DATA
VISUALIZATION

Scatter Plots

3

DV

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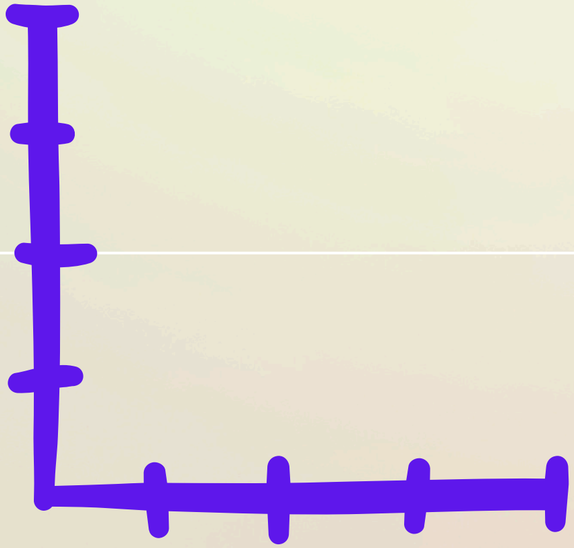
Scatter plot

A scatter plot visualizes data points on a Cartesian plane, where each point represents two variables. It helps identify patterns, correlations, and outliers by showing relationships between these variables.



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Scatter plot

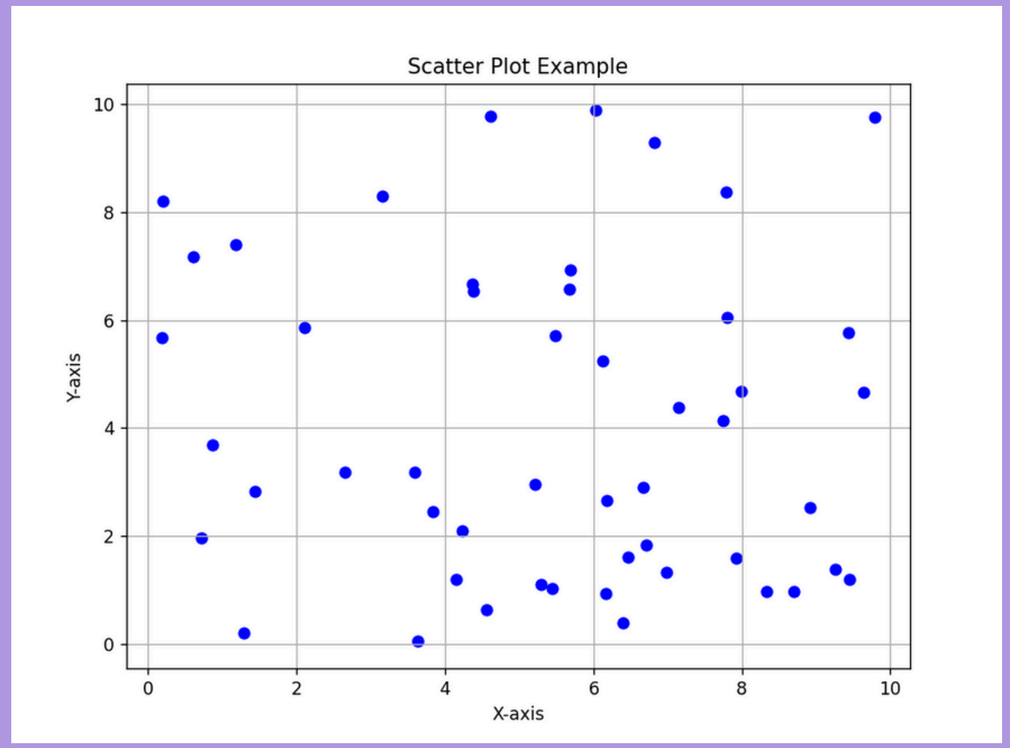
```python
import matplotlib.pyplot as plt
import numpy as np

# Generate random data
np.random.seed(0)
x = np.random.rand(50) * 10
y = np.random.rand(50) * 10

# Create scatter plot
plt.figure(figsize=(8, 6))
plt.scatter(x, y, color='blue', marker='o')

# Add titles and labels
plt.title('Scatter Plot Example')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')

# Show plot
plt.grid(True)
plt.show()
```



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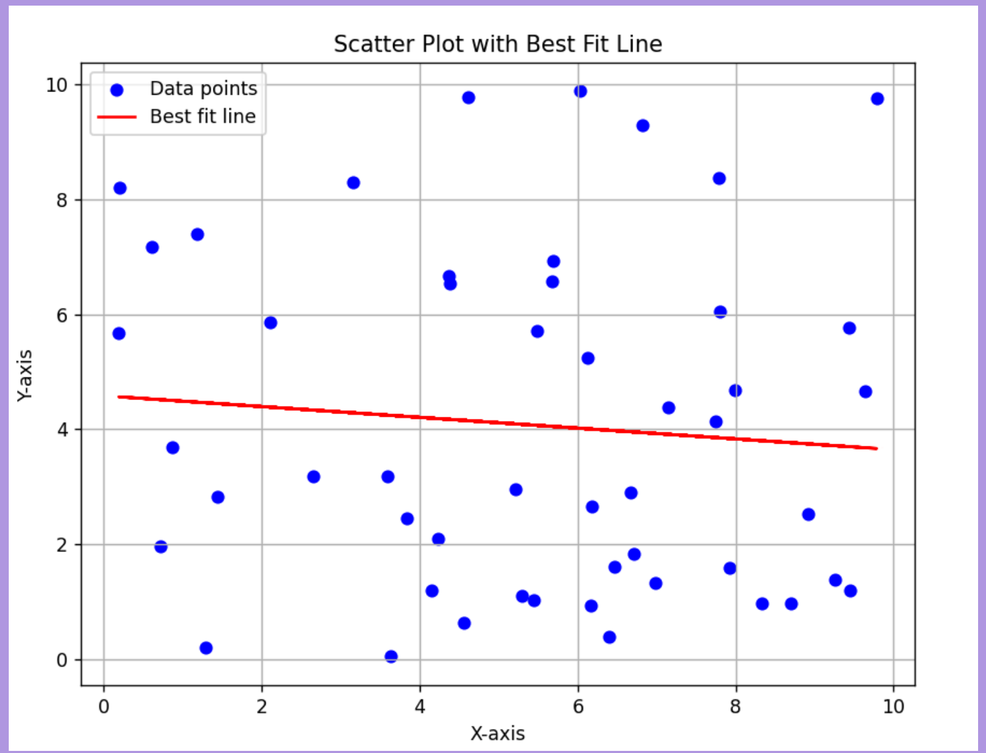
Best Fit line

```python
# Calculate the best fit line
m, b = np.polyfit(x, y, 1)
best_fit_line = m * x + b

# Create scatter plot
plt.figure(figsize=(8, 6))
plt.scatter(x, y, color='blue', marker='o', label='Data points')

# Plot the best fit line
plt.plot(x, best_fit_line, color='red', linestyle='-', label='Best fit line')

# Add titles and labels
plt.title('Scatter Plot with Best Fit Line')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')

# Add legend
plt.legend()

# Show plot
plt.grid(True)
plt.show()
```



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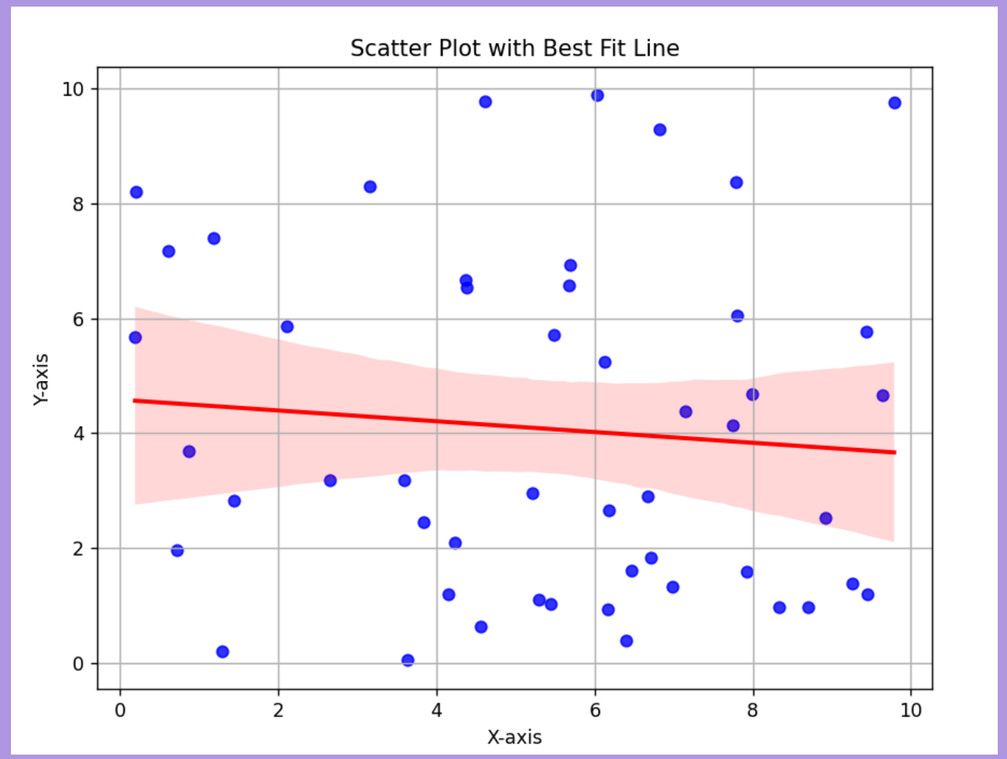
RegPlot

```python
import seaborn as sns
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd

# Generate random data
np.random.seed(0)
x = np.random.rand(50) * 10
y = np.random.rand(50) * 10

# Create a DataFrame
data = pd.DataFrame({'X': x, 'Y': y})

# Create scatter plot with best fit line
plt.figure(figsize=(8, 6))
sns.regplot(x='X', y='Y', data=data, scatter_kws={'color': 'blue'}, line_kws={'color': 'red'})

# Add titles and labels
plt.title('Scatter Plot with Best Fit Line')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')

# Show plot
plt.grid(True)
plt.show()
```



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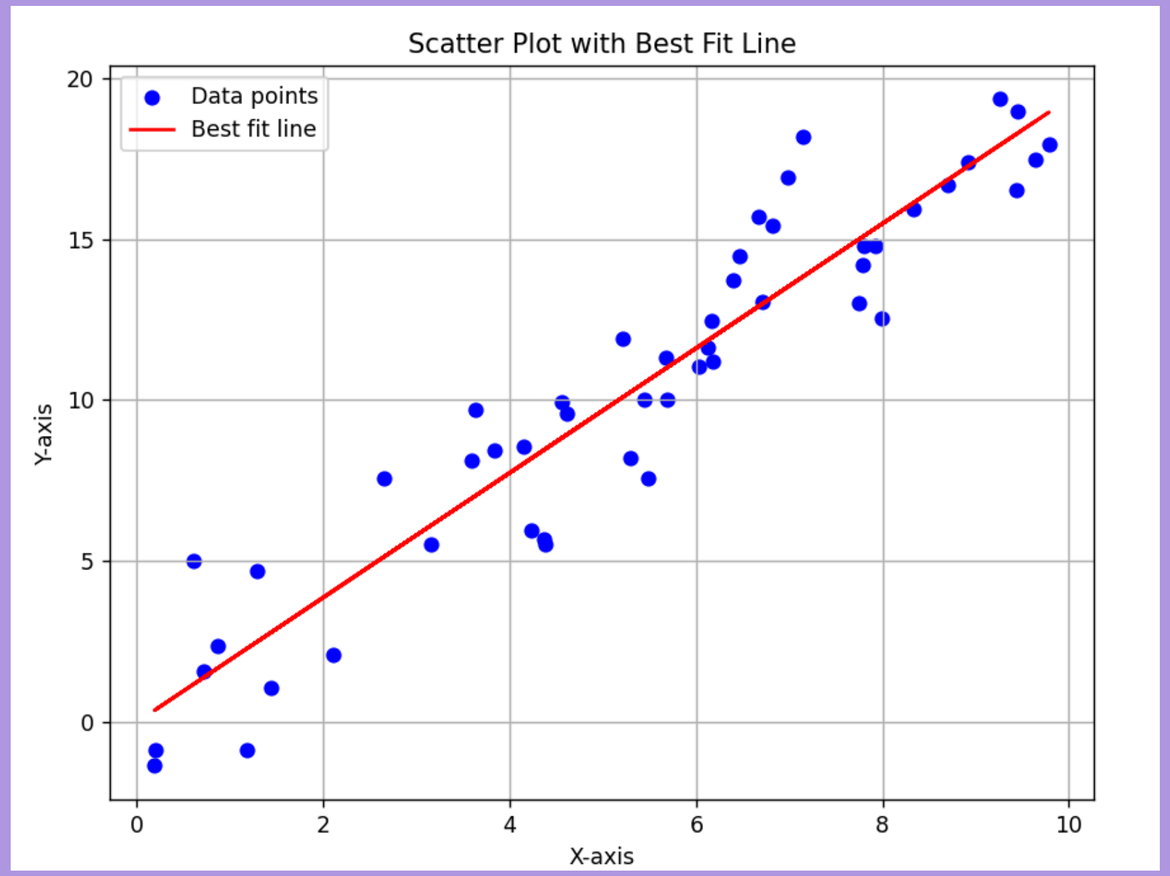
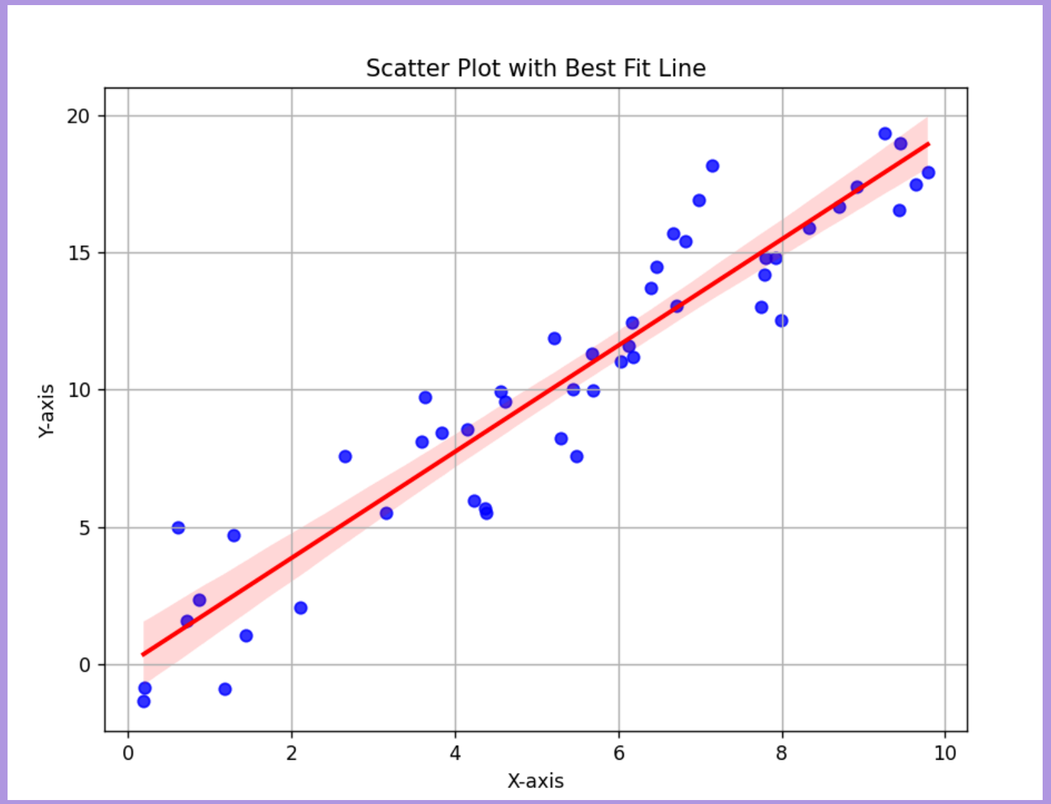
plots





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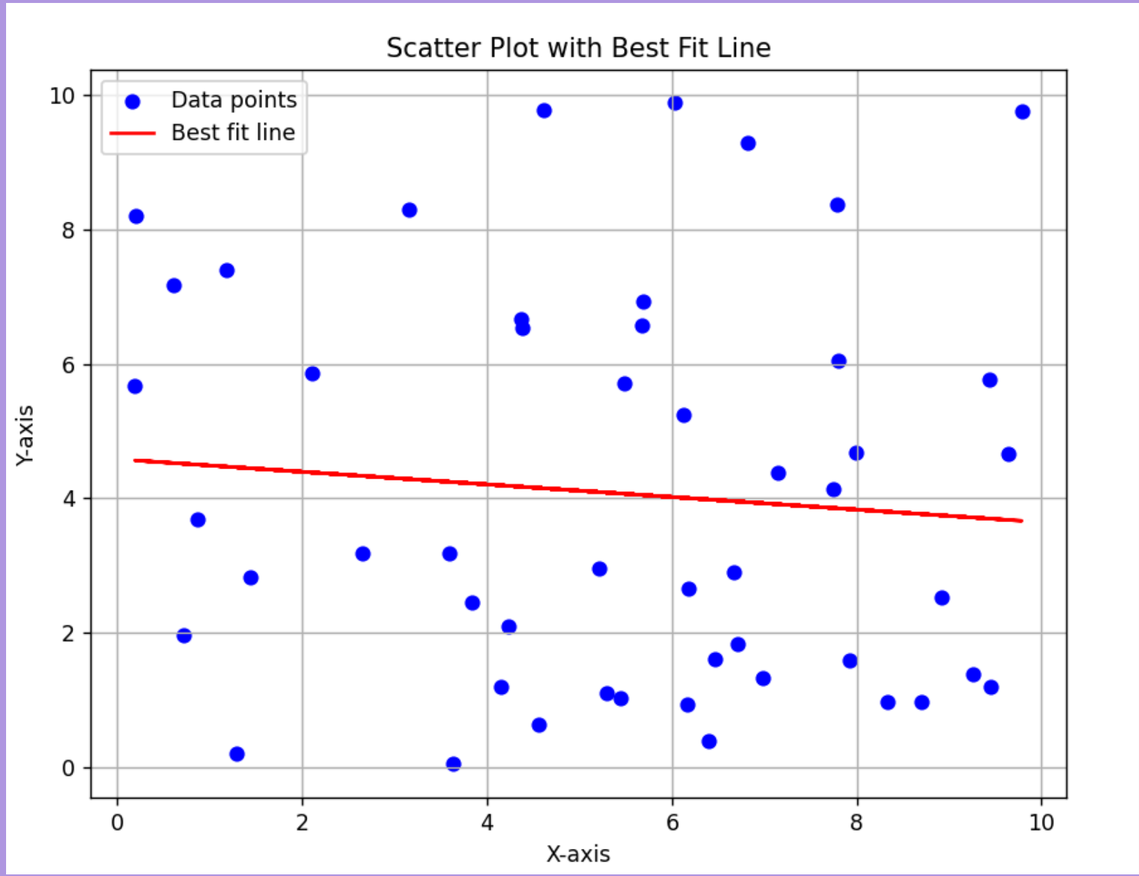

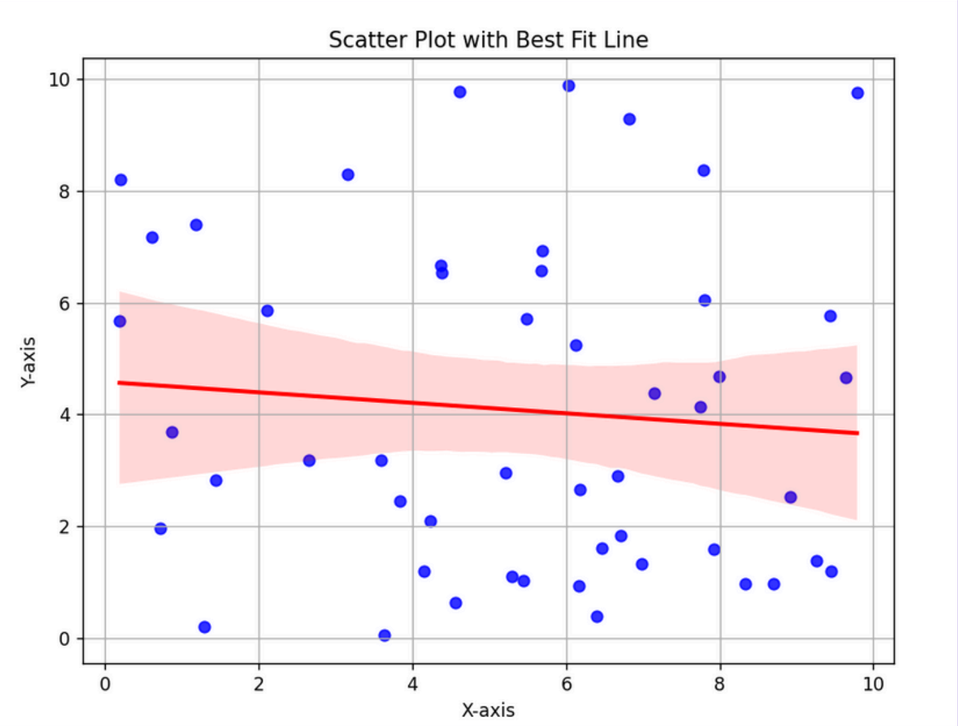

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