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import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

# Generate some random data
np.random.seed(0)
data_heatmap = np.random.rand(10, 10)
data_boxplot = np.random.randn(100)
data_histogram = np.random.randn(1000)

# Create a DataFrame for the box plot
df_boxplot = pd.DataFrame(data_boxplot)

# Heatmap
plt.figure(figsize=(8, 6))
plt.imshow(data_heatmap, cmap='hot', interpolation='nearest')
plt.colorbar()
plt.title('Heatmap')
plt.show()

# Box plot
plt.figure(figsize=(8, 6))
plt.boxplot(df_boxplot[0], vert=False)
plt.title('Box Plot')
plt.xlabel('Value')
plt.yticks([])
plt.grid(True)
plt.show()

# Histogram
plt.figure(figsize=(8, 6))
plt.hist(data_histogram, bins=30, color='skyblue', edgecolor='black')
plt.title('Histogram')
plt.xlabel('Value')
plt.ylabel('Frequency')
plt.grid(True)
plt.show()
```



