EDS ACTIVITY:

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Q. Write significance of all basic graphs required for Data Visualization.

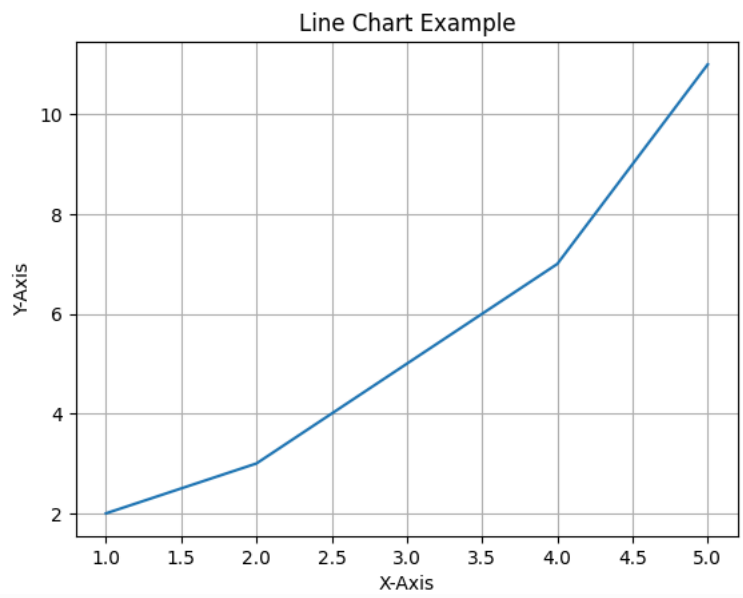
1. Line Chart

Line charts are used to represent continuous data points over time. They help visualize trends, changes over time, or relationships between variables.

```
import matplotlib.pyplot as plt

x = [1, 2, 3, 4, 5]
y = [2, 3, 5, 7, 11]

plt.plot(x, y)
plt.title('Line Chart Example')
plt.xlabel('X-Axis')
plt.ylabel('Y-Axis')
plt.grid(True)
plt.show()
```

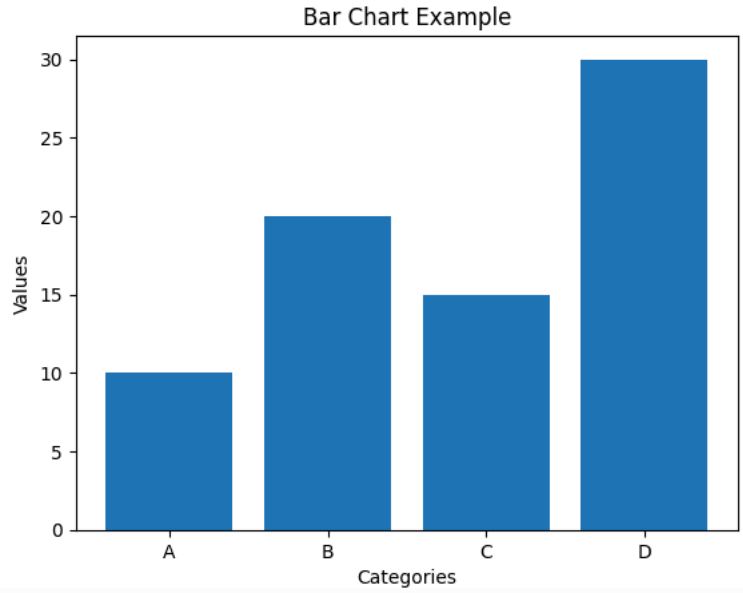


2. Bar Chart

Bar charts are useful for comparing numeric values across different categories. Each bar represents a category, and its height represents the value.

```
categories = ['A', 'B', 'C', 'D']
values = [10, 20, 15, 30]

plt.bar(categories, values)
plt.title('Bar Chart Example')
plt.xlabel('Categories')
plt.ylabel('Values')
plt.show()
```

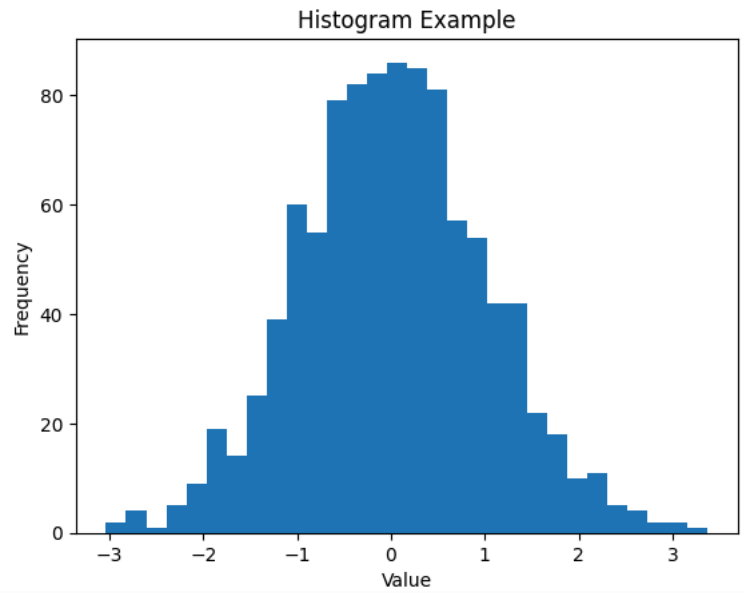


3. Histogram

Histograms are used to show the frequency distribution.They help identify the shape, spread, and central tendency of the data.

```
import numpy as np

data = np.random.randn(1000)
plt.hist(data, bins=30)
plt.title('Histogram Example')
plt.xlabel('Value')
plt.ylabel('Frequency')
plt.show()
```

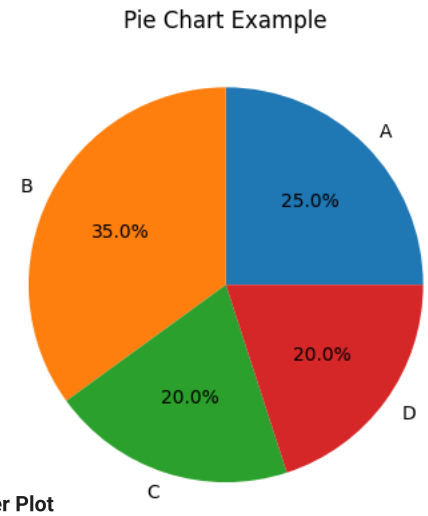


4. Pie Chart

Pie charts are used to show the proportion of categories as parts of a whole. They are effective when we want to highlight how each part contributes to the total.

```
sizes = [25, 35, 20, 20]
labels = ['A', 'B', 'C', 'D']

plt.pie(sizes, labels=labels, autopct='%1.1f%%')
plt.title('Pie Chart Example')
plt.show()
```



5. Scatter Plot

Scatter plots are used to show the correlation between two variables. Each point represents a data point, and the pattern of the points can indicate correlations or trends.

```
x = [1, 2, 3, 4, 5]
y = [5, 4, 3, 2, 1]

plt.scatter(x, y)
plt.title('Scatter Plot Example')
plt.xlabel('X-Axis')
plt.ylabel('Y-Axis')
plt.show()
```