Summary of Univariate, Bivariate, and Multivariate Plots

1. Univariate Plots

Plot Type	Purpose	Data Type	Keywords
countplot	Frequency/count of categories	Categorical	how many, frequency
pie	Percentage share of categories	Categorical	percentage, share
histplot	Distribution with bins	Numerical	distribution, range
kdeplot	Smooth distribution curve	Numerical	density, peak
boxplot	Spread and outliers	Numerical	outliers, quartiles

2. Bivariate Plots

Plot Type	Purpose	Data Type	Keywords
scatterplot	Relationship between two numbers	Num vs Num	relationship, correlation
barplot	Compare aggregated values	Cat vs Num	average, total
boxplot	Compare spread across groups	Cat vs Num	spread, outliers
lineplot	Trend over time	Time series	trend, over time

3. Multivariate Plots

Plot Type	Purpose	Data Type	Keywords
pairplot	Pairwise relationships	Multiple numerical	all features, EDA
heatmap	Correlation matrix	Numeric/corr matrix	correlation, related variables

Important Notes on Plotting

1. Parameters like `hue`, `style`, and `size` in Seaborn are useful for visual grouping but they do NOT make a plot multivariate in true analytical terms.

    - hue adds color grouping (e.g., gender, region).
    - style changes marker styles in scatterplots/lineplots.
    - size varies marker size

2. General Plotting Tips

    - Use `barplot` when comparing aggregated values (default is mean, can be changed via `estimator`)
    - Use `countplot` for frequency of categories
    - Use `pie chart` when you want to visualize percentage share
    - Use `histplot` and `kdeplot` for distribution analysis
    - Use `scatterplot` for relationship between two numerical features
    - Use `lineplot` for time-based trends
    - Use `boxplot` for identifying spread and outliers
    - Use `pairplot` or `heatmap` when analyzing many variables together