Seaborn Plots – Definitions with Examples

This document explains commonly used Seaborn plots with **clear definitions** and **simple real-life examples**.
(Styling and palette are intentionally excluded.)

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1. Scatter Plot

Definition:
Shows the relationship between **two numerical variables** using points.

Example:
Height vs Weight → how weight changes as height increases

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2. Strip Plot

Definition:
Shows **individual data points** of a numerical variable across categories.

Example:
Class vs Marks → individual student marks in each class

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3. Swarm Plot

Definition:
Similar to strip plot, but points are arranged to **avoid overlapping**.

Example:
Department vs Salary → clear view of salary distribution per department

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4. Histogram

Definition:
Shows the **frequency distribution** of a numerical variable.

Example:
Age distribution → how many people fall in each age range

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5. Regression Plot

Definition:
Shows the relationship between two numerical variables along with a **trend line**.

Example:
Study Hours vs Exam Score → trend of score with study time

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6. Line Plot

Definition:
Shows how a numerical value **changes over time or sequence**.

Example:
Year vs Company Profit → profit trend over years

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7. Joint Plot

Definition:
Shows the relationship between two variables along with their **individual distributions**.

Example:
Height vs Weight → relationship plus separate height and weight distributions

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8. Bar Plot

Definition:
Shows the **average or summary value** of a numerical variable for each category.

Example:
Department vs Average Salary → comparison of department-wise salaries

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9. Count Plot

Definition:
Shows the **count of observations** in each category.

Example:
Course Name → number of students enrolled in each course

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10. Box Plot

Definition:
Shows **median, quartiles, spread, and outliers** of data.

Example:
Class vs Marks → marks distribution and outliers per class

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11. Violin Plot

Definition:
Shows **data distribution shape** along with summary statistics.

Example:
Product vs Price → price distribution for each product

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12. KDE Plot

Definition:
Shows a **smooth probability distribution** of numerical data.

Example:
Income → smooth income distribution curve

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13. Heatmap

Definition:
Uses **color intensity** to represent values in a matrix.

Example:
Subjects vs Marks → darker color indicates higher marks

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14. Rug Plot

Definition:
Shows **individual data points** along an axis.

Example:
Age → exact positions of each person's age

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15. Pair Plot

Definition:
Shows **pairwise relationships** between multiple numerical variables.

Example:
Height, Weight, Age → relationships among all variables

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16. Pair Grid

Definition:
An advanced version of pair plot that allows **customized pairwise comparisons**.

Example:
Marks, Attendance, Gender → relationships grouped by category

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