PROJECT DEVELOPMENT PHASE

SPRINT – 1 (OUTPUT)

Date	01 NOVEMBER 2022
Team ID	PNT2022TMID22305
Project Name	Project:- Signs with Smart Connectivity for Better Road Safety

SPRINT GOALS :

1. Create and initialize accounts in various publicAPIs like OpenWeather API.

2. Write a Python program that outputs results given the inputs like weather and location.

3. Extract data from OpenWeatherMap using APIs

4. Send the extracted data to the cloud. 5. Receive data from the cloud and view it in the python compiler.

1. MAIN.PY

main.py - C:/Users/91994/OneDrive/Desktop/IBM ASSIGN/sprint 1/main.py (3.10.7)

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```
import brain

# IMPORT SECTION ENDS
# ------------------------------------------------
# USER INPUT SECTION STARTS

myLocation = "Chennai,IN"
APIKEY = "cd23e4f9eaf0ba585b8598624415b4ae"

localityInfo = {
    "schools" : {
        "schoolZone" : True,
        "activeTime" : ["8:00","17:30"] # schools active from 8 AM till 5:30 PM
        },
    "hospitalsNearby" : False,
    "usualSpeedLimit" : 40 # in km/hr
}

# USER INPUT SECTION ENDS
# ------------------------------------------------
# MICRO-CONTROLLER CODE STARTS

print(brain.processConditions(myLocation,APIKEY,localityInfo))
```

2. BRAIN.PY

brain.py - C:/Users/91994/OneDrive/Desktop/IBM ASSIGN/sprint 1/brain.py (3.10.7)

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```
import weather
from datetime import datetime as dt

# IMPORT SECTION ENDS
# ----------------------------------------------
# UTILITY LOGIC SECTION STARTS
def processConditions(myLocation,APIKEY,localityInfo):
    weatherData = weather.get(myLocation,APIKEY)

    finalSpeed = localityInfo["usualSpeedLimit"] if "rain" not in weatherData else localityInfo["usualSpeedLimit"]/2
    finalSpeed = finalSpeed if weatherData["visibility"]>35 else finalSpeed/2

    if(localityInfo["hospitalsNearby"]):
        # hospital zone
        doNotHonk = True
    else:
        if(localityInfo["schools"]["schoolZone"]==False):
            # neither school nor hospital zone
            doNotHonk = False
        else:
            # school zone
            now = [dt.now().hour,dt.now().minute]
            activeTime = [list(map(int,_.split(":"))) for _ in localityInfo["schools"]["activeTime"]]
            doNotHonk = activeTime[0][0]<=now[0]<=activeTime[1][0] and activeTime[0][1]<=now[1]<=activeTime[1][1]

    return({
        "speed" : finalSpeed,
        "doNotHonk" : doNotHonk
    })
```

3. WEATHER.PY

weather.py - C:/Users/91994/OneDrive/Desktop/IBM ASSIGN/sprint 1/weather.py (3.10.7)

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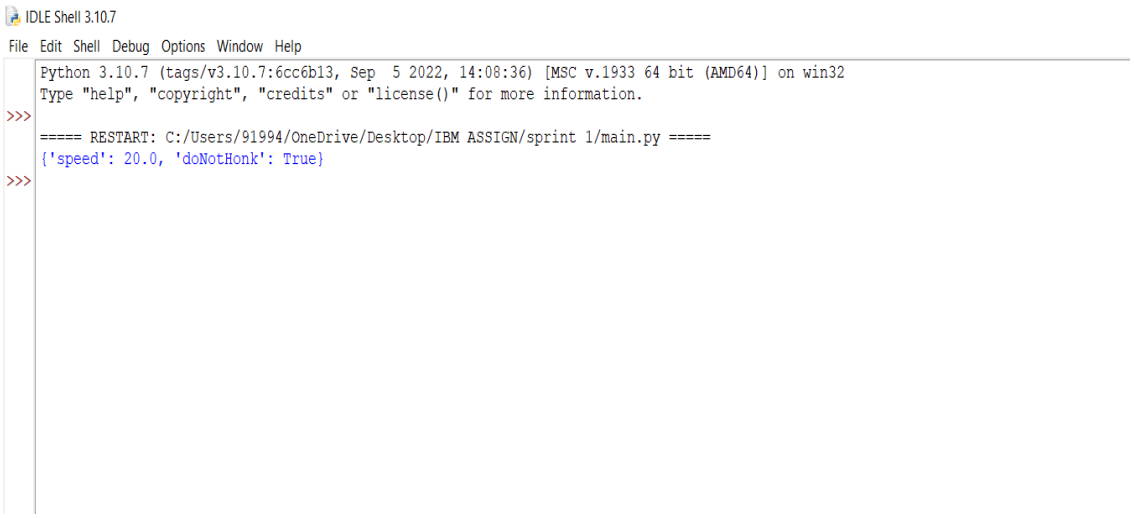
```
import requests as reqs

def get(myLocation,APIKEY):
    apiURL = f"https://api.openweathermap.org/data/2.5/weather?q={myLocation}&appid={APIKEY}"
    responseJSON = (reqs.get(apiURL)).json()
    returnObject = {
        "temperature" : responseJSON['main']['temp'] - 273.15,
        "weather" : [responseJSON['weather'][_]['main'].lower() for _ in range(len(responseJSON['weather']))],
        "visibility" : responseJSON['visibility']/100, # visibility in percentage where 10km is 100% and 0km is 0%
    }
    if("rain" in responseJSON):
        returnObject["rain"] = [responseJSON["rain"][key] for key in responseJSON["rain"]]
    return(returnObject)
```

OUTPUR


IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/91994/OneDrive/Desktop/IBM ASSIGN/sprint 1/main.py =====
{'speed': 20.0, 'doNotHonk': True}
>>>