

### Develop a python script

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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

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

```
# watson device details
```

```
organization = "4yi0vc"
devicType = "BIN1"
deviceId = "BIN1ID"
authMethod= "token"
authToken= "123456789"
```

```
#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
```

## Screenshots Python script:

The image shows a Windows desktop with three Python IDE windows open. The left window, titled 'bin2.py - F:\Desktop\bin2.py (3.7.4)', contains a script for Watson IoT device setup and data generation. It imports requests, json, ibmiotf.application, ibmiotf.device, time, random, and sys. It defines a Watson device with organization '4yi0vc', deviceType 'BIN2', deviceId 'BIN2ID', authMethod 'token', and authToken '123456789'. It then generates random values for temperature and humidity and sends a datapoint 'temp' to the cloud. The middle window, titled 'bin1.py - F:\Desktop\bin1.py (3.7.4)', shows a script for a custom command callback. It imports requests, json, ibmiotf.application, ibmiotf.device, time, random, and sys. It defines a Watson device with organization '4yi0vc', deviceType 'BIN1', deviceId 'BIN1ID', authMethod 'token', and authToken '123456789'. It then defines a myCommandCallback function that prints the command received and sends a datapoint 'temp' to the cloud. The right window, titled 'Python 3.7.4 Shell', shows a terminal output of a risk warning. The output is a JSON object with fields: risk\_warning, alert, published\_distance, lon, and lat. The risk\_warning is 'Risk warning:dumpster is above 60%', alert is 'alert :No need to collect right now', published\_distance is 48, lon is 75.135731, and lat is 10.939091. The terminal output is repeated three times.



