

A) Generate a random array of 50 integers and display them using a line chart, scatter plot, histogram and box plot. Apply appropriate color, labels and styling options.

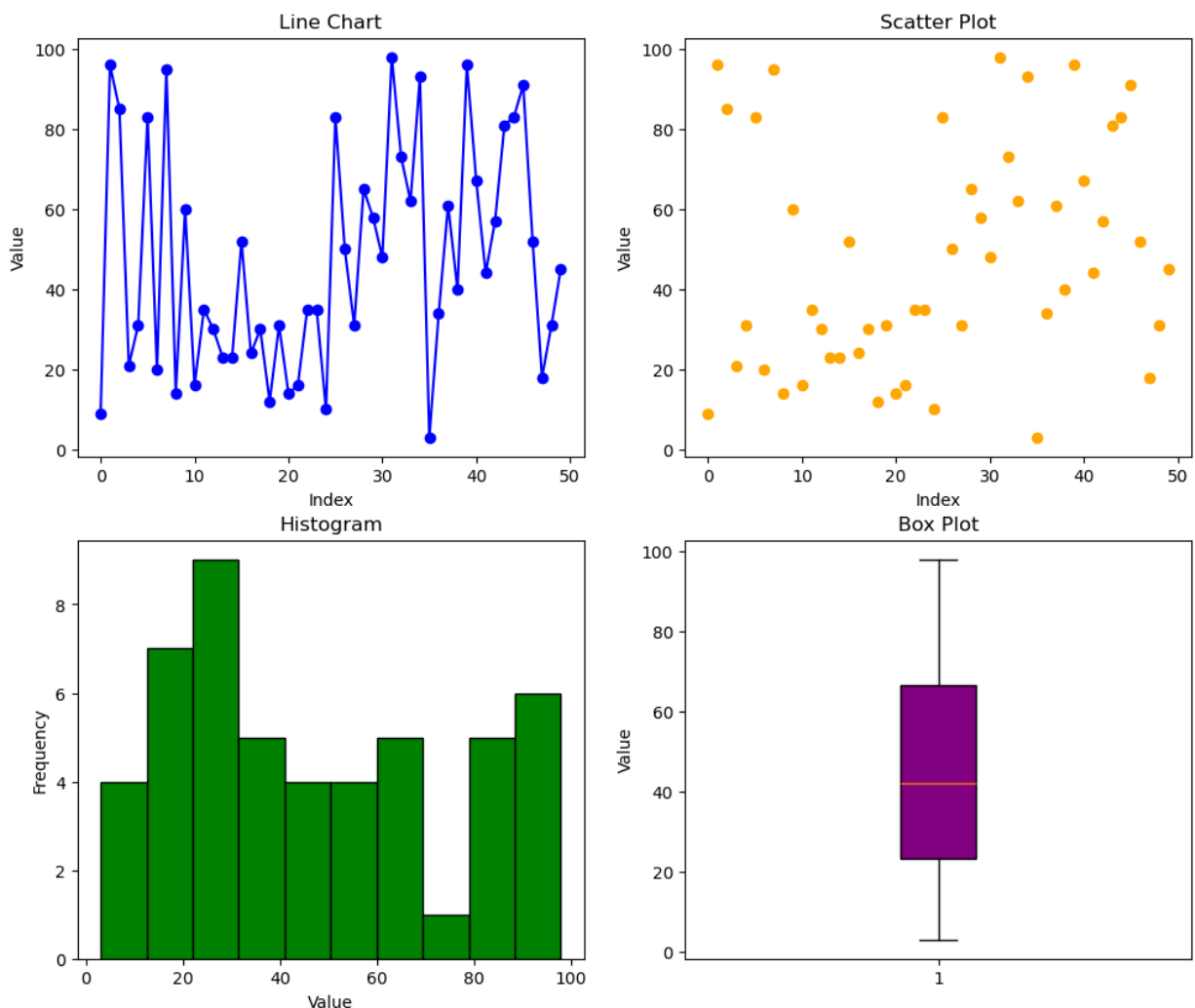
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In [2]: import numpy as np
import matplotlib.pyplot as plt
rn = np.random.randint(1, 101, size=50)

fig, axes = plt.subplots(2, 2, figsize=(12, 10))
axes[0,0].plot(rn, marker='o', linestyle='-', color='blue')
axes[0,0].set_title('Line Chart')
axes[0,0].set_xlabel('Index')
axes[0,0].set_ylabel('Value')

axes[0,1].scatter(range(len(rn)), rn, color='orange')
axes[0,1].set_title('Scatter Plot')
axes[0,1].set_xlabel('Index')
axes[0,1].set_ylabel('Value')

axes[1,0].hist(rn, bins=10, color='green', edgecolor='black')
axes[1,0].set_title('Histogram')
axes[1,0].set_xlabel('Value')
axes[1,0].set_ylabel('Frequency')

axes[1,1].boxplot(rn, patch_artist=True, boxprops=dict(facecolor='purple', color='black'))
axes[1,1].set_title('Box Plot')
axes[1,1].set_ylabel('Value')
plt.show()
```



B) Write a Python program to create data frame containing column name, salary, department add 10 rows with some

missing and duplicate values to the data frame. Also drop all null and empty values. Print the modified data frame.

```
In [4]: import pandas as pd

df = pd.DataFrame(columns=['name', 'salary', 'department'])
df.loc[0] = ['Aarav', 50000, 'Computer']
df.loc[1] = ['Vihaan', 70000, 'HR']
df.loc[2] = ['Reyansh', 80000, 'IT']
df.loc[3] = ['Krishna', None, 'Finance']
df.loc[4] = ['Lakshay', 60000, None]
df.loc[5] = ['Ishaan', 50000, 'Marketing']
df.loc[6] = ['Aditya', 90000, 'Finance']
df.loc[7] = ['Aarav', 70000, 'HR']
df.loc[8] = ['Raj', 85000, 'IT']
df.loc[9] = [None, 75000, 'Marketing']

df = df.dropna()

print(df)
```

	name	salary	department
0	Aarav	50000	Computer
1	Vihaan	70000	HR
2	Reyansh	80000	IT
5	Ishaan	50000	Marketing
6	Aditya	90000	Finance
7	Aarav	70000	HR
8	Raj	85000	IT