

PYTHON CODE

```
import requests as reqs
from datetime import datetime as dt

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)

# -----

def processConditions(myLocation,APIKEY,localityInfo):
    weatherData = 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
    })

# -----
# USER INPUT SECTION STARTS
myLocation = "Cuddalore,IN"
APIKEY = "9774dad518c26ff4675e7685fc943148"
localityInfo = {
    "schools" : {
        "schoolZone" : True,
        "activeTime" : ["7:00","17:30"] # schools active from 7 AM till 5:30 PM
    },

```

```

    "hospitalsNearby" : False,

    "usualSpeedLimit" : 30 # in km/hr
}

# USER INPUT SECTION ENDS

# -----

```

```

# MICRO-CONTROLLER CODE STARTS

```

```

print(processConditions(myLocation,APIKEY,localityInfo))

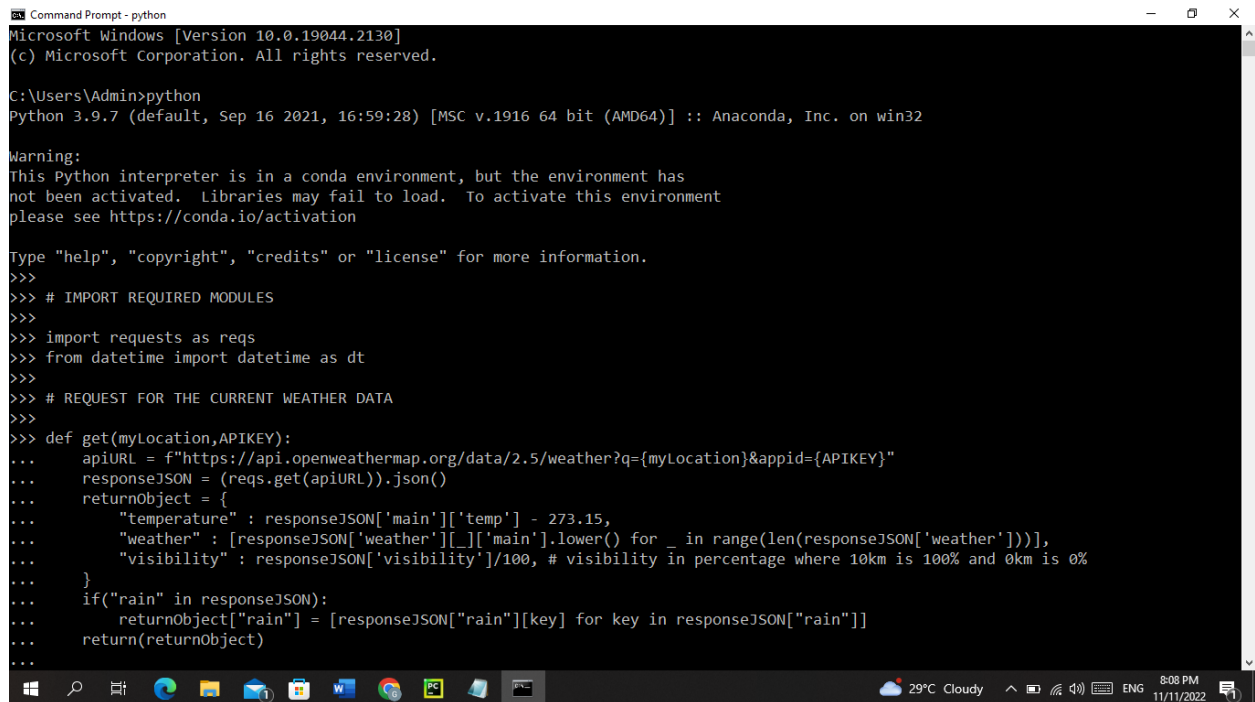
```

OUTPUT:

```

{'speed': 15.0, 'doNotHonk': False}

```



```

Command Prompt - python
Microsoft Windows [Version 10.0.19044.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>python
Python 3.9.7 (default, Sep 16 2021, 16:59:28) [MSC v.1916 64 bit (AMD64)] :: Anaconda, Inc. on win32

Warning:
This Python interpreter is in a conda environment, but the environment has
not been activated. Libraries may fail to load. To activate this environment
please see https://conda.io/activation

Type "help", "copyright", "credits" or "license" for more information.
>>>
>>> # IMPORT REQUIRED MODULES
>>>
>>> import requests as reqs
>>> from datetime import datetime as dt
>>>
>>> # REQUEST FOR THE CURRENT WEATHER DATA
>>>
>>> def get(myLocation,APIKEY):
...     apiURL = f"https://api.openweathermap.org/data/2.5/weather?q={myLocation}&appid={APIKEY}"
...     responseJSON = (reqs.get(apiURL)).json()
...     responseObject = {
...         "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):
...         responseObject["rain"] = [responseJSON["rain"][key] for key in responseJSON["rain"]]
...     return(responseObject)
...

```

```
Command Prompt - python
...     return(returnObject)
...
>>>
>>> # BRAIN CODE FOR PROCESSING DATA
>>>
>>> def processConditions(myLocation,APIKEY,localityInfo):
...     weatherData = 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
...     })
...
>>>
>>> # -----
>>> # USER INPUT SECTION STARTS
>>>
>>> myLocation = "Cuddalore,IN"
>>> APIKEY = "9774dad518c26ff4675e7685fc943148"
```

```
Command Prompt - python
>>>
>>> # -----
>>> # USER INPUT SECTION STARTS
>>>
>>> myLocation = "Cuddalore,IN"
>>> APIKEY = "9774dad518c26ff4675e7685fc943148"
>>>
>>> localityInfo = {
...     "schools" : {
...         "schoolZone" : True,
...         "activeTime" : ["7:00","17:30"] # schools active from 7 AM till 5:30 PM
...     },
...     "hospitalsNearby" : False,
...     "usualSpeedLimit" : 30 # in km/hr
... }
>>>
>>> # USER INPUT SECTION ENDS
>>> # -----
>>> # MICRO-CONTROLLER CODE STARTS
>>>
>>> print(processConditions(myLocation,APIKEY,localityInfo))
{'speed': 15.0, 'doNotHonk': False}
>>>
```