```
import pandas as pd

df = pd.read_csv("weather.csv")
```

```
df
```

| | MinTemp | MaxTemp | Rainfall | Evaporation | Sunshine | WindGustDir | WindGustSpeed | WindDir9am | WindDir3pm | WindSpeed9am | . |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 8.0 | 24.3 | 0.0 | 3.4 | 6.3 | NW | 30.0 | SW | NW | 6.0 | |
| **1** | 14.0 | 26.9 | 3.6 | 4.4 | 9.7 | ENE | 39.0 | E | W | 4.0 | |
| **2** | 13.7 | 23.4 | 3.6 | 5.8 | 3.3 | NW | 85.0 | N | NNE | 6.0 | |
| **3** | 13.3 | 15.5 | 39.8 | 7.2 | 9.1 | NW | 54.0 | WNW | W | 30.0 | |
| **4** | 7.6 | 16.1 | 2.8 | 5.6 | 10.6 | SSE | 50.0 | SSE | ESE | 20.0 | |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **361** | 9.0 | 30.7 | 0.0 | 7.6 | 12.1 | NNW | 76.0 | SSE | NW | 7.0 | |
| **362** | 7.1 | 28.4 | 0.0 | 11.6 | 12.7 | N | 48.0 | NNW | NNW | 2.0 | |
| **363** | 12.5 | 19.9 | 0.0 | 8.4 | 5.3 | ESE | 43.0 | ENE | ENE | 11.0 | |
| **364** | 12.5 | 26.9 | 0.0 | 5.0 | 7.1 | NW | 46.0 | SSW | WNW | 6.0 | |
| **365** | 12.3 | 30.2 | 0.0 | 6.0 | 12.6 | NW | 78.0 | NW | WNW | 31.0 | |

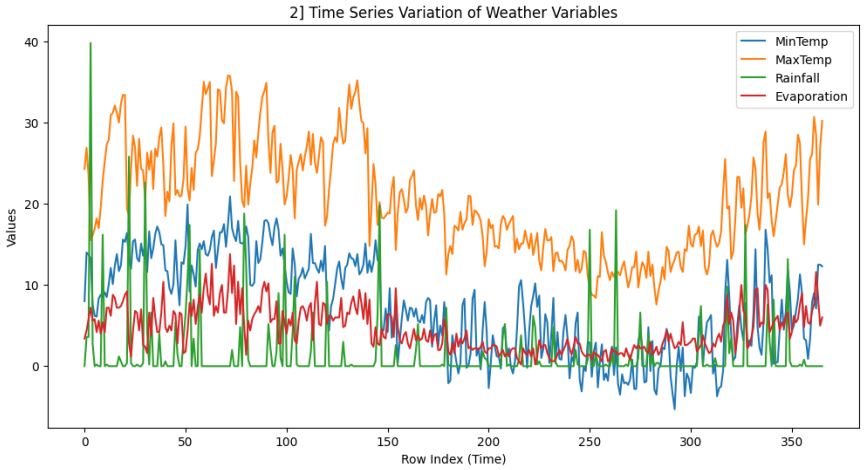
366 rows × 22 columns

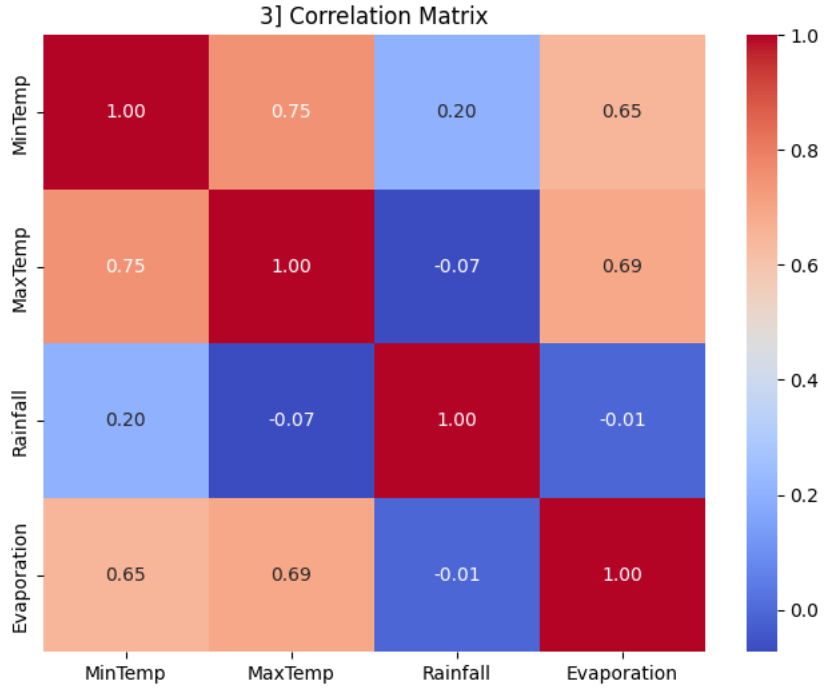
```
print("1] Descriptive Statistics")
print("(i) Mean of MinTemp is:",df["MinTemp"].mean())
print("(ii) Median of MinTemp is:",df["MinTemp"].median())
print("(iii) Standard Deviation of MinTemp is:",df["MinTemp"].std())
print("(iv) Mean of MaxTemp is:",df["MaxTemp"].mean())
print("(v) Median of MaxTemp is:",df["MaxTemp"].median())
print("(vi) Standard Deviation of MaxTemp is:",df["MaxTemp"].std())
print("(vii) Mean of Rainfall is:",df["Rainfall"].mean())
print("(viii) Median of Rainfall is:",df["Rainfall"].median())
print("(ix) Standard Deviation of Rainfall is:",df["Rainfall"].std())
print("(x) Mean of Evaporation is:",df["Evaporation"].mean())
print("(xi) Median of Evaporation is:",df["Evaporation"].median())
print("(xii) Standard Deviation of Evaporation is:",df["Evaporation"].std())
```

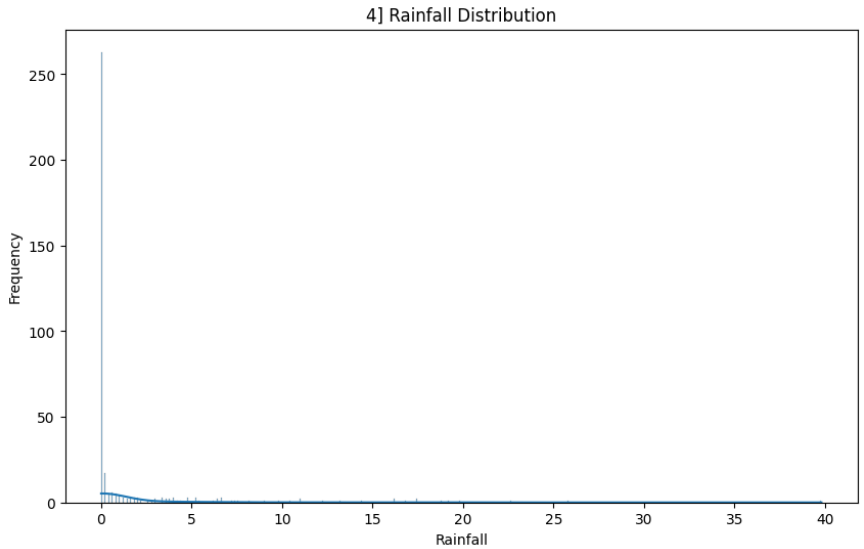
```
1] Descriptive Statistics
(i) Mean of MinTemp is: 7.265573770491804
(ii) Median of MinTemp is: 7.45
(iii) Standard Deviation of MinTemp is: 6.025799834253392
(iv) Mean of MaxTemp is: 20.550273224043714
(v) Median of MaxTemp is: 19.65
(vi) Standard Deviation of MaxTemp is: 6.690515669598577
(vii) Mean of Rainfall is: 1.428415300546448
(viii) Median of Rainfall is: 0.0
(ix) Standard Deviation of Rainfall is: 4.225799585804051
(x) Mean of Evaporation is: 4.521857923497268
(xi) Median of Evaporation is: 4.2
(xii) Standard Deviation of Evaporation is: 2.6693825342212643
```

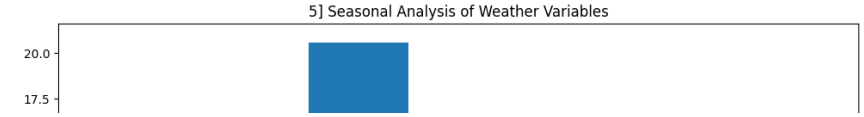
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Load the data
weather_data = pd.read_csv('weather.csv')

# Task 1: Descriptive Statistics
descriptive_stats = weather_data[['MinTemp', 'MaxTemp', 'Rainfall', 'Evaporation']].describe()
print("1] Descriptive Statistics:")
print(descriptive_stats)

# Task 2: Time Series Visualization using Row Index
plt.figure(figsize=(12, 6))
plt.plot(weather_data.index, weather_data['MinTemp'], label='MinTemp')
plt.plot(weather_data.index, weather_data['MaxTemp'], label='MaxTemp')
plt.plot(weather_data.index, weather_data['Rainfall'], label='Rainfall')
plt.plot(weather_data.index, weather_data['Evaporation'], label='Evaporation')
plt.title('2] Time Series Variation of Weather Variables')
plt.xlabel('Row Index (Time)')
plt.ylabel('Values')
plt.legend()
plt.show()

# Task 3: Correlation Analysis
correlation_matrix = weather_data[['MinTemp', 'MaxTemp', 'Rainfall', 'Evaporation']].corr()
plt.figure(figsize=(8, 6))
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm', fmt=".2f")
plt.title('3] Correlation Matrix')
plt.show()

# Task 4: Rainfall Distribution
plt.figure(figsize=(10, 6))
sns.histplot(weather_data['Rainfall'], kde=True)
plt.title('4] Rainfall Distribution')
plt.xlabel('Rainfall')
plt.ylabel('Frequency')
plt.show()

# Task 5: Seasonal Analysis
seasonal_data = weather_data[['MinTemp', 'MaxTemp', 'Rainfall', 'Evaporation']].mean()

plt.figure(figsize=(12, 6))
seasonal_data.plot(kind='bar')
plt.title('5] Seasonal Analysis of Weather Variables')
plt.xlabel('Index (Month or Row Number)')
plt.ylabel('Average Values')
plt.show()
```

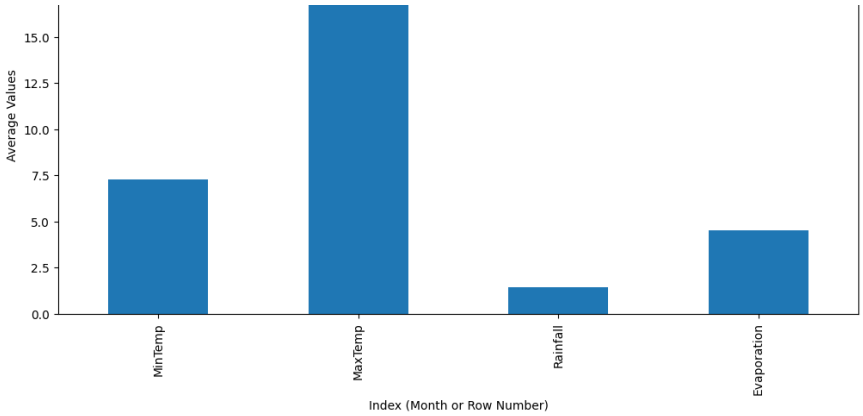
```
1] Descriptive Statistics:
          MinTemp     MaxTemp    Rainfall  Evaporation
count  366.000000  366.000000  366.000000   366.000000
mean     7.265574   20.550273    1.428415     4.521858
std      6.025800    6.690516    4.225800     2.669383
min     -5.300000    7.600000    0.000000     0.200000
25%      2.300000   15.025000    0.000000     2.200000
50%      7.450000   19.650000    0.000000     4.200000
75%     12.500000   25.500000    0.200000     6.400000
max     20.900000   35.800000   39.800000    13.800000
```




Average Values
15.0
12.5
10.0
7.5
5.0
2.5
0.0
MinTemp
MaxTemp
Rainfall
Evaporation
Index (Month or Row Number)