Calculating the air quality Index of the SO2,NO2, RSPM Level

# Python coding for calculating SO2 AQI level

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
df = pd.read csv("updated project.csv")
print(df.info())
    si=0
    if(SO2<=40):
        si=SO2*(50/40)
    if (SO2>40 \text{ and } SO2<=80):
        si=50+(SO2-40)*(50/40)
    if (SO2>80 \text{ and } SO2 \le 380):
        si=100+(SO2-80)*(100/300)
    if(SO2>380 and SO2<=800):
        si=200+(SO2-380)*(100/800)
    if (SO2>800 \text{ and } SO2 \le 1600):
        si=300+(SO2-800)*(100/800)
    if(SO2>1600):
        si=400+(SO2-1600)*(100/800)
df['si']=df['SO2'].apply(calculate_si)
data=df[['SO2']]
```

# calculating NO2 AQI Level

```
def calculate_ni(NO2):
    ni=0
    if(NO2<=40):</pre>
```

```
ni=No2*(50/40)

if (No2>40 and No2<=80):
    ni=50+(No2-40)*(50/40)

if (No2>80 and No2<=380):
    ni=100+(No2-80)*(100/300)

if (No2>380 and No2<=800):
    ni=200+(No2-380)*(100/800)

if (No2>800 and No2<+1600):
    ni=300+(No2-800)*(100/800)

if (No2>1600):
    ni=400+(No2-1600)*(100/800)

return ni
df['ni']=df['No2'].apply(calculate_ni)
data=df[['No2','ni']]
print(data)
```

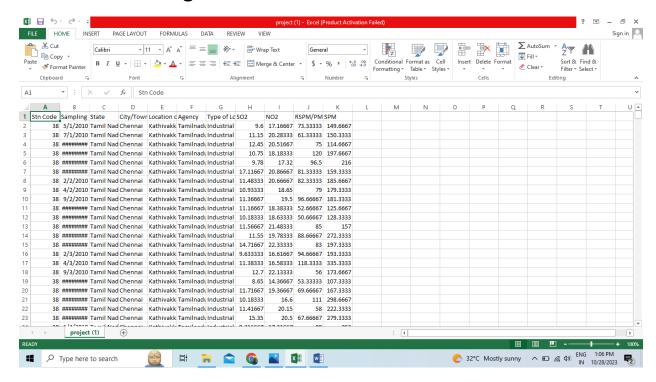
# calculating RSPM AQI level

```
ef calculate ri(RSPM PM10):
  ri=0
  if(RSPM/PM10<=40):
    ri=RSPM/PM10*(50/40)
  if (RSPM/PM10>40 \text{ and } RSPM/PM10<=80):
    ri=50+(RSPM/PM10-40)*(50/40)
  if (RSPM/PM10>80 \text{ and } RSPM/PM10 <= 380):
    ri=100+(RSPM/PM10-80)*(100/300)
  if (RSPM/PM10>380 and RSPM/PM10<=800):
    ri=200+(RSPM/PM10-380) * (100/800)
  if (RSPM/PM10>800 \text{ and } RSPM/PM10 \le 1600):
    ri=300+(RSPM/PM10-800)*(100/800)
  if(RSPM/PM10>1600):
    ni=400+(RSPM/PM10-1600)*(100/800)
  return ri
df['ri']=df['RSPM PM10'].apply(calculate ni)
```

```
data=df[['RSPM_PM10','ri']]
print(data)
df.to_csv("calcuated.csv")
```

# output: It is calculated and store in csv file

# Before calcualting



Calculate value of ni,si,ri respective value of AQI level of SO2,NO2,RSPM/PM10

