



# Data Visualization with Matplotlib

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# Introduction to Data Visualization

Data visualization transforms numbers and information into easily understandable pictures like graphs and charts.



# Matplotlib: Your Python Tool

Matplotlib is a powerful Python library specifically designed for creating static, animated, and interactive visualizations in Python.



# Common Visualization Methods



## Line Plot

Shows data changes over time using connected lines.



## Bar Graph

Compares different categories using rectangular bars.



## Histogram

Displays the frequency of numerical data with rectangles.

# More Visualization Methods



## Scatter Plot

Displays the relationship between two data sets as dots.



## Pie Chart

Shows parts of a whole as slices of a circle.

# Python Code for Bar Graph

```
import matplotlib.pyplot as plt

names = ['nihal', 'shaz', 'isha', 'prabhavathi', 'tamil maran']
marks = [20, 30, 20, 40, 50]
plt.bar(names, marks, color='green', label='marks')
plt.title('Student marks')
plt.xlabel('Students')
plt.ylabel('Marks')
plt.show()
```

# Practical Applications of Data Visualization



## Track Sales Growth

Monitor company sales over months for better business planning.



## Monitor Health Data

Track daily steps or heart rate for fitness and well-being.



## Manage Budget

Compare monthly expenses to wisely manage personal finances.

# More Applications



## Analyze Weather Changes

Visualize temperature and rainfall trends over seasons.



## Show Student Performance

Identify trends to improve teaching methods effectively.





# Conclusion

Data visualization with Matplotlib transforms raw data into clear, easy-to-understand charts, simplifying analysis, pattern recognition, and decision-making in real life.

**THANK YOU**