visualizations. Of the air quality analysis in tamil nadu

Understanding the pollutants briefly .

NO2: Nitrogen Dioxide and is emmitted mostly from combustion from power sources or transport.

SO2: Sulphur Dioxide and is emmitted mostly from coal burning, oil burning, manufacturing of Sulphuric acid.

spm: Suspended particulate matter and are known to be the deadliest form of air pollution. They are microscopic in nature and are found to be suspended in earth's atmosphere.

rspm: Respirable suspended particulate matter. A sub form of spm and are respnsible for respiratory diseases.

pm2_5: Suspended particulate matter with diameters less than 2.5 micrometres. They tend to remain suspended for longer durations and potentially very harmful.

```
import numpy as np # linear algebra
import pandas as pd # data processing,
CSV file I/O (e.g. pd.read_csv)
import os
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns
import warnings
warnings.filterwarnings('ignore')
print(os.listdir("../input"))
['india-air-quality-data']
```

```
aq=pd.read_csv('../input/india-air-
quality-data/data.csv',encoding="ISO-
8859-1")
aq.tail(5)
```

In this code, we first create a DataFrame with sample air quality data, including monitoring station, city, SO2, NO2, and RSPM/PM10 levels. We then calculate the average levels across different cities and create bar charts for SO2, NO2, and RSPM/PM10 levels.

Out[2]:

	stn_code	sampling_date	state	location	agency	type	so2	no2	rspm	spm	location_monitoring_
435737	SAMP	24-12-15	West Bengal	ULUBERIA	West Bengal State Pollution Control Board	RIRUO	22.0	50.0	143.0	NaN	Inside Rampal Industries,ULUBERIA
435738	SAMP	29-12-15	West Bengal	ULUBERIA	West Bengal State Pollution Control Board	RIRUO	20.0	46.0	171.0	NaN	Inside Rampal Industries,ULUBERIA
435739	NaN	NaN	andaman-and-nicobar-islands	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
435740	NaN	NaN	Lakshadweep	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
435741	NaN	NaN	Tripura	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

In [3]:

In this code, we first create a DataFrame with sample air quality data, including monitoring station, city, SO2, NO2, and RSPM/PM10 levels. We then calculate the average levels across different cities and create bar charts for SO2, NO2, and RSPM/PM10 levels.

```
datacount =sns.countplot(x
="location",data = tn);
```

```
datacount.set_xticklabels(datacount.get_x
ticklabels(), rotation=90);
```
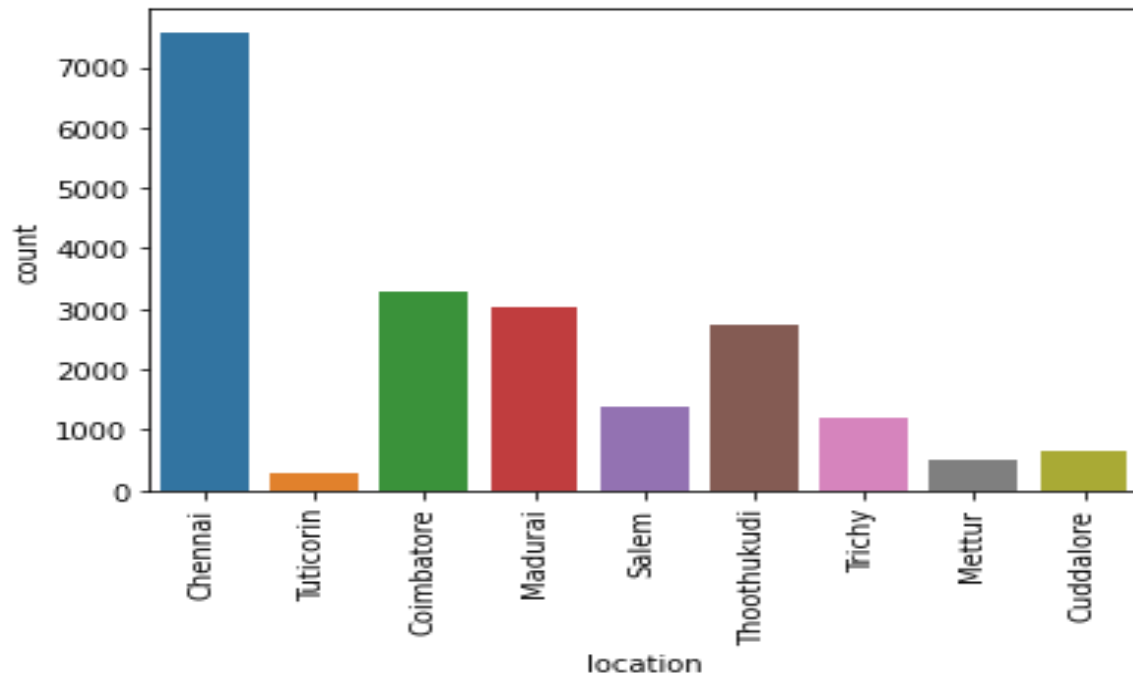

we are scaling the values according to the AQI calculation formula

$$AQI = AQI_{min} + \frac{PM_{Obs} - PM_{Min}}{AQI_{Max} - AQI_{Min}}(PM_{Max} - PM_{Min})$$

Function to calculate so2 individual pollutant index(si)

Visualization of AQI across india (Year-wise)

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f6df4739898>
```