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**Data Visualization**

* Data visualization uses graphical representations like graphs, charts, and maps to analyze data effectively.
* Visuals help identify patterns, distributions, correlations, and outliers in complex datasets.
* Data visualization is crucial in decision-making processes, bringing data to life with insightful plots and charts.
* Despite its use, detailed data analyses often fail to captivate the audience.
* The design of a graph, including colors, layout, and size, significantly affects how people perceive it.
* Data storytelling, an innovative approach, uses visuals, narrative, and data to turn data insights into action.

**Types of Data Visualization Analysis**

* **Univariate analysis:** Summarizes behavior of one variable at a time.
* **Bivariate analysis:** Studyes relationship between two variables.
* **Multivariate analysis:** Allows analysis of more than two variables simultaneously.

**Line Plots**

* Track variable evolution over time.
* Created by placing time variable on x-axis and analyzing variable on y-axis.

**Bar Plots Overview**

* Bar charts rank data based on multiple categories.
* Comprises rectangles proportional to each category's value.
* Prominent for easy reading.
* Used in business comparisons like brand market share or region revenue.
* Types include vertical, horizontal, and clustered bar plots.

**Histograms**

* Show numerical variable's distribution with bars.
* Data divided into ranges or bins.
* Frequency of occurrence of each range counted.
* Horizontal axis represents range, vertical axis represents frequency.
* Shows skewed or peak distribution of a variable.
* Examples from Data Demystified Series on Data Visualizations.

**Scatter plots**

* Visualize relationship between two continuous variables.
* Each point represents a single data point.
* Position on x and y-axis represents variables' values.
* Helps understand data and identify potential correlations.

**Tree Maps**

* Show part-to-whole relationships in data.
* Display hierarchical data as rectangles.
* Each rectangle represents a category within a variable.
* Area of rectangle proportional to category size.
* Considered more intuitive than pie charts.

**Heat Maps**

* Graphical representation of relationship between variables.
* Color code indicates correlation degree.

**Word clouds**

* Visualize common words in text or data.
* Similar to bar plots but visually appealing.
* Helps identify important themes in large text.
* Understands overall sentiment or tone of writing.
* Explores patterns or trends in data.
* Communicates key ideas visually.

**Network Diagrams**

* Utilizes graphs for data analysis in networks like online social networks and transportation networks.
* Network analytics is a subdomain of data science that uses graphs for network study.
* Components of network graphs: nodes and edges, or relationships.

GitHub Repository Link: [Automobile Data Visualization](https://github.com/M-Amman-C/Automobiles_Data_Visualization)