Program:

import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

from wordcloud import WordCloud

data = {

'Sender': ['alice@example.com', 'bob@example.com', 'alice@example.com', 'carol@example.com', 'bob@example.com'],

'Subject': ['Meeting Tomorrow', 'Urgent Update', 'Lunch?', 'Weekly Report', 'Deadline Reminder'],

'Date': ['2024-06-01', '2024-06-01', '2024-06-02', '2024-06-03', '2024-06-03'],

'Content': [

'Hi, are we meeting tomorrow at 10 AM?',

'Please update the document ASAP.',

'Wanna grab lunch today?',

'Attached is the weekly report for review.',

'Reminder: Submit the project by EOD.'

]

}

df = pd.DataFrame(data)

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

df['ContentLength'] = df['Content'].apply(len)

print("\n📊 Basic Info:")

print(df.info())

print("\n📝 First Few Rows:")

print(df.head())

plt.figure(figsize=(6, 4))

sns.countplot(x='Sender', data=df, palette='Set2')

plt.title('Emails Sent by Each Sender')

plt.xticks(rotation=30)

plt.tight\_layout()

plt.show()

plt.figure(figsize=(6, 4))

df.groupby('Sender')['ContentLength'].mean().plot(kind='bar', color='orange')

plt.title('Average Email Length per Sender')

plt.ylabel('Characters')

plt.tight\_layout()

plt.show()

plt.figure(figsize=(6, 4))

df.groupby('Date').size().plot(marker='o', color='purple')

plt.title('Email Volume Over Time')

plt.ylabel('Number of Emails')

plt.tight\_layout()

plt.show()

text = ' '.join(df['Subject'])

wordcloud = WordCloud(background\_color='white').generate(text)

plt.figure(figsize=(6, 4))

plt.imshow(wordcloud, interpolation='bilinear')

plt.axis('off')

plt.title('Subject Word Cloud')

plt.tight\_layout()

plt.show()

Output:







