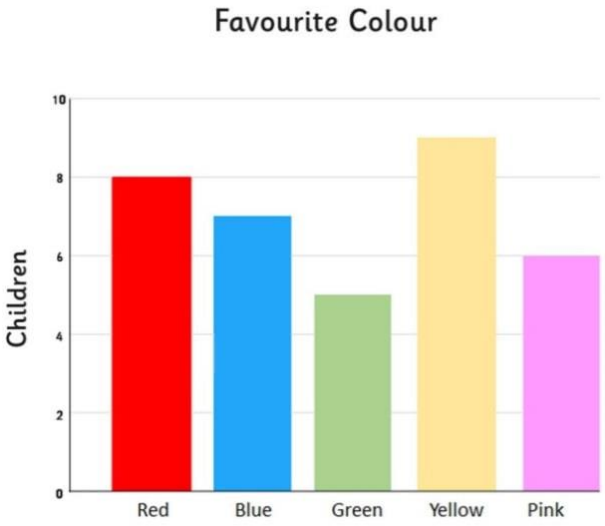
Graphs of Matplotlib and Seaborn library:

4 Key Questions to Choose Your Graph:

1. Showing a COMPARISON:

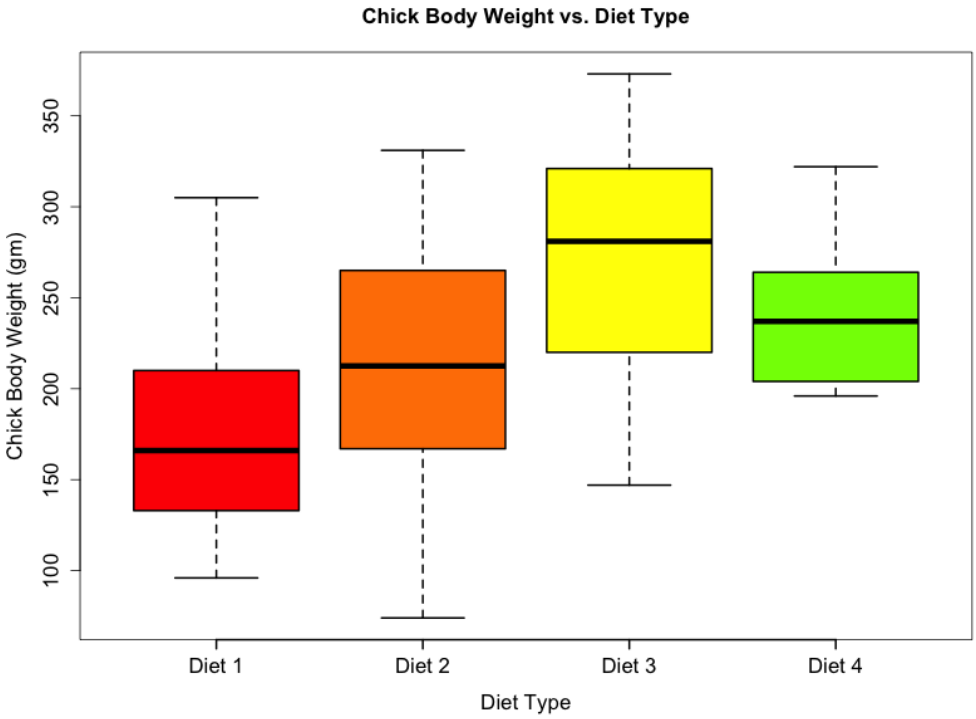
(Use these to compare values across different groups or over time.)

- **Bar Chart:** Best for comparing a numerical value across different, distinct categories.
  - Example: Comparing sales figures of different products.



- **Line Chart:** Best for showing how a value changes over a continuous period, like time.
  - Example: Tracking monthly website visitors over a year.

- 🎁 **Box Plot:** Best for comparing the statistical summary (median, spread, outliers) of a value across several categories.
  - Example: Comparing salary ranges for employees in different departments.



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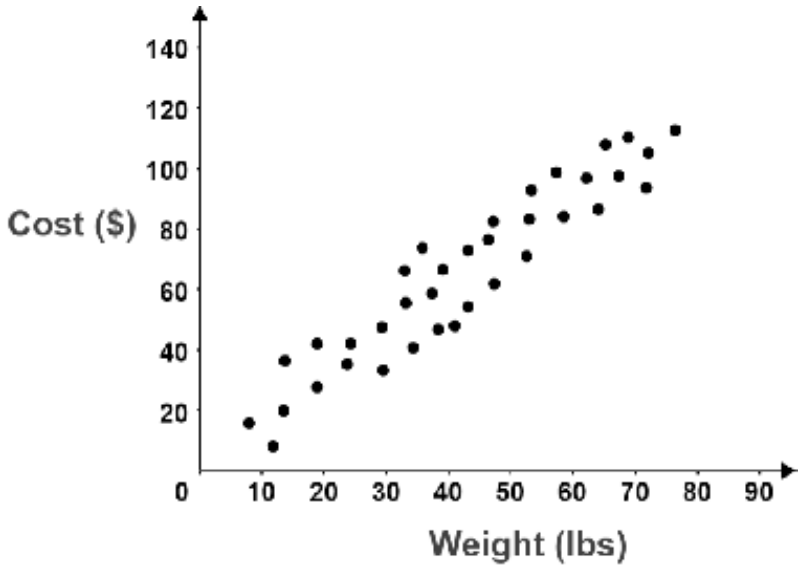
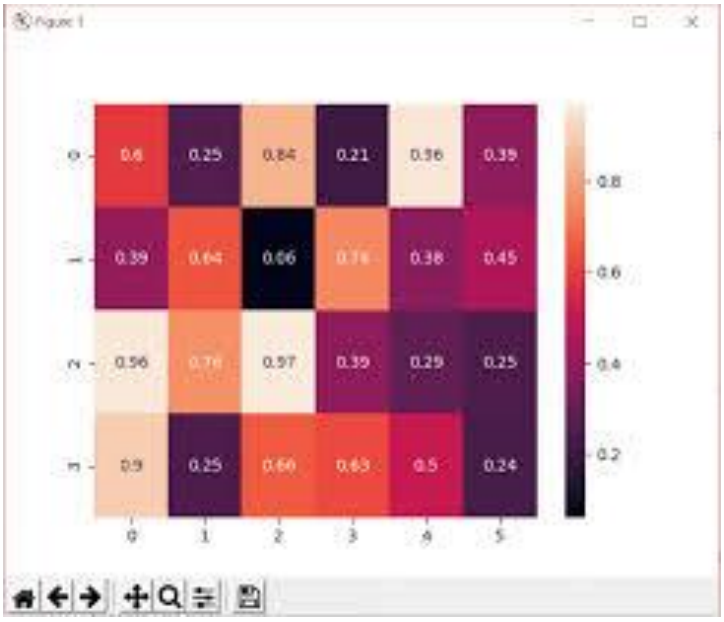
2. Showing a RELATIONSHIP? 🔗

(Use these to see how different variables interact.)

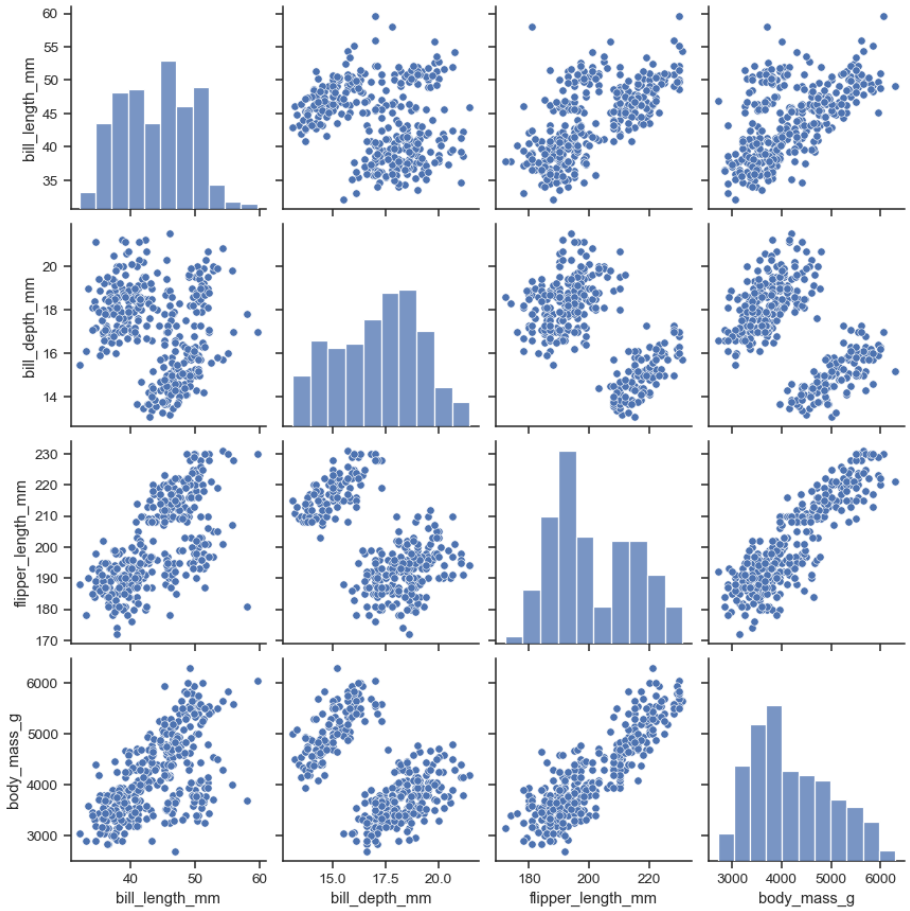
- ● **Scatter Plot:** Best for showing the relationship and correlation between two numerical variables.
  - Example: Checking if there's a connection between advertising spend and sales.



- 🌡 **Heatmap:** Best for visualizing the correlation between many variables at once in a grid format.
  - Example: Getting a quick overview of which variables in a dataset are most strongly related.



- 🌐 **Pair Plot:** Best for getting a quick, all-in-one view of the pairwise relationships (scatter plots) and individual distributions (histograms) of all numerical variables in a dataset.



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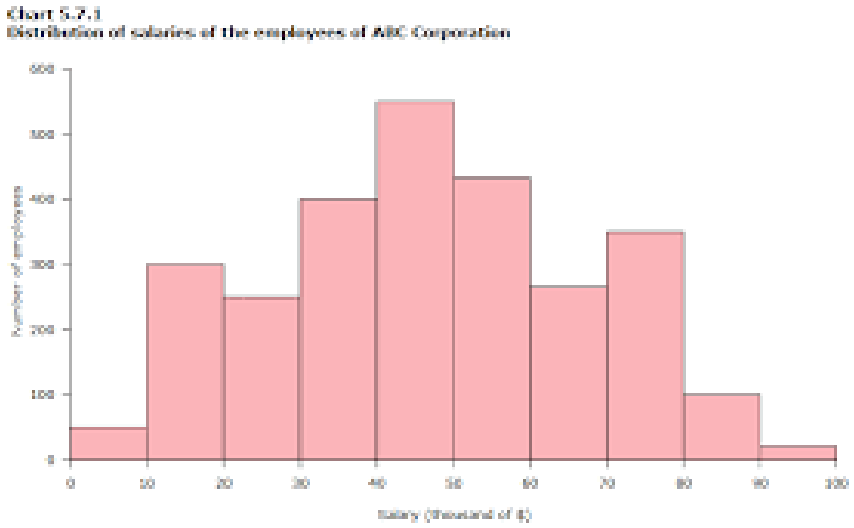
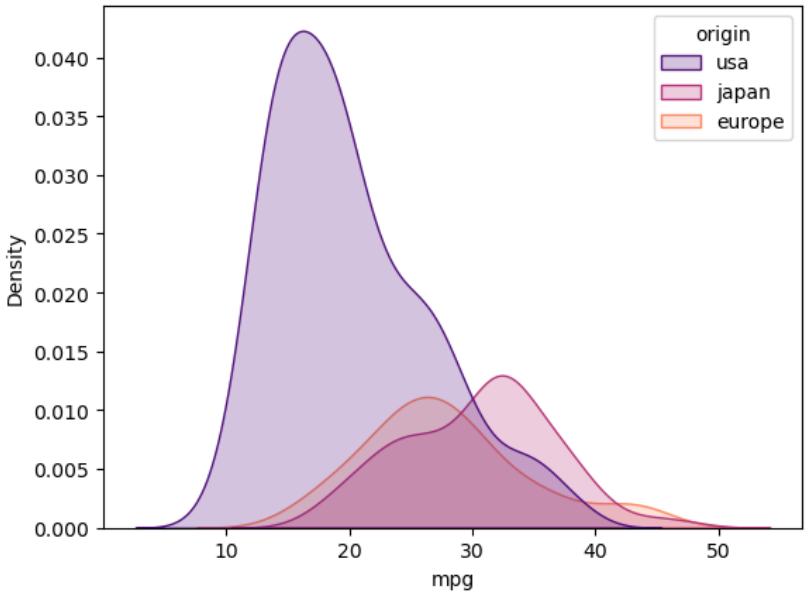
3. Showing a DISTRIBUTION? 📉

(Use these to understand how your data is spread out and where values are concentrated.)

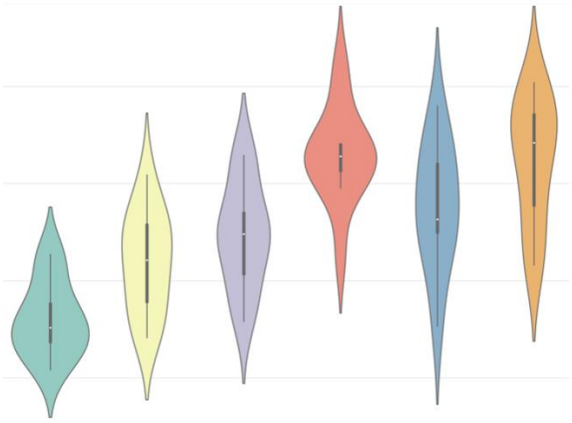
- **Histogram:** Best for showing the frequency of a single numerical variable by grouping it into ranges ("bins").
  - Example: Understanding the age distribution of your customers.



- **KDE Plot (Kernel Density Estimate):** Best for seeing a smoothed version of a histogram, showing the distribution's shape as a continuous curve.



- **Violin Plot:** Best for getting a richer view of a distribution, as it combines the details of a box plot and a KDE plot.



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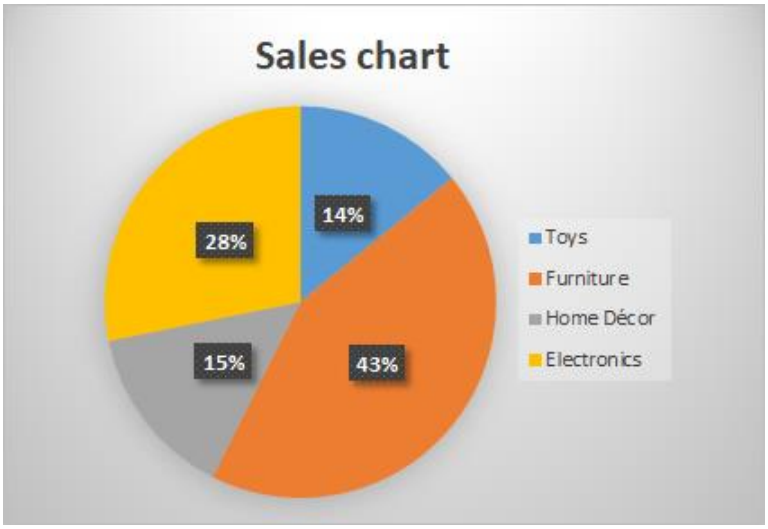
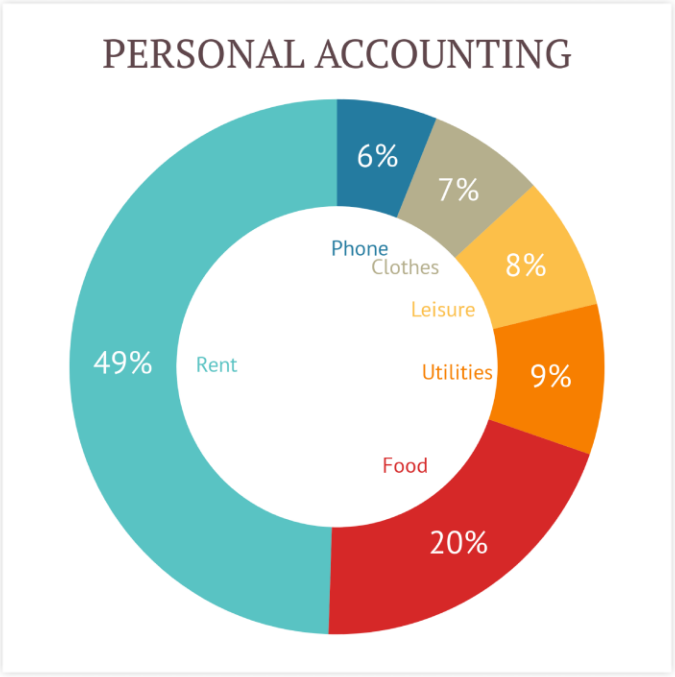
4. Showing a COMPOSITION? □

(Use these to show the parts that make up a whole.)

- **Pie:** Best for showing the percentage breakdown of a whole into a few distinct parts (use for less than 6 categories).
  - Example: Displaying the percentage of a budget spent on different departments.



- **Donut Chart**: A stylistic alternative to a pie chart with a hole in the middle. Use for the same purpose as a pie chart.



- **Stacked Bar Chart**: Best for comparing the composition of different totals. It's often a better alternative to using multiple pie charts.
  - Example: Showing the breakdown of product sales (Laptops, Phones) in each region (Asia, Europe).