```python
In [1]: import numpy as np
        import pandas as pd
        import matplotlib.pyplot as plt

        %matplotlib notebook

        import seaborn as sns
```

```python
In [2]: plt.style.use("seaborn-colorblind")
```

```python
In [3]: data = pd.read_csv("C:/Users/VARUN/Desktop/AirPollution/Dataset/cpcb_dly_aq_maharashtra-2014.csv")
```

```python
In [4]: data.head()
```

Out[4]:

	Stn Code	Sampling Date	State	City/Town/Village/Area	Location of Monitoring Station	Agency	Type of Location	SO2	NO2	RSPM/PM10	PM 2.5
0	702	01-03-14	Maharashtra	Akola	College Of Engineering and Technology, Akola	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	8.0	10.0	158.0	NaN
1	702	01-04-14	Maharashtra	Akola	College Of Engineering and Technology, Akola	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	8.0	9.0	160.0	NaN
2	702	01-10-14	Maharashtra	Akola	College Of Engineering and Technology, Akola	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	8.0	9.0	158.0	NaN
3	702	01-11-14	Maharashtra	Akola	College Of Engineering and Technology, Akola	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	8.0	10.0	162.0	NaN
4	702	17-01-14	Maharashtra	Akola	College Of Engineering and Technology, Akola	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	9.0	9.0	161.0	NaN

```python
In [5]: dates = ['-'.join(i.split('-')[1:]) for i in data['Sampling Date']]
```

```python
In [6]: data['Sampling Date'] = dates
```

```python
In [7]: for i in range(len(data['City/Town/Village/Area'])):
            if data['City/Town/Village/Area'][i] != 'Pune':
                data.drop(i, inplace = True)
```

```python
In [8]: data.head()
```

Out[8]:

	Stn Code	Sampling Date	State	City/Town/Village/Area	Location of Monitoring Station	Agency	Type of Location	SO2	NO2	RSPM/PM10	PM 2.5
4862	708	01-14	Maharashtra	Pune	Bank of Baroda Building, Near Pimpri-Chinchwad...	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	59.0	42.0	104.0	NaN
4863	708	02-14	Maharashtra	Pune	Bank of Baroda Building, Near Pimpri-Chinchwad...	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	27.0	49.0	136.0	NaN
4864	708	04-14	Maharashtra	Pune	Bank of Baroda Building, Near Pimpri-Chinchwad...	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	27.0	91.0	162.0	NaN
4865	708	05-14	Maharashtra	Pune	Bank of Baroda Building, Near Pimpri-Chinchwad...	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	22.0	82.0	127.0	NaN
4866	708	06-14	Maharashtra	Pune	Bank of Baroda Building, Near Pimpri-Chinchwad...	Maharashtra State Pollution Control Board	Residential, Rural and other Areas	40.0	67.0	149.0	NaN

```python
In [9]: data = data.groupby("Sampling Date").mean()
        data
```

Out[9]:

Sampling Date	Stn Code	SO2	NO2	RSPM/PM10	PM 2.5
01-14	520.960784	28.549020	54.647059	122.294118	NaN
02-14	532.195652	24.326087	46.913043	92.391304	NaN
03-14	531.872340	23.170213	49.617021	105.680851	NaN
04-14	544.254902	21.686275	44.705882	88.823529	NaN
05-14	523.431373	19.117647	36.411765	77.352941	NaN
06-14	542.347826	19.086957	31.065217	68.565217	NaN
07-14	521.320000	19.660000	32.180000	69.920000	NaN
08-14	526.085106	19.744681	36.489362	66.361702	NaN
09-14	538.340000	27.340000	41.100000	73.460000	NaN
10-14	542.440000	23.740000	42.640000	106.520000	NaN
11-14	534.440000	26.460000	46.340000	112.560000	NaN
12-14	525.428571	20.081633	53.693878	123.244898	NaN

```python
In [10]: data = data.groupby("Sampling Date").mean().drop("PM 2.5", axis=1)
```

```python
In [11]: data
```

Out[11]:

Sampling Date	Stn Code	SO2	NO2	RSPM/PM10
01-14	520.960784	28.549020	54.647059	122.294118
02-14	532.195652	24.326087	46.913043	92.391304

03-14	531.872340	23.170213	49.617021	105.680851
04-14	544.254902	21.686275	44.705882	88.823529
05-14	523.431373	19.117647	36.411765	77.352941
06-14	542.347826	19.086957	31.065217	68.565217
07-14	521.320000	19.660000	32.180000	69.920000
08-14	526.085106	19.744681	36.489362	66.361702
09-14	538.340000	27.340000	41.100000	73.460000
10-14	542.440000	23.740000	42.640000	106.520000
11-14	534.440000	26.460000	46.340000	112.560000
12-14	525.428571	20.081633	53.693878	123.244898

```
In [12]: plt.figure(figsize=(9, 7))
         plt.subplot(211)
         plt.cla()
         plotter = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun','Jul', 'Aug', 'Sep',
                    'Oct', 'Nov', 'Dec']
         x = np.arange(0,len(data["NO2"]),1)
         ax = plt.gca()
         ax.plot(x, data["NO2"])
         ax.spines['top'].set_visible(False)
         ax.spines['right'].set_visible(False)
         ax.set_xticks(x)
         plt.xticks(rotation=45)
         plt.subplots_adjust(bottom=0.2)
         plt.legend([2014],loc=2)
         plt.title("$\mathregular{NO_2}$ (Nitrogen Dioxide) levels in Pune")
         ax.set_xticklabels(plotter)

         plt.subplot(212)
         plt.cla()
         plotter = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun','Jul', 'Aug', 'Sep',
                    'Oct', 'Nov', 'Dec']
         x = np.arange(0,len(data["SO2"]),1)
         ax = plt.gca()
         ax.plot(x, data["SO2"])
         ax.spines['top'].set_visible(False)
         ax.spines['right'].set_visible(False)
         ax.set_xticks(x)
         plt.xticks(rotation=45)
         plt.title("$\mathregular{SO_2}$ (Sulphur Dioxide) levels in Pune")
         ax.set_xticklabels(plotter)

         plt.tight_layout()
         #plt.show()
```

Figure 1

NO$_2$ (Nitrogen Dioxide) levels in Pune

SO$_2$ (Sulphur Dioxide) levels in Pune

x= y=54.1448

```
In [ ]:
```