

### Develop a python script

Team ID	PNT2022TMID25479
Project Name	Smart waste management system for metropolitan cities

Step 1: Open python idle

Step2: Type the program

Step 3: Then click on file and save the document

Step 4: Then click on Run then Run Module

Step 5: output will be appeared in the idle window

### Python script

```
// Project: Smart Waste Management
// Team ID: PNT2022TMID01046
import requests
import json
import ibmiotf.application
import ibmiotf.device
import time
import random
import sys

# watson device details

organization = "ms9s4l"
devicType = "BIN1"
deviceId = "BIN1ID"
authMethod= "token"
authToken= "123456789"
```

```
#generate random values for randomo variables for distance and loadcell
```

```
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 "distance and loadcell" 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 :' 'Risk Warning: 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=10.939091,long=78.135731):
    print("Chennai")
    print("published distance = %s " %distance,"loadcell:%s " %loadcell,"lon = %s " %long,"lat = %s" %lat)
    print(load)
    print(dist)
    print(warn)

time.sleep(10)

```

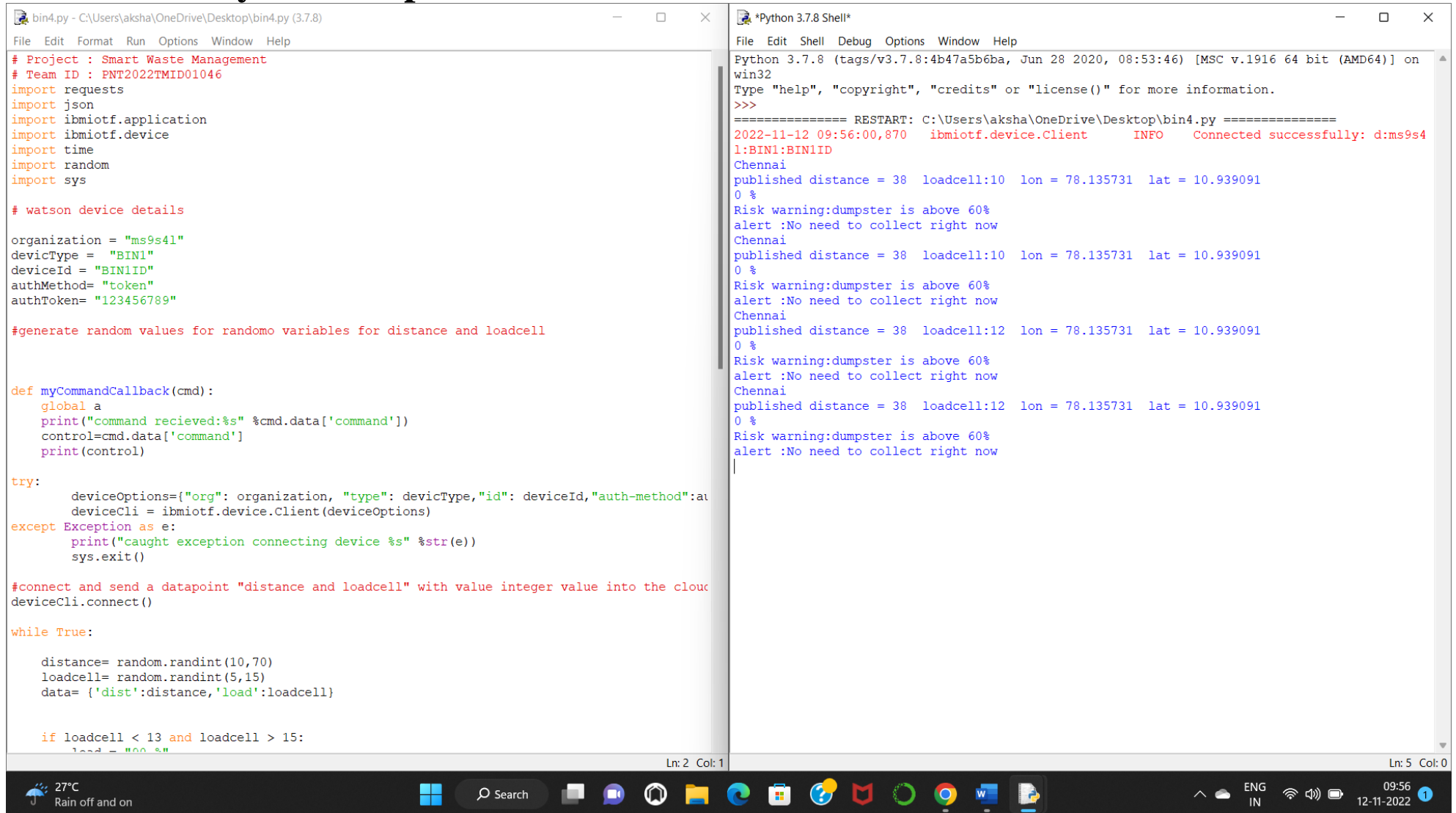
```
success=deviceCli.publishEvent ("IoTSensor","json",warn,qos=0,on_publish= myOnPublishCallback)

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


if not success:
    print("not connected to ibmiot")
    time.sleep(10)


deviceCli.commandCallback=myCommandCallback
#disconnect the device
deviceCli.disconnect()
```

# Screenshots Python script:



The image shows a screenshot of a Windows desktop with two windows open. The left window is a Python script editor titled 'bin4.py - C:\Users\aksha\OneDrive\Desktop\bin4.py (3.7.8)'. It contains a Python script for a 'Smart Waste Management' project. The script imports requests, json, ibmiotf, time, random, and sys. It defines a 'watson device details' section with organization, deviceType, deviceId, authMethod, and authToken. It also includes a 'generate random values' section and a 'myCommandCallback' function. The script connects to the Watson IoT cloud and sends a datapoint 'distance and loadcell' with integer values into the cloud. It also includes a while loop that generates random values for distance and loadcell, and a conditional statement for loadcell.

```
# Project : Smart Waste Management
# Team ID : PNT2022TMID01046
import requests
import json
import ibmiotf.application
import ibmiotf.device
import time
import random
import sys

# watson device details

organization = "ms9s41"
deviceType = "BIN1"
deviceId = "BIN1ID"
authMethod= "token"
authToken= "123456789"

#generate random values for randomo variables for distance and loadcell

def myCommandCallback(cmd):
    global a
    print("command recieved:%s" %cmd.data['command'])
    control=cmd.data['command']
    print(control)

try:
    deviceOptions={"org": organization, "type": deviceType,"id": deviceId,"auth-method":a
    deviceCli = ibmiotf.device.Client(deviceOptions)
except Exception as e:
    print("caught exception connecting device %s" %str(e))
    sys.exit()

#connect and send a datapoint "distance and loadcell" with value integer value into the cloud
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 = "60 %"
```

The right window is a Python 3.7.8 Shell titled '\*Python 3.7.8 Shell\*'. It shows the output of the script. The output includes the version information, the command 'help', 'copyright', 'credits' or 'license()' for more information, and the command 'restart'. The output also shows the connection status 'Connected successfully: d:ms9s41:BIN1:BIN1ID' and the location 'Chennai'. The output displays the published distance and loadcell values, along with the lon and lat coordinates. The output also shows the risk warning 'Risk warning:dumpster is above 60%' and the alert 'alert :No need to collect right now'.

```
Python 3.7.8 (tags/v3.7.8:4b47a5b6ba, Jun 28 2020, 08:53:46) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\aksha\OneDrive\Desktop\bin4.py =====
2022-11-12 09:56:00,870 ibmiotf.device.Client INFO Connected successfully: d:ms9s41:BIN1:BIN1ID
Chennai
published distance = 38 loadcell:10 lon = 78.135731 lat = 10.939091
0 %
Risk warning:dumpster is above 60%
alert :No need to collect right now
Chennai
published distance = 38 loadcell:10 lon = 78.135731 lat = 10.939091
0 %
Risk warning:dumpster is above 60%
alert :No need to collect right now
Chennai
published distance = 38 loadcell:12 lon = 78.135731 lat = 10.939091
0 %
Risk warning:dumpster is above 60%
alert :No need to collect right now
Chennai
published distance = 38 loadcell:12 lon = 78.135731 lat = 10.939091
0 %
Risk warning:dumpster is above 60%
alert :No need to collect right now
```