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THE CODE FOR PRACTICAL NO.5

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import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Load the dataset
data = pd.read_csv('/content/tips.csv')

# Select 10 random grains
selected_grains = data.sample(n=10, random_state=42)

# Set up the interactive dashboard
plt.figure(figsize=(12, 8))

# 1. Scatter plot: Total Bill vs. Tip
plt.subplot(2, 3, 1)
sns.scatterplot(x='total_bill', y='tip', hue='sex',
data=selected_grains)
plt.title('Total Bill vs. Tip')
plt.xlabel('Total Bill')
plt.ylabel('Tip')

# 2. Bar plot: Grain Type distribution
plt.subplot(2, 3, 2)
sns.countplot(x='sex', data=selected_grains)
plt.title('Gender Distribution')
plt.xlabel('Gender')
plt.ylabel('Count')

# 3. Histogram: Total Bill distribution
plt.subplot(2, 3, 3)
sns.histplot(data=selected_grains, x='total_bill', kde=True)
plt.title('Total Bill Distribution')
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plt.xlabel('Total Bill')
plt.ylabel('Frequency')

# 4. Box plot: Tip by Gender
plt.subplot(2, 3, 4)
sns.boxplot(x='sex', y='tip', data=selected_grains)
plt.title('Tip by Gender')
plt.xlabel('Gender')
plt.ylabel('Tip')

# 5. Violin plot: Total Bill by Day
plt.subplot(2, 3, 5)
sns.violinplot(x='day', y='total_bill', data=selected_grains)
plt.title('Total Bill by Day')
plt.xlabel('Day')
plt.ylabel('Total Bill')

# 6. Line plot: Total Bill over Time (assuming we have a 'time' column)
plt.subplot(2, 3, 6)
sns.lineplot(x='time', y='total_bill', hue='sex', data=selected_grains)
plt.title('Total Bill over Time')
plt.xlabel('Time')
plt.ylabel('Total Bill')

# Add spacing between subplots
plt.tight_layout()

# Display the interactive dashboard
plt.show()
```

OUTPUT

