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In [1]: import pandas as pd
import matplotlib.pyplot as plt
from statsmodels.tsa.seasonal import seasonal_decompose

In [2]: file_path = r"C:\Users\HP\OneDrive\Desktop\NLP\Data\ML471_S1_Datafile_Practice.csv"

df = pd.read_csv(file_path)

# Convert date column to datetime
df['Date'] = pd.to_datetime(df['Date'])

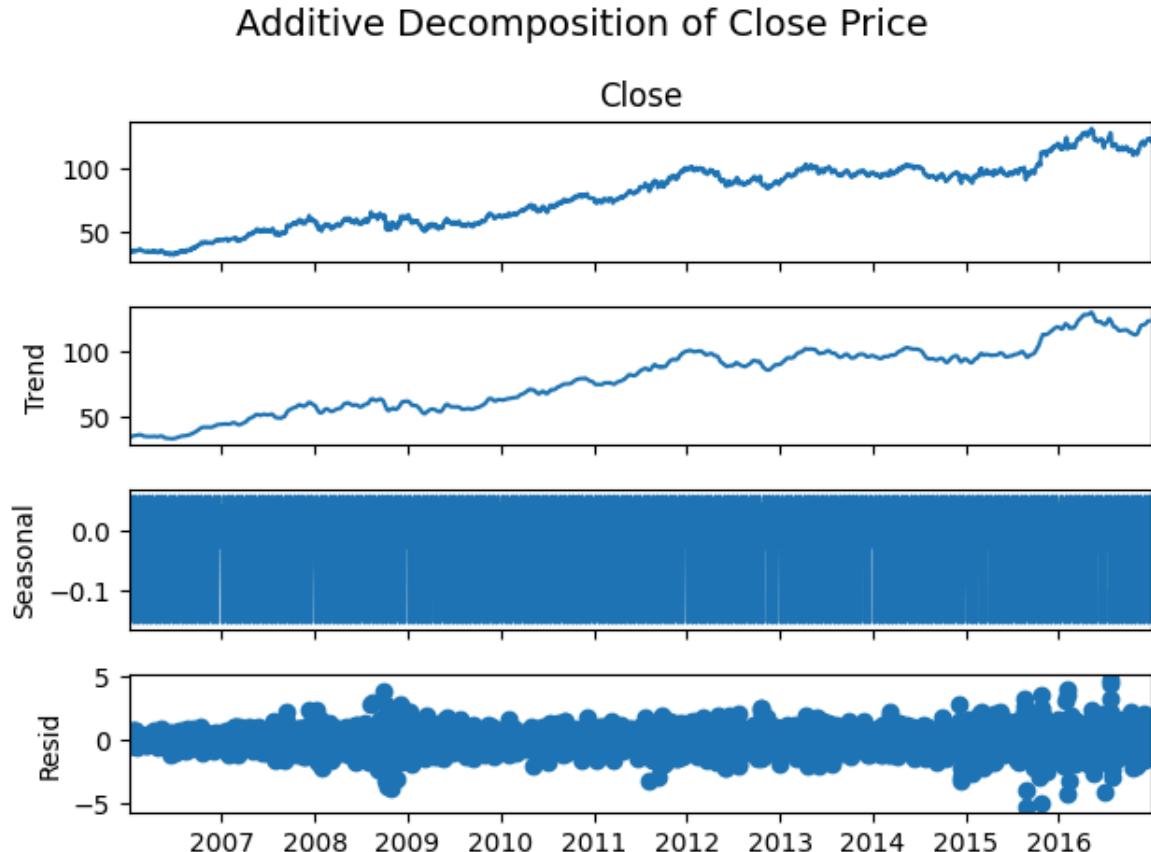
# Set Date as index
df.set_index('Date', inplace=True)

# Select Close price
close_series = df['Close']

In [3]: additive_decomposition = seasonal_decompose(
    close_series,
    model='additive',
    period=12
)

In [4]: plt.figure(figsize=(12, 8))
additive_decomposition.plot()
plt.suptitle("Additive Decomposition of Close Price", fontsize=14)
plt.tight_layout()
plt.show()
```

<Figure size 1200x800 with 0 Axes>



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In [5]: multiplicative_decomposition = seasonal_decompose(  
    close_series,  
    model='multiplicative',  
    period=12  
)
```

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In [6]: plt.figure(figsize=(12, 8))  
multiplicative_decomposition.plot()  
plt.suptitle("Multiplicative Decomposition of Close Price", fontsize=14)  
plt.tight_layout()  
plt.show()
```

<Figure size 1200x800 with 0 Axes>

