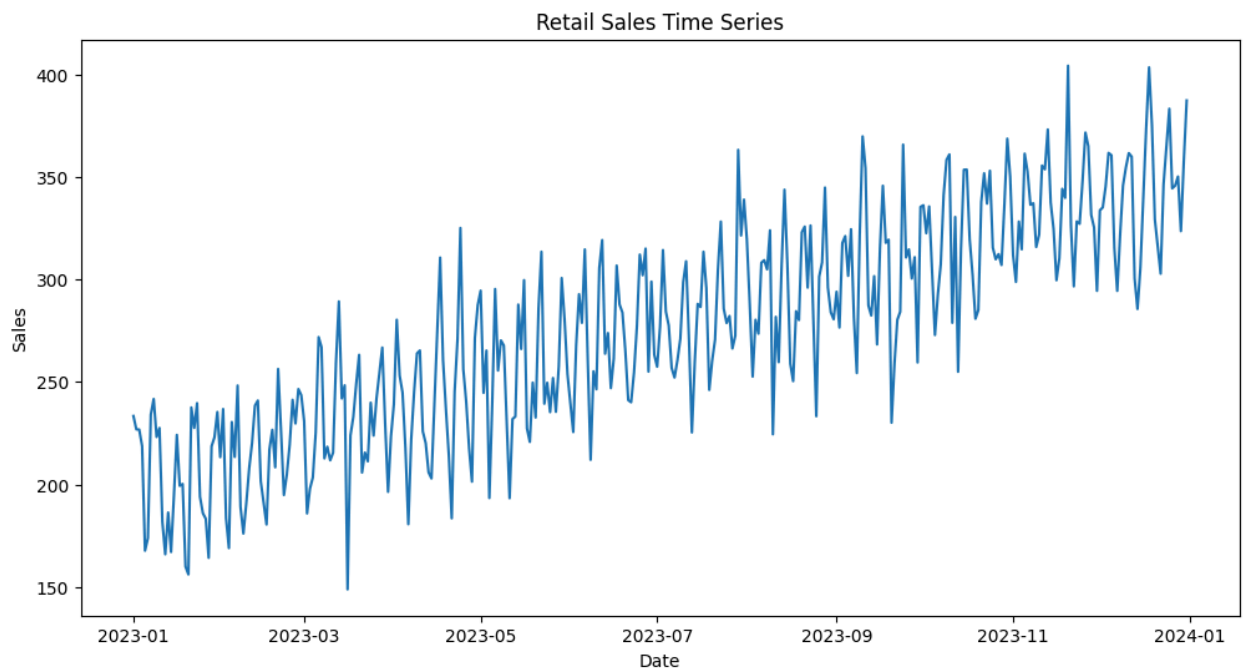


```
In [14]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

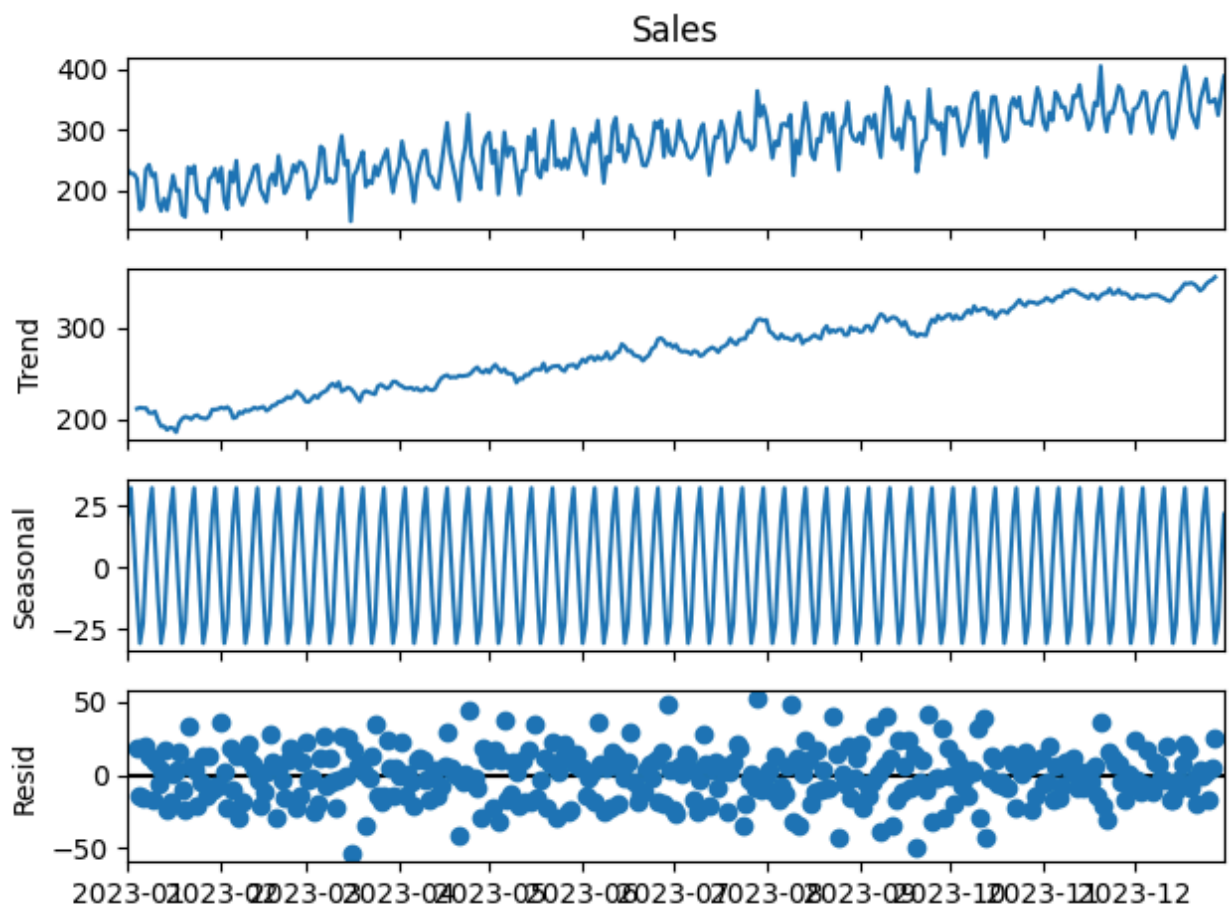
from statsmodels.tsa.seasonal import seasonal_decompose
from statsmodels.graphics.tsaplots import plot_acf, plot_pacf
from statsmodels.tsa.stattools import adfuller

# Load dataset
df = pd.read_csv(r"C:\Users\sanja\Downloads\retail_sales.csv")
df['Date'] = pd.to_datetime(df['Date'])
df.set_index('Date', inplace=True)
```

```
In [10]: # 1. Time Series Plot
plt.figure(figsize=(12,6))
plt.plot(df['Sales'])
plt.title("Retail Sales Time Series")
plt.xlabel("Date")
plt.ylabel("Sales")
plt.show()
```



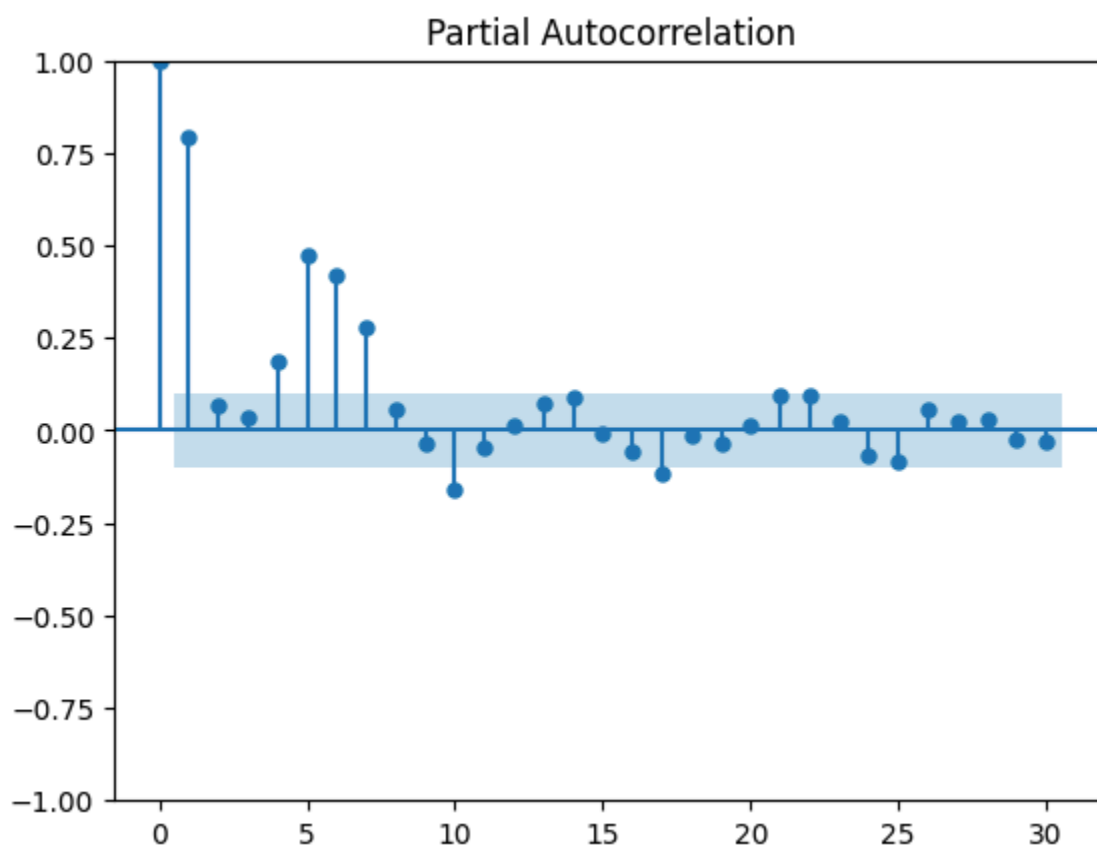
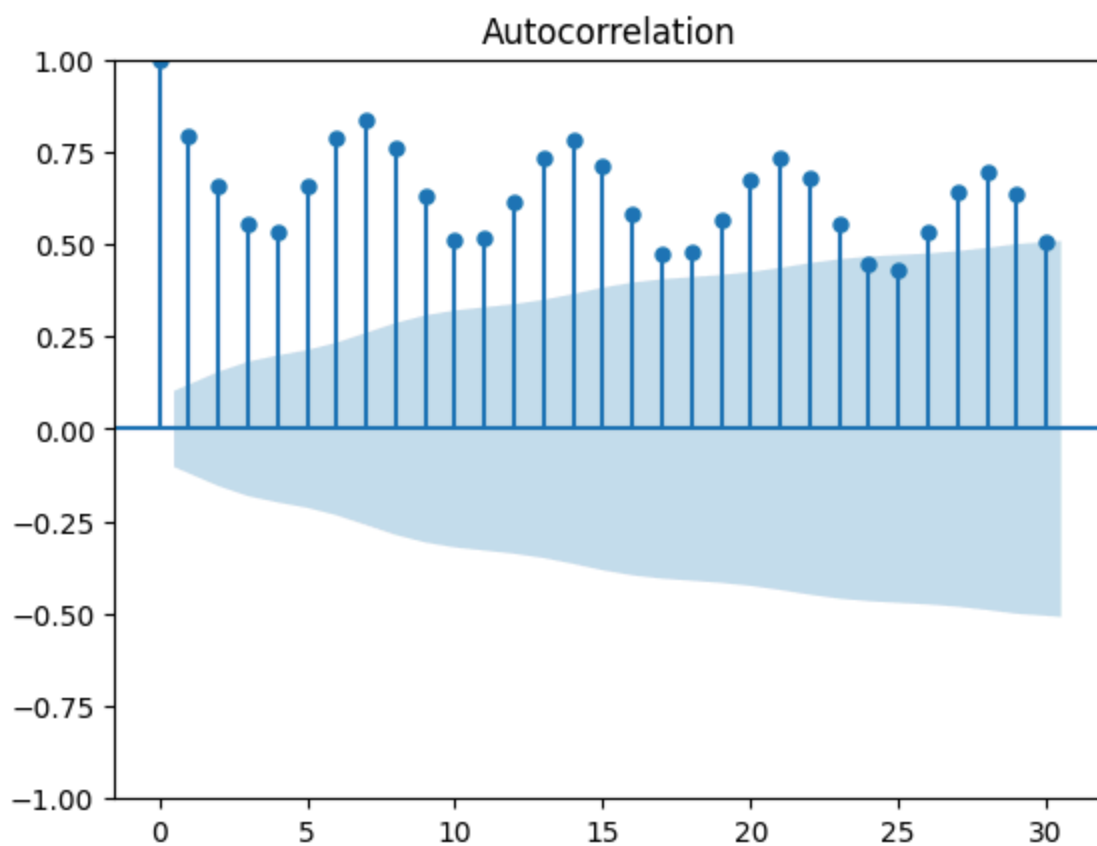
```
In [11]: # 2. Decomposition
decomposition = seasonal_decompose(df['Sales'], model='additive', period=7)
decomposition.plot()
plt.show()
```



```
In [12]: # 3. ACF & PACF
plot_acf(df['Sales'], lags=30)
plt.show()

plot_pacf(df['Sales'], lags=30)
plt.show()

# 4. Stationarity Test
adf_test = adfuller(df['Sales'])
print("ADF Statistic:", adf_test[0])
print("p-value:", adf_test[1])
```



ADF Statistic: -0.4142764181214425  
p-value: 0.9076876997019585

In [ ]:

In [ ]: