```
import numpy as np
import pandas as pd
import matplotlib.pyplot as ply
```

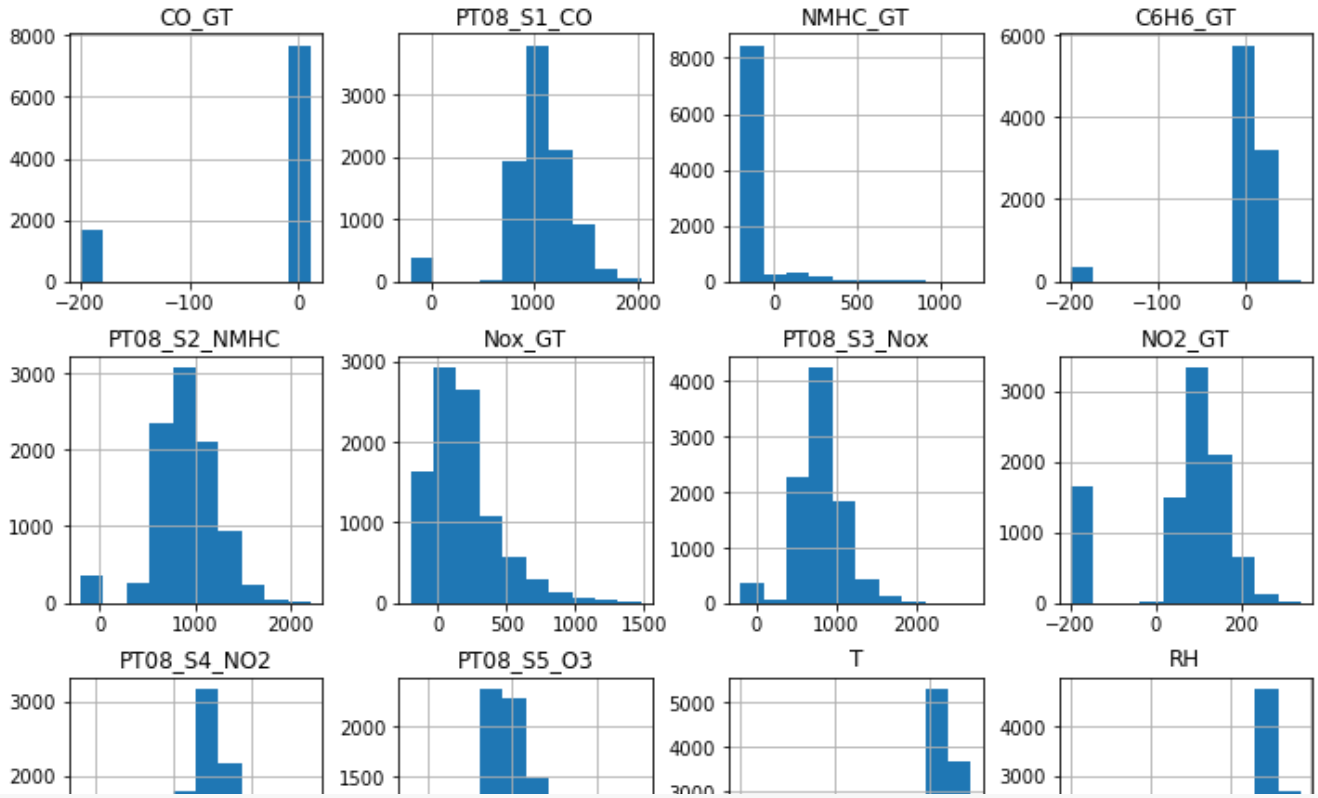
```
df=pd.read_csv(r"C:\Users\Om\Downloads\AirQuality.csv", sep=',')
df
```

	Date	Time	CO_GT	PT08_S1_CO	NMHC_GT	C6H6_GT	PT08_S2_NMHC	Nox_GT	PT
0	11/23/2004	19:00:00	11.9	2008	-200	50.6	1980	1389	
1	11/23/2004	20:00:00	11.5	1918	-200	49.4	1958	1358	
2	11/17/2004	18:00:00	10.2	1802	-200	47.7	1924	748	
3	11/23/2004	18:00:00	10.2	1982	-200	49.5	1959	1369	
4	11/26/2004	18:00:00	10.1	1956	-200	45.2	1877	1389	
...	...	...	...	...	...	...	...	...	
9352	3/23/2005	4:00:00	-200.0	993	-200	2.3	604	85	
9353	3/26/2005	4:00:00	-200.0	1122	-200	6.0	811	181	
9354	3/29/2005	4:00:00	-200.0	883	-200	1.3	530	63	
9355	4/1/2005	4:00:00	-200.0	818	-200	0.8	473	47	
9356	4/4/2005	4:00:00	-200.0	864	-200	0.8	478	52	

9357 rows × 16 columns

```
#histogram using matplotlib
df.hist(figsize=(12,12))
```

```
array([[<AxesSubplot:title={'center':'CO_GT'}>,
        <AxesSubplot:title={'center':'PT08_S1_CO'}>,
        <AxesSubplot:title={'center':'NMHC_GT'}>,
        <AxesSubplot:title={'center':'C6H6_GT'}>],
       [<AxesSubplot:title={'center':'PT08_S2_NMHC'}>,
        <AxesSubplot:title={'center':'Nox_GT'}>,
        <AxesSubplot:title={'center':'PT08_S3_Nox'}>,
        <AxesSubplot:title={'center':'NO2_GT'}>],
       [<AxesSubplot:title={'center':'PT08_S4_NO2'}>,
        <AxesSubplot:title={'center':'PT08_S5_O3'}>,
        <AxesSubplot:title={'center':'T'}>,
        <AxesSubplot:title={'center':'RH'}>],
       [<AxesSubplot:title={'center':'AH'}>, <AxesSubplot:>,
        <AxesSubplot:>, <AxesSubplot:>]], dtype=object)
```




```
#bar plot using matplot
x=df['PT08_S1_CO']
y=df['PT08_S2_NMHC']
ply.bar(x,y)
```

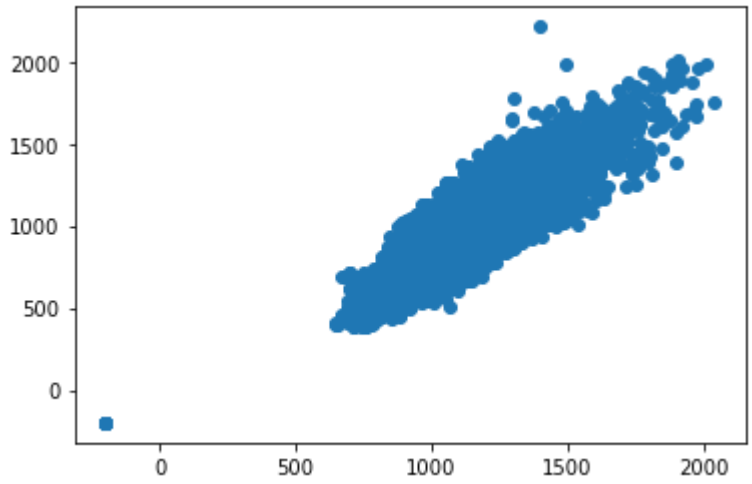
```
<BarContainer object of 9357 artists>
```


```
#heatmap using matplot
df.corr()
```

	CO_GT	PT08_S1_CO	NMHC_GT	C6H6_GT	PT08_S2_NMHC	Nox_GT	PT08_
CO_GT	1.000000	0.041411	0.128351	-0.031378	0.029926	0.526451	-0
PT08_S1_CO	0.041411	1.000000	0.170007	0.852687	0.933102	0.277993	0
NMHC_GT	0.128351	0.170007	1.000000	0.037323	0.110104	-0.004427	0
C6H6_GT	-0.031378	0.852687	0.037323	1.000000	0.767433	-0.001174	0
PT08_S2_NMHC	0.029926	0.933102	0.110104	0.767433	1.000000	0.331272	-0
Nox_GT	0.526451	0.277993	-0.004427	-0.001174	0.331272	1.000000	-0
PT08_S3_Nox	-0.089981	0.087019	0.048821	0.512193	-0.073667	-0.436084	1
NO2_GT	0.671127	0.154030	0.103307	-0.010992	0.176488	0.817139	-0
PT08_S4_NO2	-0.073724	0.845149	0.162680	0.774673	0.874782	0.035546	0
PT08_S5_O3	0.080310	0.892434	0.101185	0.641334	0.909905	0.461889	-0
T	-0.068939	0.754844	-0.000009	0.971375	0.669025	-0.138452	0
RH	-0.048227	0.745375	0.008284	0.925062	0.585803	-0.053009	0
AH	-0.045892	0.764903	0.012500	0.984555	0.646572	-0.095847	0

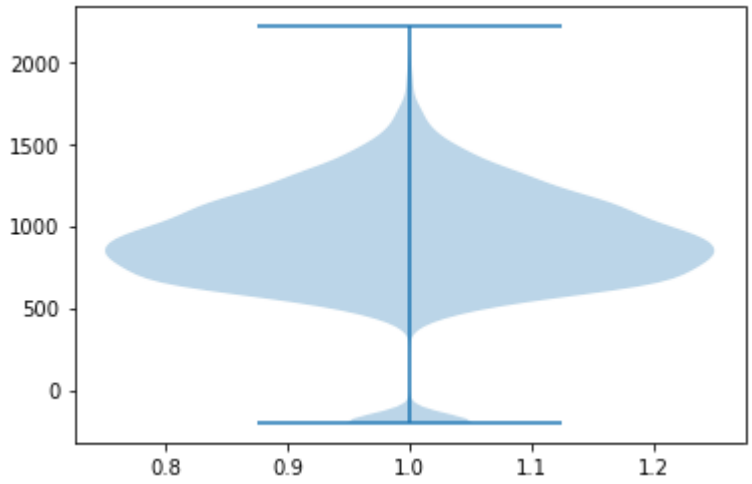
```
x=df['PT08_S1_CO']
y=df['PT08_S2_NMHC']
ply.scatter(x,y)
```

```
<matplotlib.collections.PathCollection at 0x1f373cf3160>
```



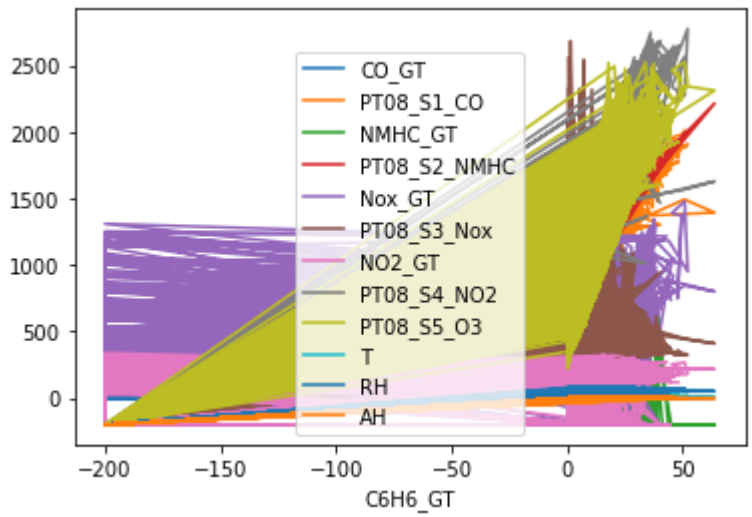
```
#violin plot using matplot
ply.violinplot(df['df['PT08_S2_NMHC']'])
```

```
{'bodies': [<matplotlib.collections.PolyCollection at 0x1f373d31070>],
 'cmaxes': <matplotlib.collections.LineCollection at 0x1f373d1de80>,
 'cmins': <matplotlib.collections.LineCollection at 0x1f373d31760>,
 'cbars': <matplotlib.collections.LineCollection at 0x1f373d31b20>}
```




```
#line using matplot
df.set_index('C6H6_GT').plot()
```

```
<AxesSubplot:xlabel='C6H6_GT'>
```

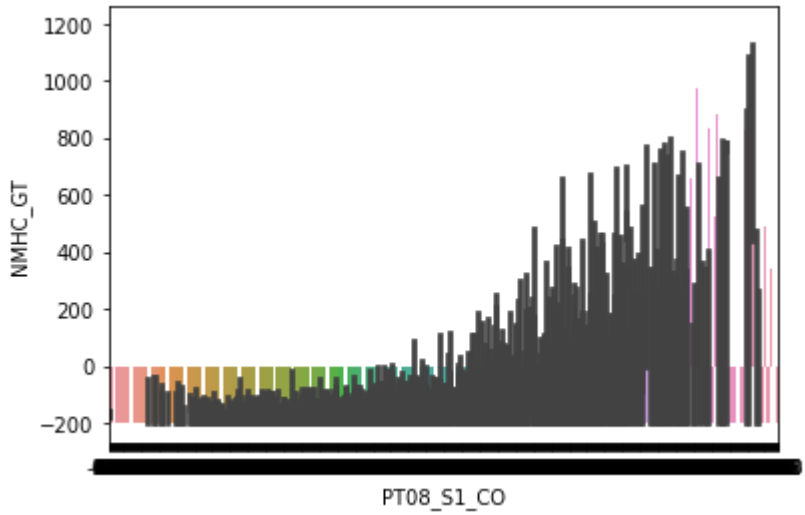



```
import seaborn as sns
```

```
#barplot seaborn
x=df['PT08_S1_CO']
```

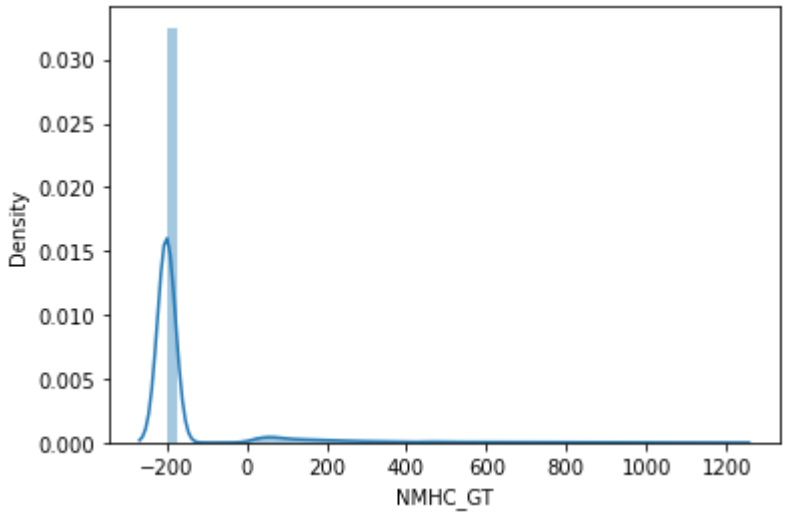
```
y=df['NMHC_GT']
sns.barplot(x,y)
```

```
C:\Users\Om\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarning:
  warnings.warn(
<AxesSubplot:xlabel='PT08_S1_CO', ylabel='NMHC_GT'>
```



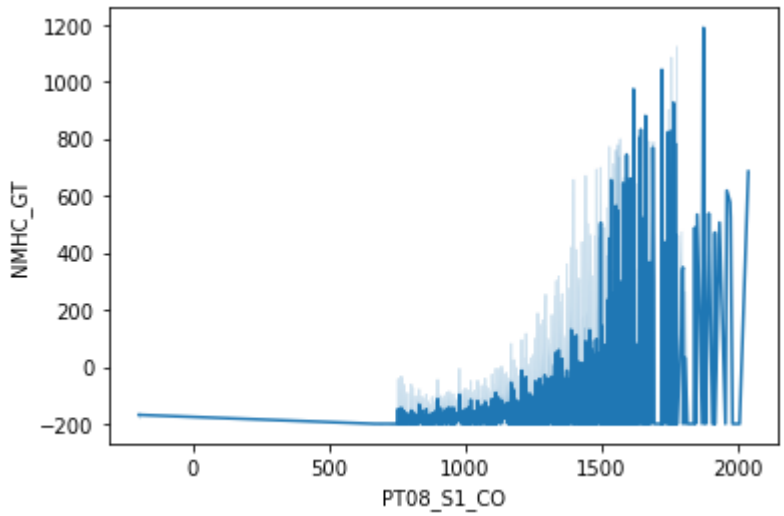

```
#histogram
sns.distplot(df['NMHC_GT'])
```

```
C:\Users\Om\anaconda3\lib\site-packages\seaborn\distributions.py:2619: FutureWarni
  warnings.warn(msg, FutureWarning)
<AxesSubplot:xlabel='NMHC_GT', ylabel='Density'>
```



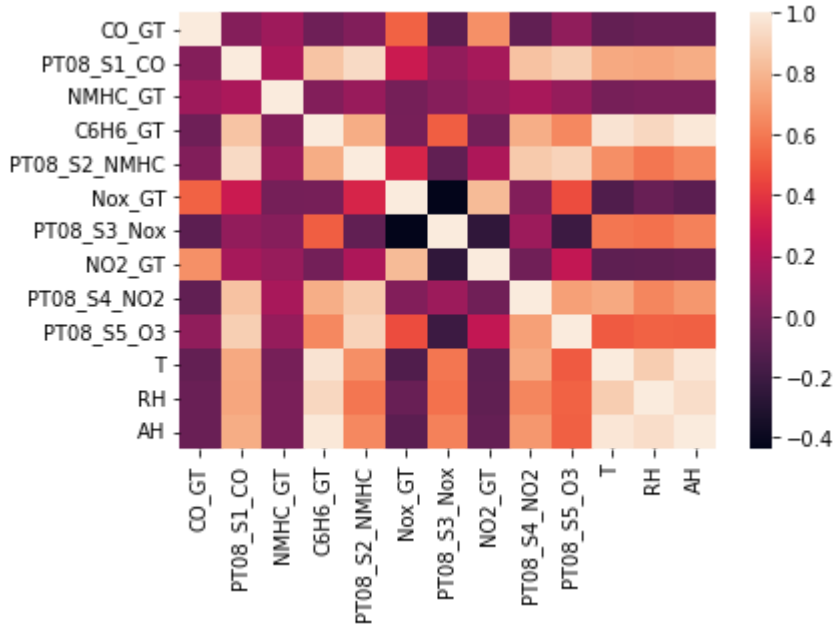

```
#line plot
x=df['PT08_S1_CO']
y=df['NMHC_GT']
sns.lineplot(x,y)
```

```
C:\Users\Om\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarning:
  warnings.warn(
<AxesSubplot:xlabel='PT08_S1_CO', ylabel='NMHC_GT'>
```



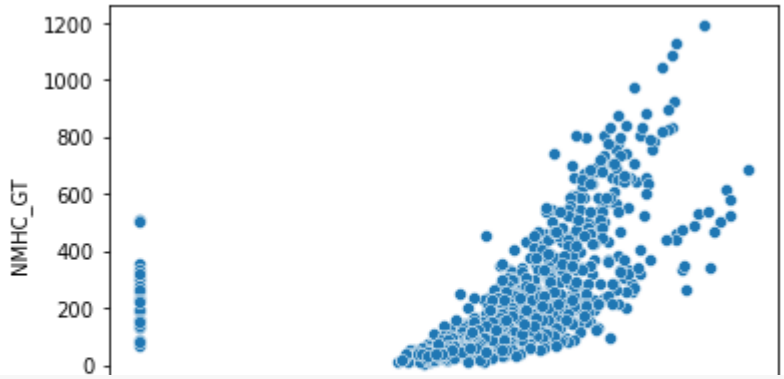

```
#Heatmap
sns.heatmap(df.corr())
```

```
<AxesSubplot:>
```




```
#scatter seaborn
x=df['PT08_S1_CO']
y=df['NMHC_GT']
sns.scatterplot(x,y)
```

```
C:\Users\Om\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarning:
  warnings.warn(
<AxesSubplot:xlabel='PT08_S1_CO', ylabel='NMHC_GT'>
```



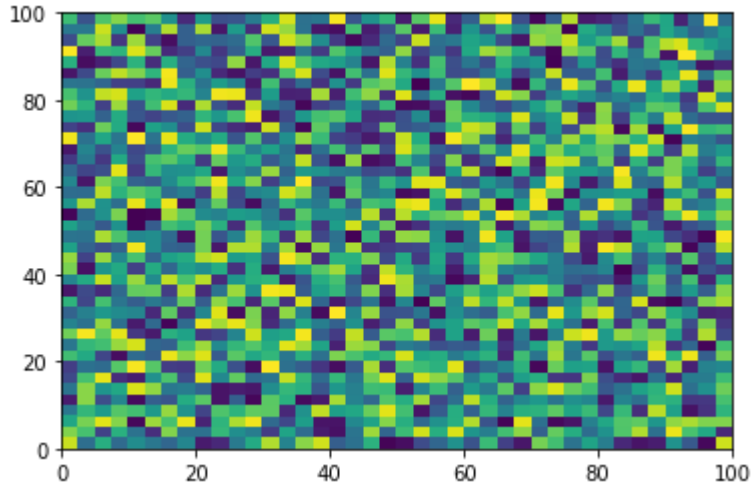

```
#treemap using seaborn
pip install squarify
```

```
Collecting squarify
  Downloading squarify-0.4.3-py3-none-any.whl (4.3 kB)
Installing collected packages: squarify
Successfully installed squarify-0.4.3
Note: you may need to restart the kernel to use updated packages.
```

```
#treemap using seaborn
import squarify
```

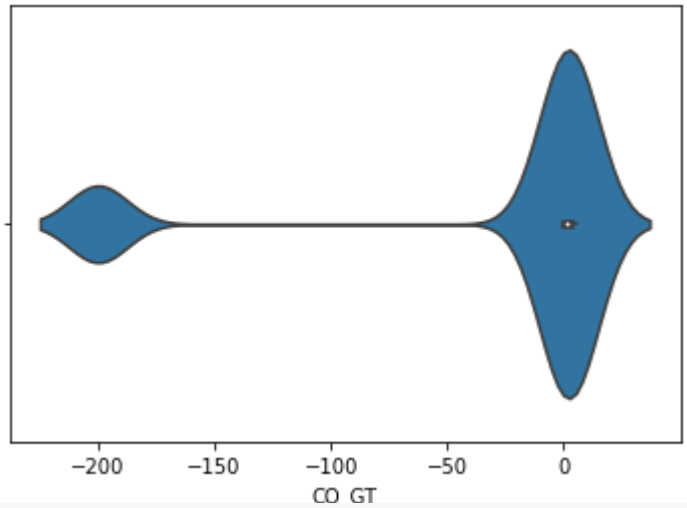
```
#treemap using seaborn
x=df['CO_GT']
squarify.plot(x)
```

```
<AxesSubplot:>
```




```
#violine using seaborn
sns.violinplot(df['CO_GT'])
```

```
C:\Users\Om\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarning:
  warnings.warn(
<AxesSubplot:xlabel='CO_GT'>
```




```
#boxplot
x=df['PT08_S1_CO']
y=df['NMHC_GT']
sns.boxplot(x,y)
```

```
C:\Users\Om\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarning:
  warnings.warn(
<AxesSubplot:xlabel='PT08_S1_CO', ylabel='NMHC_GT'>
```