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

```python
In [2]:  df = pd.read_csv(r"C:\Users\HP\OneDrive\Desktop\NLP\Data\ML471_S1_Datafile_Conce
         df.head(), df.columns
```

```
Out[2]:  (          DATE   Consumption   Festivals/Special_events
          0  01-01-1988      107.5052                          6
          1  02-01-1988      105.6720                          1
          2  03-01-1988       97.4502                          1
          3  04-01-1988       92.4714                          1
          4  05-01-1988       90.3151                          1,
          Index(['DATE', 'Consumption', 'Festivals/Special_events'], dtype='object'))
```

```python
In [3]:  df['DATE'] = pd.to_datetime(df['DATE'], format='%d-%m-%Y')
         df =  df.sort_values('DATE')

         window = 12
         df['SMA'] = df['Consumption'].rolling(window=window).mean()
```

```python
In [4]:  def weighted_moving_average(values):
             weights = np.arange(1, len(values) + 1)   # [1,2,3,...,window]
             return np.dot(values, weights) / weights.sum()
```

```python
In [5]:  df['WMA'] = df['Consumption'].rolling(window=window).apply(weighted_moving_avera

         df['EMA'] = df['Consumption'].ewm(span=window, adjust=False).mean()
```

```python
In [6]:  plt.figure(figsize=(14,6))
         plt.plot(df['DATE'], df['Consumption'], label="Original Data", color="blue", alp
         plt.plot(df['DATE'], df['SMA'], label="Simple Moving Average (SMA)", color="gree
         plt.plot(df['DATE'], df['WMA'], label="Weighted Moving Average (WMA)", color="go
         plt.plot(df['DATE'], df['EMA'], label="Exponential Moving Average (EMA)", color=

         plt.title("Moving Average Techniques")
         plt.xlabel("Date")
         plt.ylabel("Electricity Consumption")
         plt.legend()
         plt.show()
```

Moving Average Techniques