```
In [1]:   1  import numpy as np
          2  import pandas as pd
          3  import matplotlib.pyplot as plt
          4  import seaborn as sns
```

```
In [2]:   1  df = pd.read_csv("PRSA.csv", nrows = 100)
```

```
In [3]:   1  df.head()
```

Out[3]:

	No	year	month	day	hour	PM2.5	PM10	SO2	NO2	CO	O3	TEMP	PRES	DEWP	RAIN	wd	WSPM	station
0	1	2013	3	1	0	4	4	4.0	7.0	300.0	77	-0.7	1023.0	-18.8	0	NNW	4.4	Aotizhongxi
1	2	2013	3	1	1	8	8	4.0	7.0	300.0	77	-1.1	1023.2	-18.2	0	N	4.7	Aotizhongxi
2	3	2013	3	1	2	7	7	5.0	10.0	300.0	73	-1.1	1023.5	-18.2	0	NNW	5.6	Aotizhongxi
3	4	2013	3	1	3	6	6	11.0	11.0	300.0	72	-1.4	1024.5	-19.4	0	NW	3.1	Aotizhongxi
4	5	2013	3	1	4	3	3	12.0	12.0	300.0	72	-2.0	1025.2	-19.5	0	N	2.0	Aotizhongxi

```
In [4]:   1  df.tail()
```

Out[4]:

	No	year	month	day	hour	PM2.5	PM10	SO2	NO2	CO	O3	TEMP	PRES	DEWP	RAIN	wd	WSPM	station
95	96	2013	3	4	23	58	94	46.0	86.0	1100.0	84	7.7	1015.7	-9.3	0	SW	2.1	Aotizhong
96	97	2013	3	5	0	71	108	66.0	78.0	1100.0	84	4.7	1015.2	-9.1	0	SW	1.6	Aotizhong
97	98	2013	3	5	1	91	127	75.0	75.0	1200.0	84	1.1	1014.7	-7.9	0	SW	0.0	Aotizhong
98	99	2013	3	5	2	100	129	58.0	79.0	1200.0	84	-0.6	1014.4	-8.1	0	S	0.0	Aotizhong
99	100	2013	3	5	3	103	130	66.0	83.0	1399.0	84	0.2	1014.0	-8.8	0	NE	1.2	Aotizhong

```
In [5]:   1  df.shape
```

Out[5]: (100, 18)

```
In [6]:   1  df_new = df.drop(['wd','station'] , axis = 1)
```

```
In [7]:   1  df_new.shape
```

Out[7]: (100, 16)

```
In [8]:   1  df_new.columns
```

Out[8]: Index(['No', 'year', 'month', 'day', 'hour', 'PM2.5', 'PM10', 'SO2', 'NO2',
        'CO', 'O3', 'TEMP', 'PRES', 'DEWP', 'RAIN', 'WSPM'],
       dtype='object')

```
In [9]:   1  df2 = df_new.dropna(how='all').dropna(how='all', axis=1)
          2  #df2 = df_new[np.isfinite(df_new).all(1)]
```

In [10]: `df2`

Out[10]:

	No	year	month	day	hour	PM2.5	PM10	SO2	NO2	CO	O3	TEMP	PRES	DEWP	RAIN	WSPM
0	1	2013	3	1	0	4	4	4.0	7.0	300.0	77	-0.7	1023.0	-18.8	0	4.4
1	2	2013	3	1	1	8	8	4.0	7.0	300.0	77	-1.1	1023.2	-18.2	0	4.7
2	3	2013	3	1	2	7	7	5.0	10.0	300.0	73	-1.1	1023.5	-18.2	0	5.6
3	4	2013	3	1	3	6	6	11.0	11.0	300.0	72	-1.4	1024.5	-19.4	0	3.1
4	5	2013	3	1	4	3	3	12.0	12.0	300.0	72	-2.0	1025.2	-19.5	0	2.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95	96	2013	3	4	23	58	94	46.0	86.0	1100.0	84	7.7	1015.7	-9.3	0	2.1
96	97	2013	3	5	0	71	108	66.0	78.0	1100.0	84	4.7	1015.2	-9.1	0	1.6
97	98	2013	3	5	1	91	127	75.0	75.0	1200.0	84	1.1	1014.7	-7.9	0	0.0
98	99	2013	3	5	2	100	129	58.0	79.0	1200.0	84	-0.6	1014.4	-8.1	0	0.0
99	100	2013	3	5	3	103	130	66.0	83.0	1399.0	84	0.2	1014.0	-8.8	0	1.2

100 rows × 16 columns

In [11]: `df2.isnull()`

Out[11]:

	No	year	month	day	hour	PM2.5	PM10	SO2	NO2	CO	O3	TEMP	PRES	DEWP	RAIN	WSPM
0	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
96	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
97	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
98	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False
99	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False	False

100 rows × 16 columns

In [12]: `df2.isnull().any(axis=1)`

Out[12]:
```
0     False
1     False
2     False
3     False
4     False
      ...
95    False
96    False
97    False
98    False
99    False
Length: 100, dtype: bool
```

In [13]:
```python
df2[df2.isnull().any(axis=1)]
```

Out[13]:

	No	year	month	day	hour	PM2.5	PM10	SO2	NO2	CO	O3	TEMP	PRES	DEWP	RAIN	WSPM
74	75	2013	3	4	2	34	62	NaN	14.0	300.0	68	8.1	1016.7	-11.8	0	4.3
75	76	2013	3	4	3	12	34	6.0	12.0	NaN	77	7.2	1016.9	-11.6	0	2.8
76	77	2013	3	4	4	7	18	14.0	NaN	400.0	42	6.0	1018.0	-11.6	0	1.0

In [ ]: