Assignment 2c

Visualize the data using python libraries matplotlib, seaborn by plotting the graphs-

- Pie Chart
- Bar Graph
- Box Plot
- Histogram
- Line Graph
- Scatter Plot
- Heatmap
- Pair Plot
- Word Cloud

Import Python Libraries

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

Read air_quality.csv

In [2]:
```
file= pd.read_csv("air_quality.csv")
file
```

Out[2]:

	Unnamed: 0	Ozone	Solar.R	Wind	Temp	Month	Day	Humidity
0	1	41.0	190.0	7.4	67	5	1	High
1	2	36.0	118.0	8.0	72	5	2	High
2	3	12.0	149.0	12.6	74	5	3	Low
3	4	18.0	313.0	11.5	62	5	4	NaN
4	5	NaN	NaN	14.3	56	5	5	High
...	...	...	...	...	...	...	...	...
148	149	30.0	193.0	6.9	70	9	26	Low
149	150	NaN	145.0	13.2	77	9	27	NaN
150	151	14.0	191.0	14.3	75	9	28	High
151	152	18.0	131.0	8.0	76	9	29	Medium
152	153	20.0	223.0	11.5	68	9	30	Low

153 rows × 8 columns

Fill the NaN values with mean of respective column

In [4]:
```
file.isnull().sum()
```

Out[4]:
```
Unnamed: 0     0
Ozone         37
Solar.R        7
Wind           2
Temp           0
Month          0
Day            0
Humidity      15
dtype: int64
```

In [9]:
```
file = file.drop(['Unnamed: 0'], axis = 1)
file
```

Out[9]:

	Ozone	Solar.R	Wind	Temp	Month	Day	Humidity
0	41.00000	190.000000	7.4	67	5	1	High
1	36.00000	118.000000	8.0	72	5	2	High
2	12.00000	149.000000	12.6	74	5	3	Low
3	18.00000	313.000000	11.5	62	5	4	High
4	42.12931	185.931507	14.3	56	5	5	High
...	...	...	...	...	...	...	...
148	30.00000	193.000000	6.9	70	9	26	Low
149	42.12931	145.000000	13.2	77	9	27	High
150	14.00000	191.000000	14.3	75	9	28	High
151	18.00000	131.000000	8.0	76	9	29	Medium
152	20.00000	223.000000	11.5	68	9	30	Low

153 rows × 7 columns

In [10]:
```
file["Ozone"]= file["Ozone"].fillna(file["Ozone"].mean())
file["Solar.R"]= file["Solar.R"].fillna(file["Solar.R"].mean())
file['Wind'].fillna(file['Wind'].mean(), inplace=True)
file['Humidity'] = file['Humidity'].fillna(file['Humidity'].mode()[0])
file
```

Out[10]:

	Ozone	Solar.R	Wind	Temp	Month	Day	Humidity
0	41.00000	190.000000	7.4	67	5	1	High
1	36.00000	118.000000	8.0	72	5	2	High
2	12.00000	149.000000	12.6	74	5	3	Low
3	18.00000	313.000000	11.5	62	5	4	High
4	42.12931	185.931507	14.3	56	5	5	High
...	...	...	...	...	...	...	...
148	30.00000	193.000000	6.9	70	9	26	Low
149	42.12931	145.000000	13.2	77	9	27	High
150	14.00000	191.000000	14.3	75	9	28	High
151	18.00000	131.000000	8.0	76	9	29	Medium
152	20.00000	223.000000	11.5	68	9	30	Low

153 rows × 7 columns

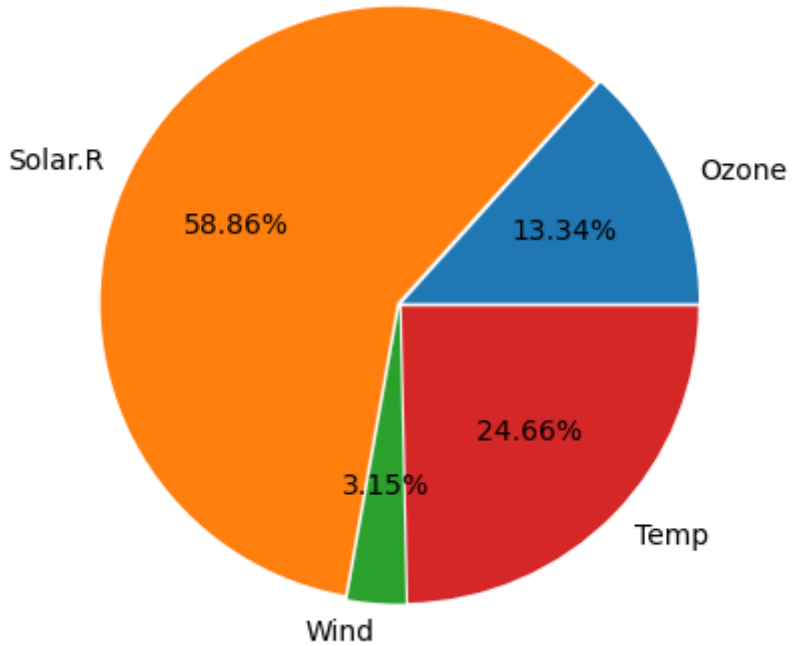
In [11]:
```
file.isnull().sum()
```

Out[11]:
```
Ozone       0
Solar.R     0
Wind        0
Temp        0
Month       0
Day         0
Humidity    0
dtype: int64
```

Pie Chart

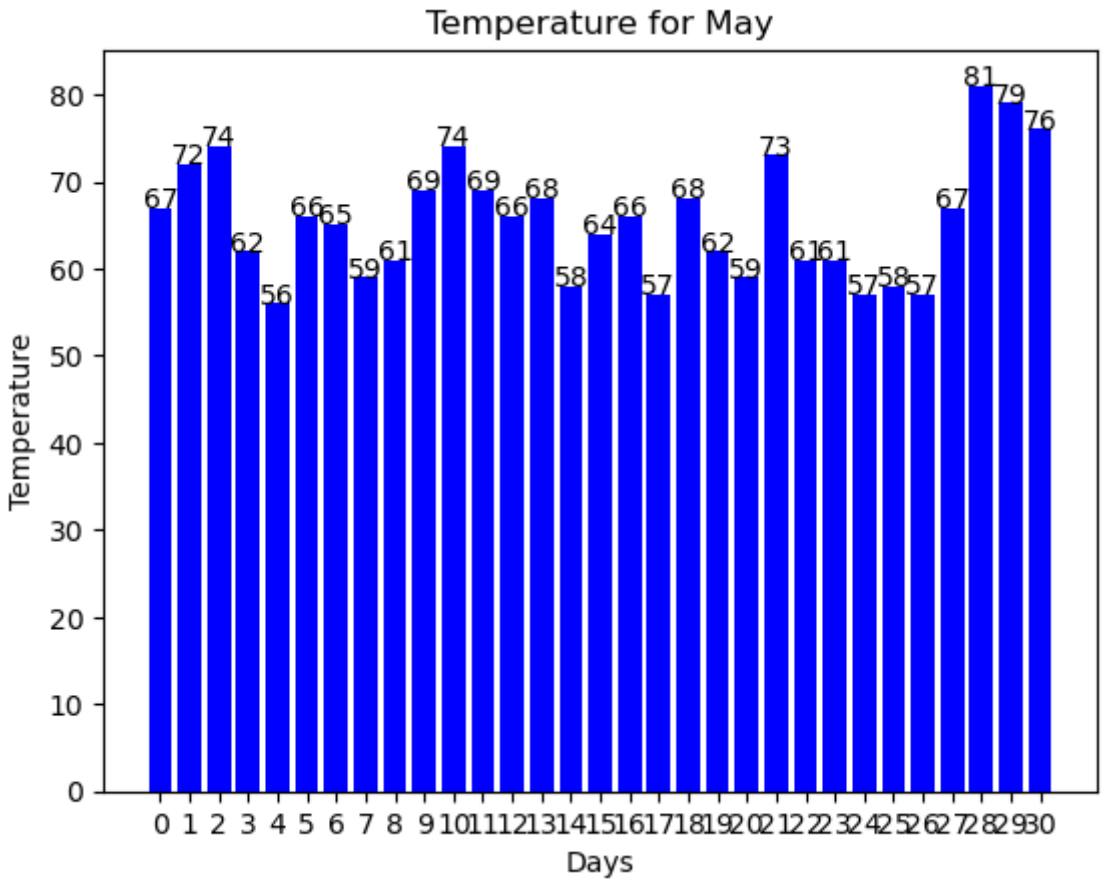
In [12]:
```
plt.pie([file["Ozone"].mean(), file["Solar.R"].mean(), file["Wind"].mean(), file["Temp"].mean()], autopct="%1.2f%%", ex
plt.plot()
```

Out[12]: []



Bar Graph

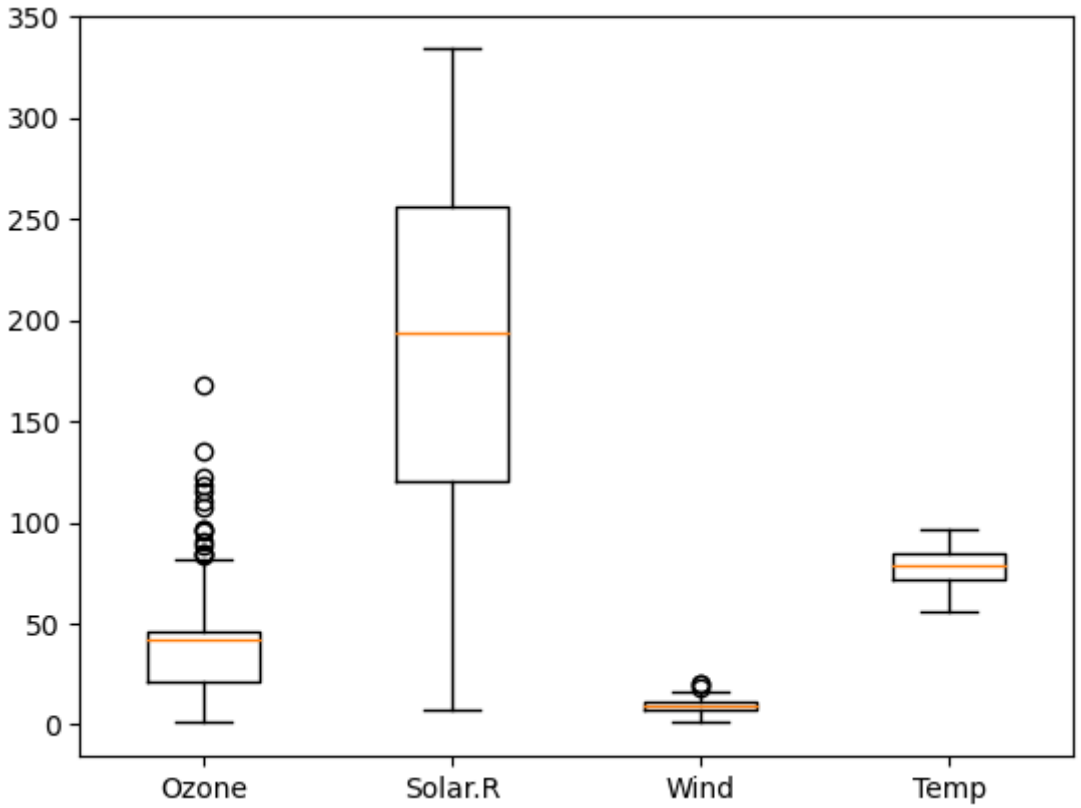
In [24]:
```
def addlabels():
    for i in range(len(file.iloc[0:31, 3])):
        plt.text(i, file.iloc[0:31, 3][i], file.iloc[0:31, 3][i], ha="center")

y= np.arange(len(file.iloc[0:31,3]))
addlabels()
plt.bar(x=y, height= file.iloc[0:31, 3], tick_label=y, color="blue")
plt.title("Temperature for May")
plt.xlabel("Days")
plt.ylabel("Temperature")
plt.show()
```



Box Plot

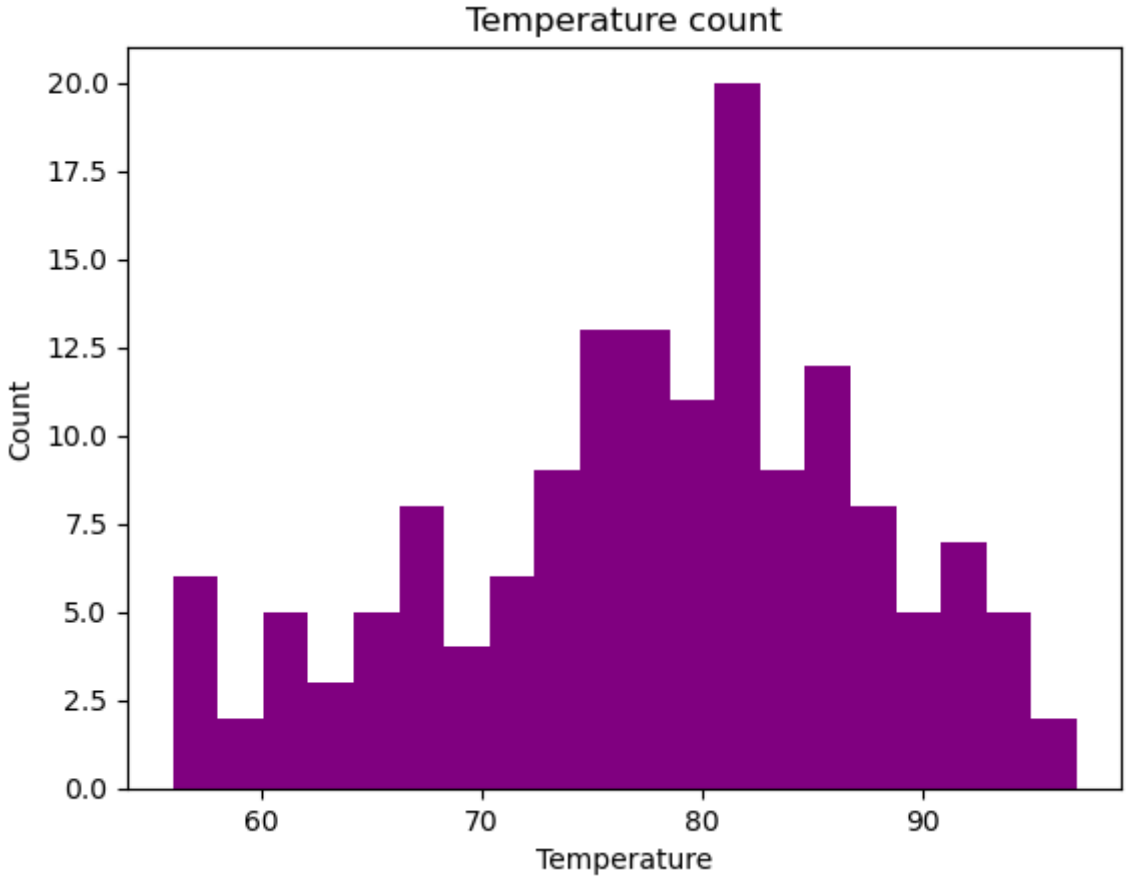
In [25]:
```
plt.boxplot(x= file[["Ozone","Solar.R", "Wind","Temp"]], labels=["Ozone","Solar.R", "Wind","Temp"])
plt.plot()
```

Out[25]: []



Histogram

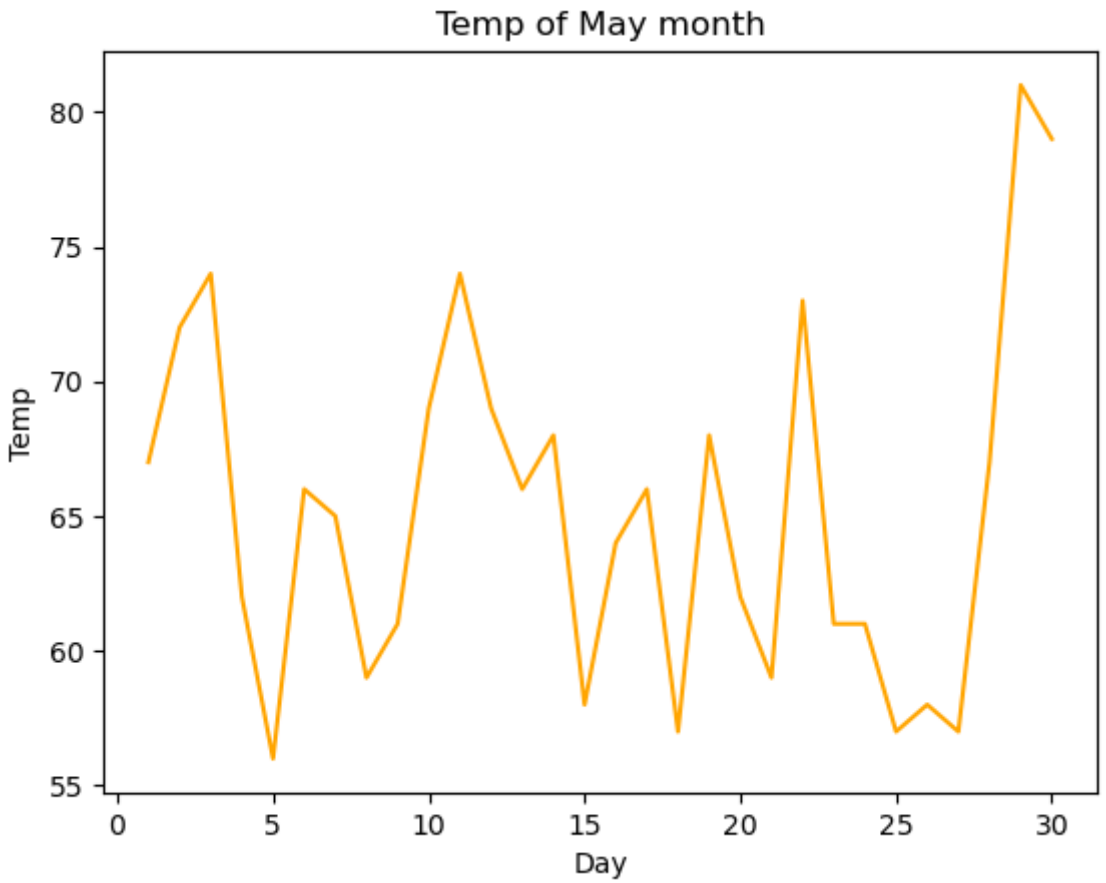
In [26]:
```
plt.hist(x=file["Temp"], bins=20, color="purple", label="Temp")
plt.title("Temperature count")
plt.xlabel("Temperature")
plt.ylabel("Count")
plt.show()
```



Line Graph

In [28]:
```
plt.plot(file.iloc[0: 30, 5], file.iloc[0:30, 3], color="orange")
plt.title("Temp of May month")
plt.xlabel("Day")
plt.ylabel("Temp")
```

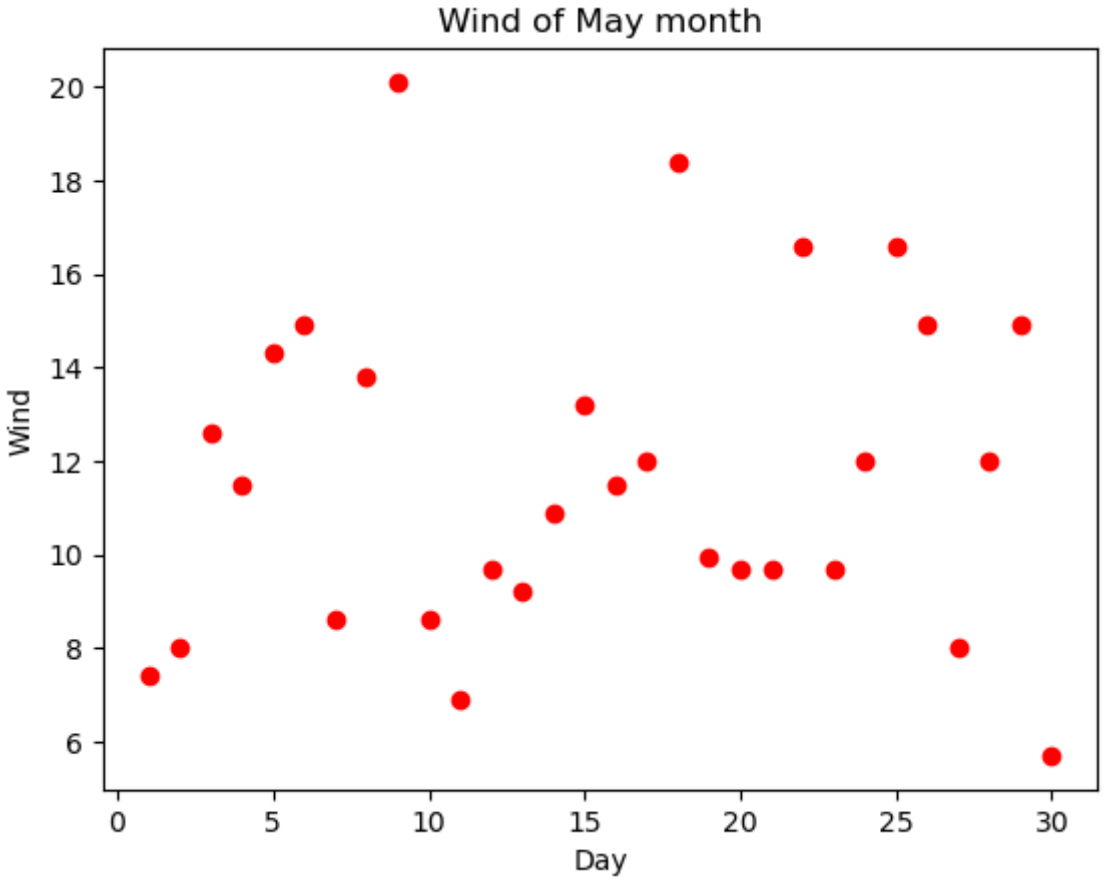
Out[28]:
```
Text(0, 0.5, 'Temp')
```



Scatter Plot

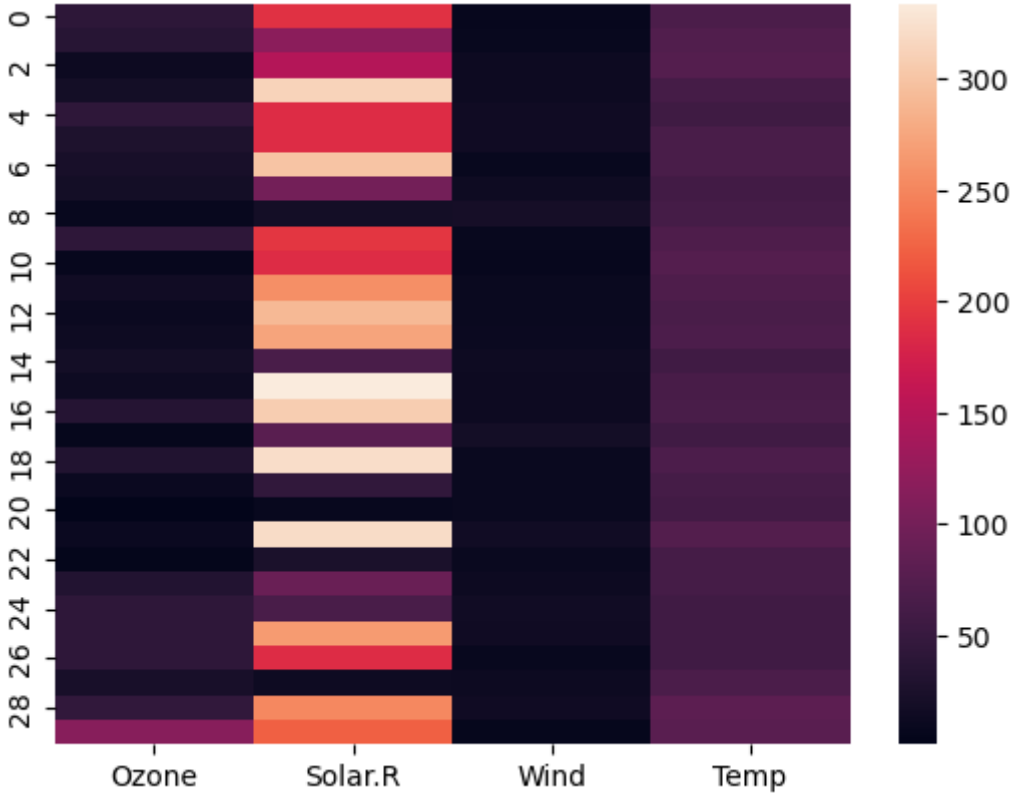
In [29]:
```
plt.scatter(file.iloc[0:30, 5], file.iloc[0: 30, 2], color="red")
plt.title("Wind of May month")
plt.xlabel("Day")
plt.ylabel("Wind")
```

Out[29]: Text(0, 0.5, 'Wind')



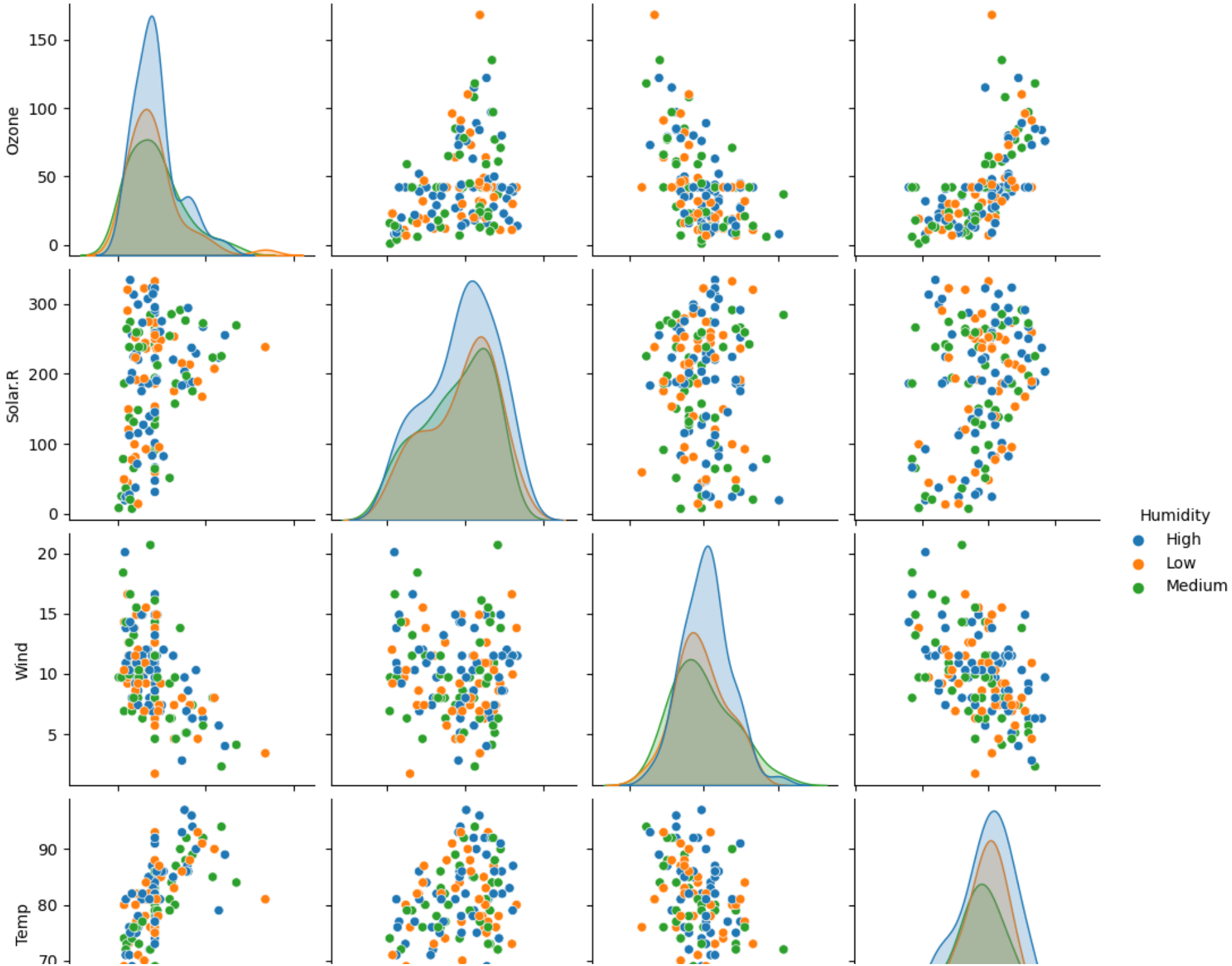
Heat Map

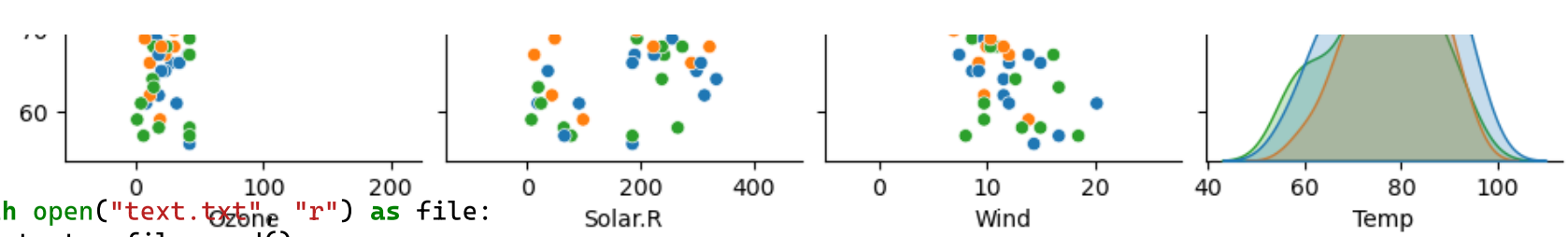
In [31]:
```
seaborn.heatmap(data=file.iloc[0:30, [0,1,2,3]])
plt.show()
```



Pair Plot

In [32]:
```
seaborn.pairplot(file.iloc[:, [0,1,2,3,6]], hue="Humidity")
plt.show()
```


Ozone
Solar.R
Wind
Temp
150
100
50
0
300
200
100
0
20
15
10
5
90
80
70
Humidity
High
Low
Medium



In [34]:
```
with open("text.txt", "r") as file:
    text = file.read()
```

In [ ]:
```
from wordcloud import WordCloud, STOPWORDS

stopwords= set(STOPWORDS)
wordcloud= WordCloud(width= 2500, height= 2500,
                     background_color= 'red',
                     stopwords= stopwords,
                     min_font_size= 16).generate(text)
plt.imshow(wordcloud)
plt.axis("off")
plt.tight_layout(pad = 0)
plt.show()
```

In [ ]:

In [ ]: