DEVELPE A PYTHON SCRIPT

DATE	14– NOVEMBER-2022
TEAM ID	**PNT2022TMID42239**
PROJECT NAME	**SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY**

PYTHON CODE :

#OPENWEATHER MAP(SPRINT 2)-{REQUIREMENT 1 OF THE PROJECT TO GET WEATHER DATA}

#TRAFFIC AND FATAL SITUATION ALERT BY ROADSAFETY CONTROL OFFICE(SPRINT 3) - {REQUIREMENT 2 OF THE PROJECT TO DISPLAY THE ALERT AND DIVERSION MESSAGE THAT WAS FROM ROAD SAFETY OFFICE

#HOSPITAL,SCHOOL AND PEOPLE CROWDED AREA LIKE RESTAURANT SIGNS DISPLAYED SPEED RECOMMENDATION ARE PROVIDED(SPRINT 4) - {REQUIREMENT 3 0F THE PROJECT TO DISPLAY HOSPITAL AND SCHOOL REGION BY THE ROAD SAFETY CONTROL OFFICE}

```python
import wiotp.sdk.device  #importing library files for connecting with CLOUD,sdk=software developement kit

import requests  #for API request

import json  #converting it to json(key:values)

import sys

myConfig = {
    "identity": {
        "orgId": "7f5hee",
        "typeId": "testdevicetype",     #configuration wit CLOUD,finding identity
```

```
            "deviceId":"12345"
        },
    "auth": {
        "token": "AQCLi6rYJrcoiDpW6?"   #authenticating with cloud device
    }
}
```

#TRAFFIC AND FATAL SITUATION ALERT MESSAGE DISPLAYING IN WEB UI WHWN THE

```
client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
```
#initialising device client with above myconfig detail

```
client.connect()


ALERT=""
NOTIFY=""
def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
    m=cmd.data['command']
```

#THIS IF COMDITION BLOCK IS FOR TRAFFIC AND FATAL SITUATION ALERT MESSAGE DISPLAYING IN WEB UI WHEN THE MESSAGE WAS RECEIVED FROM THE ROAD SAFETY OFFICE

```
    ALERT=""
    NOTIFY=""
    if(m=="TRAFFIC"):

        ALERT="TRAFFIC - PLEASE WAIT OR PREFER ANOTHER ROUTE"
        print("*****///PLEASE WAIT OR PREFER ANOTHER ROUTE///*****")
```

```python
    elif(m=="ACCIDENT"):

        ALERT="ACCIDENT - TAKE DIVERSION"

        print("*****///TAKE DIVERSION///*****")

    elif(m=="MESSAGE"):

        ALERT="HAVE A NICE DAY!"

        print("HAVE A NICE DAY!")


    #THE BELOW CONDITION BLOCK IS TO DISPLAY HOSPITAL ,SCHOOL, AND RESTAURANT REGIONED AREA AND SPEED RECOMMENDATION
    if(m=="SCHOOL"):

        NOTIFY="SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR"

        print("SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR")

    elif(m=="HOSPITAL"):

        NOTIFY="HOSPITAL REGION DONT USE HORN"

        print("HOSPITAL REGION DONT USE HORN")

    elif(m=="RESTAURANT"):

        NOTIFY="CROWDED AREA PLEASE MAINTAIN SPEED LIMIT"

        print("CROWDED AREA PLEASE MAINTAIN SPEED LIMIT")

    mydata1={}

    if(m=="TRAFFIC" or m=="ACCIDENT" or m=="MESSAGE"):

        mydata1={"SITUATION":ALERT}

    elif(m=="SCHOOL"or m=="HOSPITAL" or m=="RESTAURANT" ):

        mydata1={"CAUTION":NOTIFY}
```

```python
    client.publishEvent("12345","json",mydata1)




while True:
    print("==================================")
    AREA = "Chennai,%20IN"
    weatherData =
requests.get("https://api.openweathermap.org/data/2.5/weather?q=" + AREA +
"&appid=b966927276060e981c650a5ca4409f8b&units=metric")
    a=weatherData.text
    b=json.loads(a)
    temp = b["main"]["temp"]
    humi = b["main"]["humidity"]
    main = b["weather"][0]["main"]      #0th index is taken from the object
    description = b["weather"][0]["description"]
    visibility = b["visibility"]
    Windspeed = b["wind"]["speed"]




    TemperatureRecommendation =""
    SpeedRecommendation = ""
    RecommendationForVisibilty = ""

    #print("Temperature(celcius) :",b["main"]["temp"])
    if (temp>33):
```

```python
        TemperatureRecommendation="Temperature is higher than ideal value"
        #print("Temperature is higher than ideal value")
    elif (temp<19):
        TemperatureRecommendation="Temperature is lower than ideal value"
        #print("Temperature is lower than ideal value")
    else:
        TemperatureRecommendation="Temperature is ideal"
        #print("Temperature is ideal ")


    #print("Humidity :",b["main"]["humidity"])
    #print("WeatherCondition",(b["weather"][0]["main"]))
    if (main == "Rain"):
        rain = b["rain"]["1h"]
        SpeedRecommendation = "30KM/HR ,ROAD WILL BE SLIPPERY"
        #print("Rain:",b["rain"]["1h"])
        #print("SPEED RECOMMENDATION : 30KM/HR ,ROAD WILL BE
SLIPPERY")
    elif (main == "Drizzle"):
        SpeedRecommendation = "30KM/HR"
        #print("SPEED RECOMMENDATION : 30KM/HR")
    elif (main == "Mist"):
        SpeedRecommendation = "30KM/HR and switch on the headlight"
        #print("SPEED RECOMMENDATION : 30KM/HR and switch on the
Headlight")
    elif (main == "Thunderstorm"):
        SpeedRecommendation = "30KM/HR and stay away in the open place"
        #print("SPEED RECOMMENDATION : 30KM/HR and stay away in the
open place")
```

```python
    elif (main == "Clouds"):

        SpeedRecommendation = "MAINTAIN NORMAL SPEED LIMIT UPTO
5O KM/HR"

        #print("SPEED RECOMMENDATION : 30KM/HR and stay away in the
open place")



    #print("Description of weather :",(b["weather"][0]["description"]))

    #print("visibility",(b["visibility"]))

    if (visibility<1000):

        RecommendationForVisibilty = "SPEED RECOMMENDATION :
30KM/HR and SWITCH ON THE HEAD LIGHT"

    else:

        RecommendationForVisibilty = "visibility range is ideal for vechicles"


        #print("SPEED RECOMMENDATION : 30KM/HR and SWITCH ON
THE HEAD LIGHT")

    mydata={"temperature":temp,
"TemperatureRecommendation":TemperatureRecommendation,"humidity":hum
i,"WeatherCondition":main,"SpeedRecommendation":SpeedRecommendation
,"DescriptionOfWeather":description,"visibility":visibility,"RecommendationFo
rVisibilty":RecommendationForVisibilty,"WindSpeed":Windspeed,"LOCATIO
N":AREA}

    print(mydata)

    client.publishEvent("12345","json",mydata)

    client.commandCallback = myCommandCallback
```

OUTPUT :

THE DATA RECEIVED FROM THE ROAD SAFETY OFFICE REGARDING SCHOOL, HOSPITAL AND RESTAUARANT WAS RECEIVED IN PYTHON CODE

(The URL given for open weather map is for location Chennai)

```
Python 3.9.0 Shell
File  Edit  Shell  Debug  Options  Window  Help
Python 3.9.0 (tags/v3.9.0:9cf6752, Oct  5 2020, 15:34:40) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
================ RESTART: D:\IBM\python\openweatherupdate.py ================
2022-11-14 23:13:44,734  wiotp.sdk.device.client.DeviceClient  INFO    Connected successfully: d:7f5hee:testdevicetype:12345
========================================
{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'Descr
iptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'}
========================================
{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'Descr
iptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'}
========================================
Message received from IBM IoT Platform: ACCIDENT
*****///TAKE DIVERSION///*****
Message received from IBM IoT Platform: ACCIDENT
*****///TAKE DIVERSION///*****
Message received from IBM IoT Platform: TRAFFIC{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation'
: '30KM/HR and switch on the headlight', 'DescriptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03, 'LO
CATION': 'Chennai,%20IN'}

*****///PLEASE WAIT OR PREFER ANOTHER ROUTE///*****========================================

Message received from IBM IoT Platform: MESSAGE
HAVE A NICE DAY!
Message received from IBM IoT Platform: HOSPITAL
HOSPITAL REGION DONT USE HORN
Message received from IBM IoT Platform: SCHOOL
SCHOOL REGION MAINTAIN SPEED LIMIT BELOW 40KM/HR
Message received from IBM IoT Platform: RESTAURANT
CROWDED AREA PLEASE MAINTAIN SPEED LIMIT
{'temperature': 24.99, 'TemperatureRecommendation': 'Temperature is ideal', 'humidity': 94, 'WeatherCondition': 'Mist', 'SpeedRecommendation': '30KM/HR and switch on the headlight', 'Descr
iptionOfWeather': 'mist', 'visibility': 2500, 'RecommendationForVisibilty': 'visibility range is ideal for vechicles', 'WindSpeed': 1.03, 'LOCATION': 'Chennai,%20IN'}
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========================================
```