EXPERIMENT - 7

TIME SERIES DECOMPOSITION

AIM :

To implement a python program for decomposing time series data into trend and seasonality.

CODE :

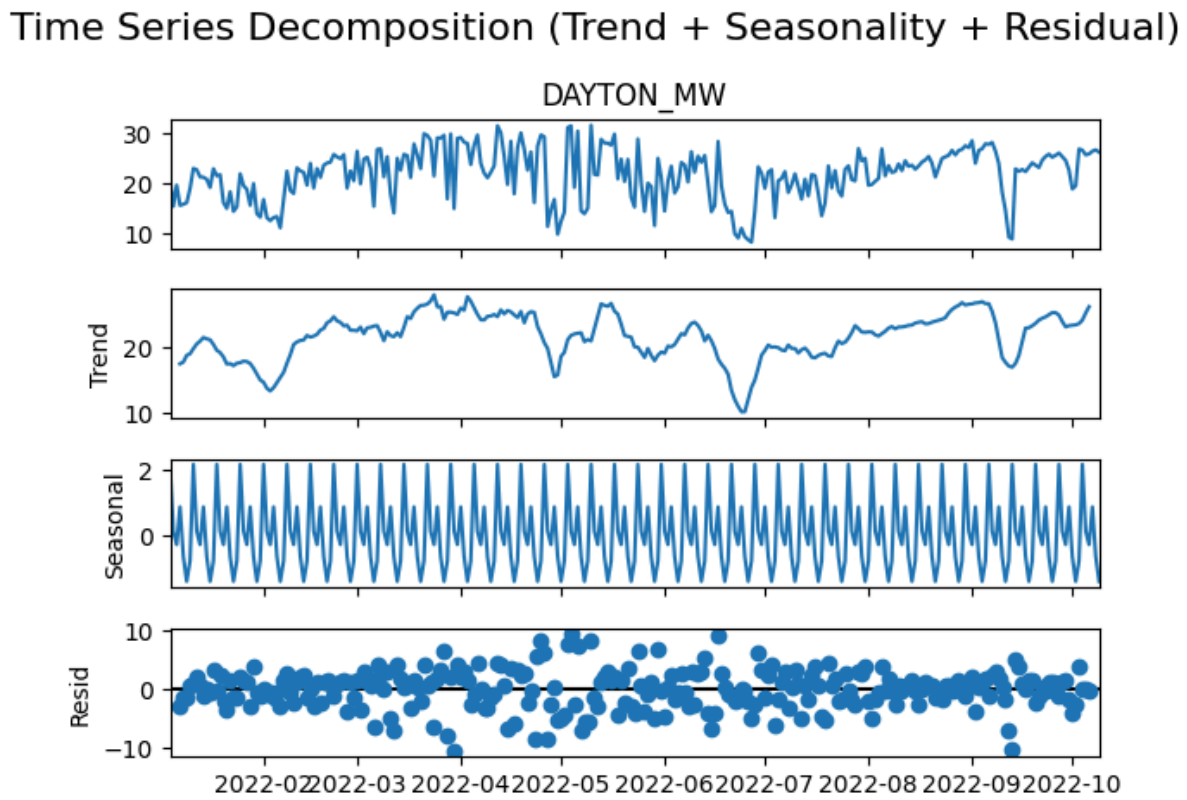
```
import pandas as pd
import matplotlib.pyplot as plt
from statsmodels.tsa.seasonal import seasonal_decompose

df = pd.read_csv('/content/MLTempDataset.csv')
df['Datetime'] = pd.to_datetime(df['Datetime'])
df.set_index('Datetime', inplace=True)

daily_data = df['DAYTON_MW'].resample('D').mean().dropna()
decomposition = seasonal_decompose(daily_data, model='additive')

plt.figure(figsize=(14, 10))
decomposition.plot()
plt.suptitle('Time Series Decomposition (Trend + Seasonality + Residual)', fontsize=16)
plt.tight_layout()
plt.show()
```

OUTPUT :



RESULT :

Thus the python program is executed successfully .