**Implement Program For Visualization OF Time Series Data**

**EX.No:2**

**DATE: 25/01/2**

**AIM:**

To analyze and visualize electricity production data using various statistical and graphical techniques, including histograms, box plots, scatter plots, bar charts, and heatmaps, for trend analysis and outlier detection.

**ALGORITHM:**

1. Import pandas, matplotlib, and IPython components.
2. Load data from "Plant\_1\_Generation\_Data.csv" into a DataFrame.
3. Explore data: check shape, columns, info, statistics, missing values.
4. Convert 'DATE\_TIME' to datetime and set as index.
5. Create a line plot of 'DC\_POWER' over time.
6. Display the plot with labels and title.

**CODE:**

from IPython import get\_ipython

from IPython.display import display

import pandas as pd

df = pd.read\_csv('Plant\_1\_Generation\_Data.csv')

display(df.head())

print("DataFrame Shape:", df.shape)

print("\nColumn Names:", df.columns.tolist())

print("\nDataFrame Info:")

df.info()

print("\nDescriptive Statistics:")

display(df.describe())

print("\nMissing Values per Column:")

print(df.isnull().sum())

df['DATE\_TIME'] = pd.to\_datetime(df['DATE\_TIME'])

df = df.set\_index('DATE\_TIME')

df['DATE\_TIME'] = pd.to\_datetime(df['DATE\_TIME'], dayfirst=True)

df = df.set\_index('DATE\_TIME')

print(df.index.is\_monotonic\_increasing)

print(type(df.index))

import matplotlib.pyplot as plt

df['DC\_POWER'].plot(figsize=(12, 6))

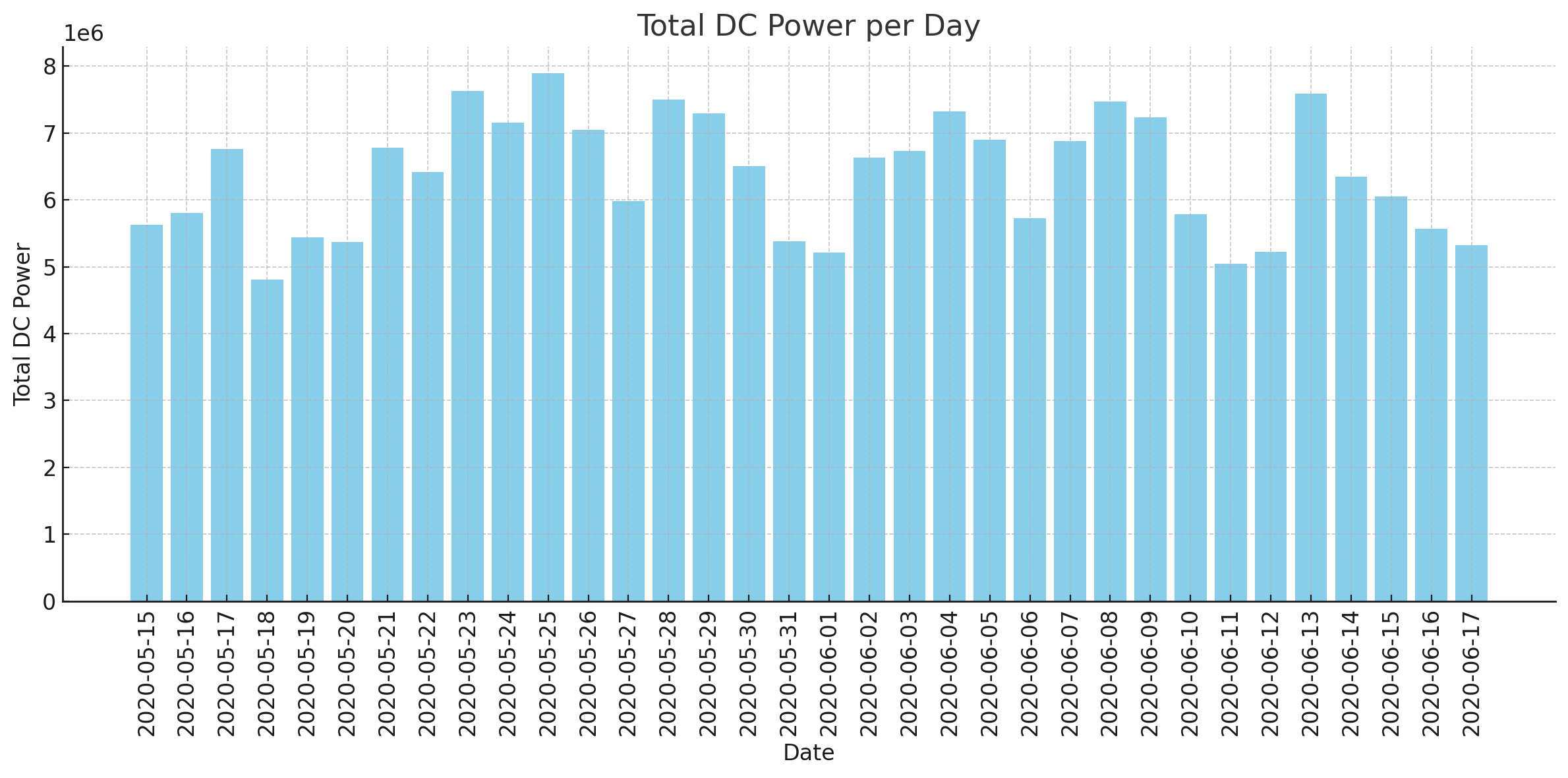
plt.xlabel('Time')

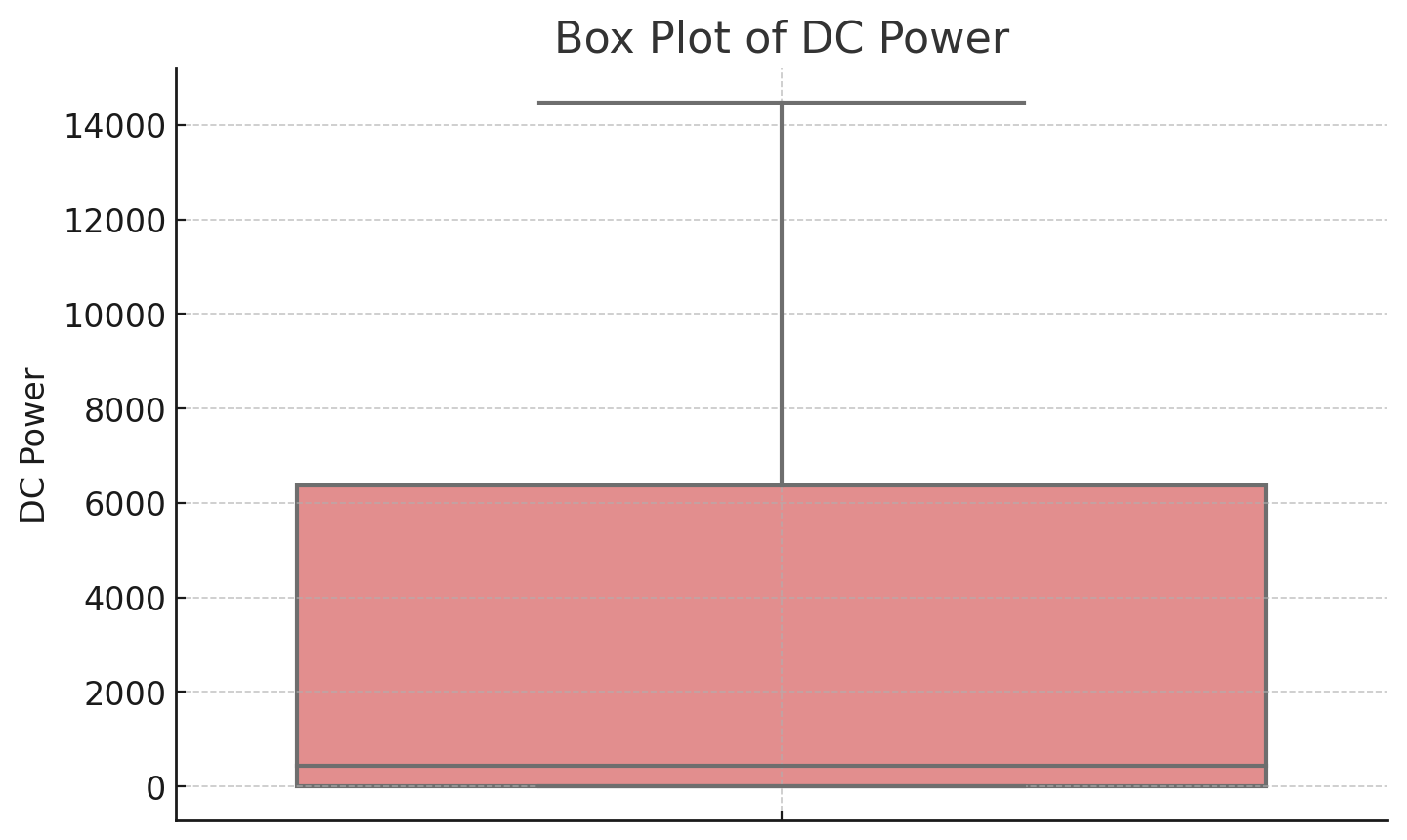
plt.ylabel('DC Power')

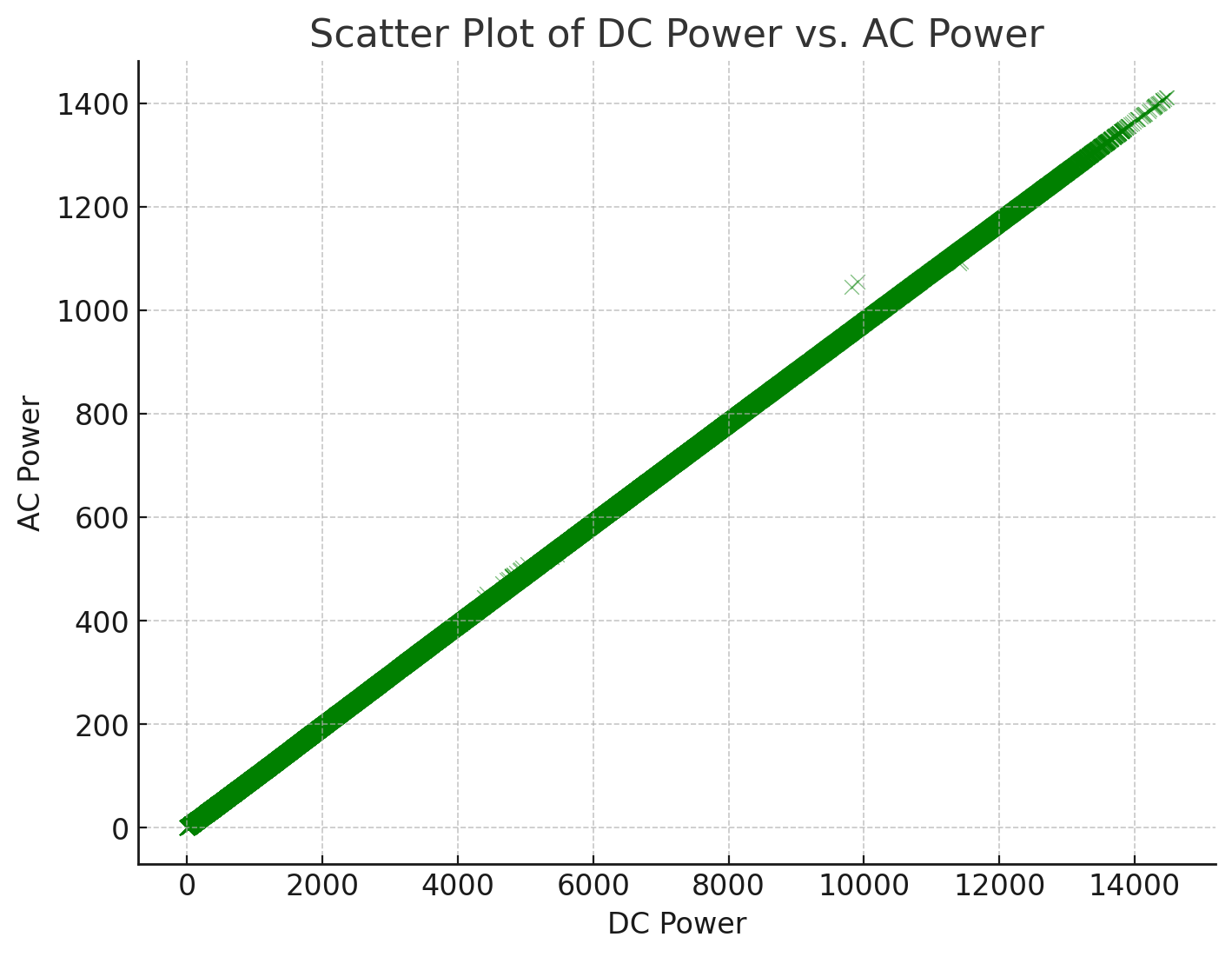
plt.title('DC Power over Time')

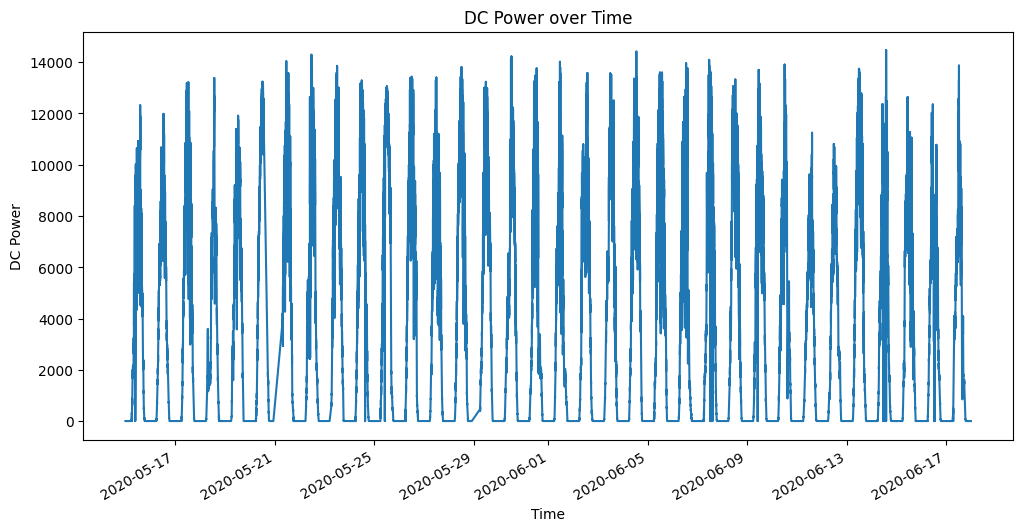
plt.show()

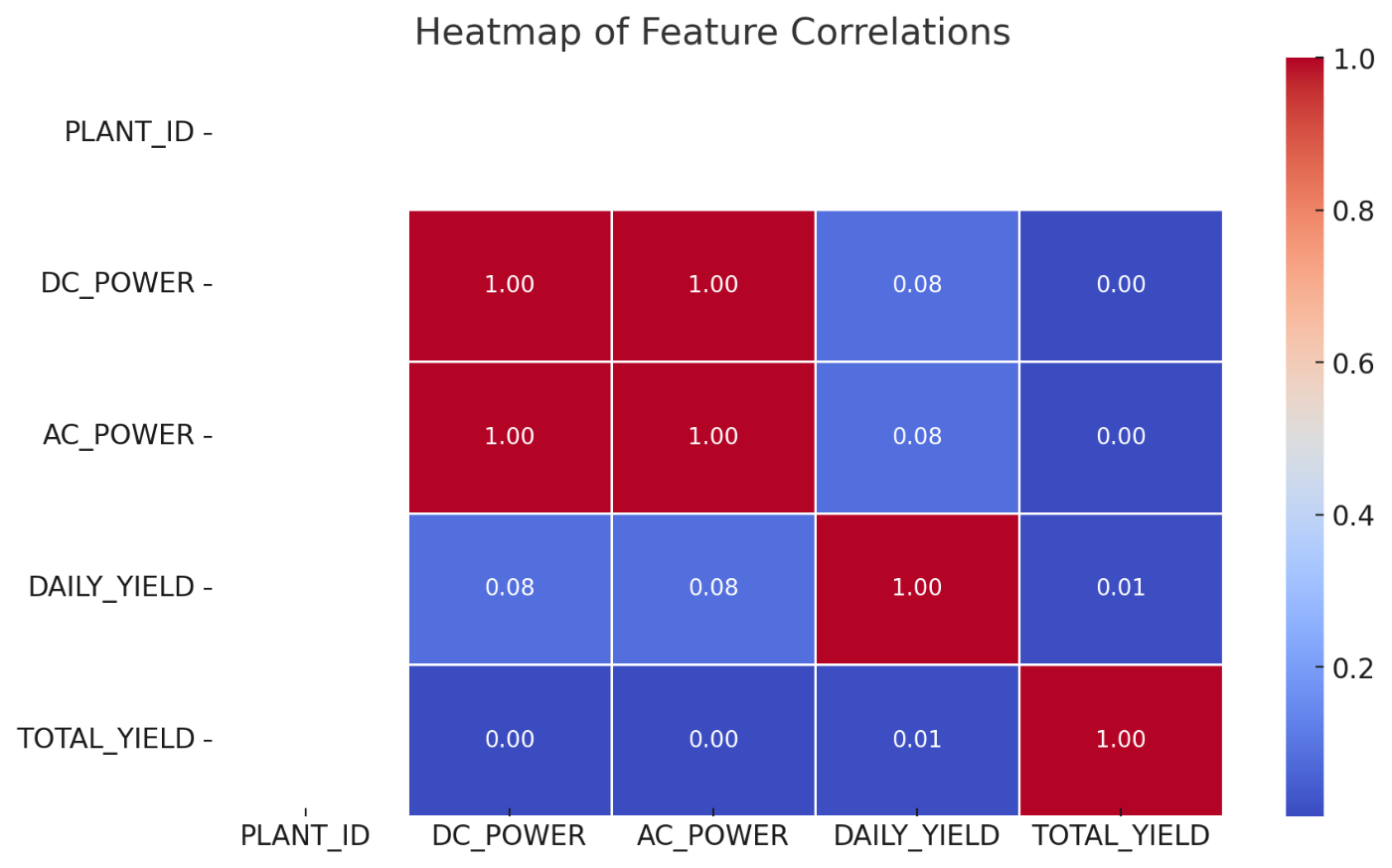
**OUTPUT:**









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**RESULT:**

Thus the program has been completed and verified successfully.