Data Visualization in R

Base R vs ggplot2

Introduction

- Data visualization is the graphical representation of information and data.

- In R, visualizations can be created using Base R graphics or ggplot2.

- Both approaches have their own strengths and weaknesses.

Base R Visualization

- Provides built-in plotting functions

- Simple and quick to use

- Useful for exploratory analysis

Pros:

- Quick and simple for small datasets

- No need to install extra packages

- Good for basic visualizations

Limitations:

- Customization is difficult

- Limited layering capability

- Less visually appealing

ggplot2 Visualization

- Based on the Grammar of Graphics
- Allows building plots step by step using layers
- Works well with the tidyverse

Pros:

- Highly customizable
- Easy to add layers and features
- Produces publication-quality plots
- Consistent styles across multiple plots

Limitations:

- Requires additional learning
- Slightly slower on very large datasets

Base R vs ggplot2

Feature	Base R	ggplot2
Ease of Use	Quick for simple plots	Requires learning curve
Customization	Limited, complex syntax	Highly customizable
Visual Appeal	Basic visuals	Modern, professional look
Best Use Case	Quick exploratory analysis	Publication-quality graphics