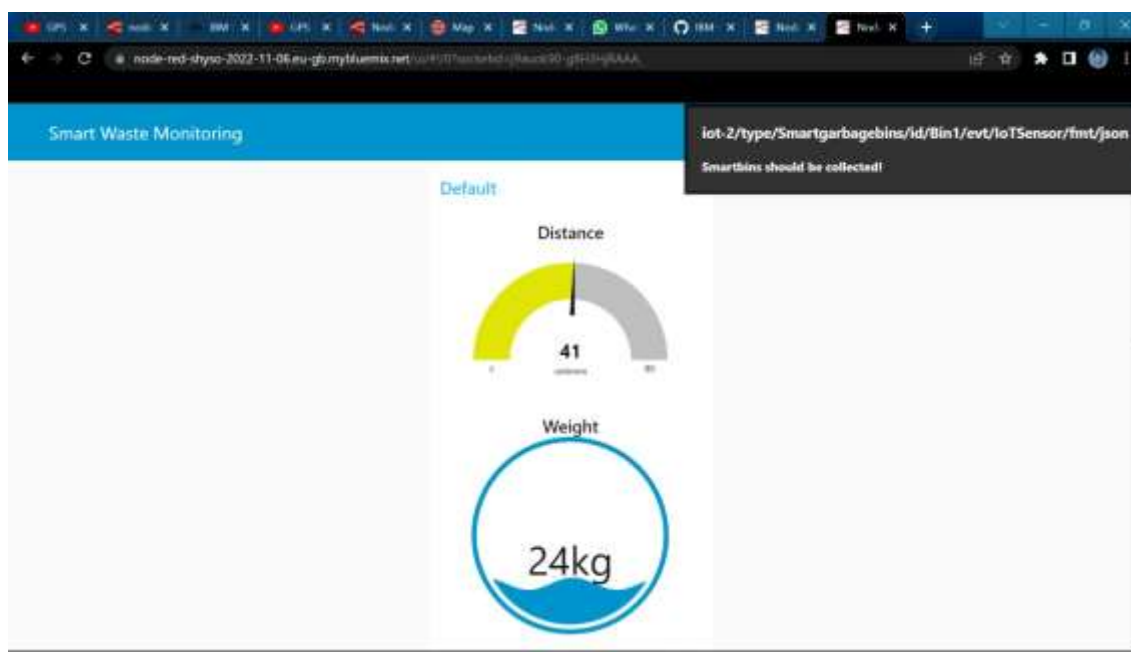
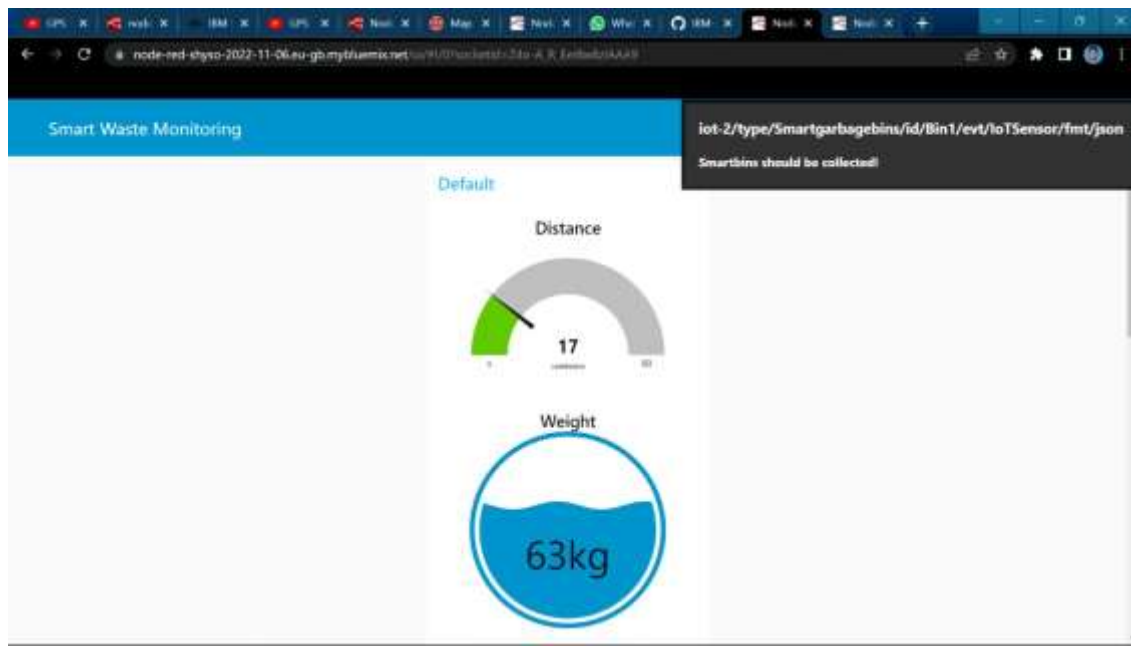




Smart bins are in normal weight:



Smart bins should be collected:



Result:

The node red application was successfully created and the weight of the smart bins are collected and the alert notifications are created successfully.