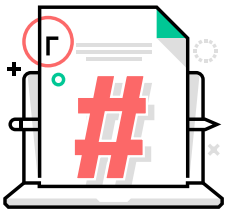
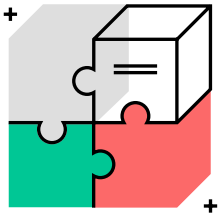
Data Visualization Cheat Sheet

Core Concepts



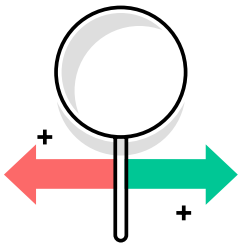
Numeric Data

Any type of data that has a number associated with it is numeric. Total sales, number of registrations for an event, number of certifications held, total donated in the previous year are all examples of numeric data.



Categorical Data

Data that can be placed into a discrete bucket. If it can be an option in a dropdown menu, it is categorical. Examples of categorical include member types (non-member, student, professional, retired), product categories (events, membership, courses, other non-dues).



Binary Data

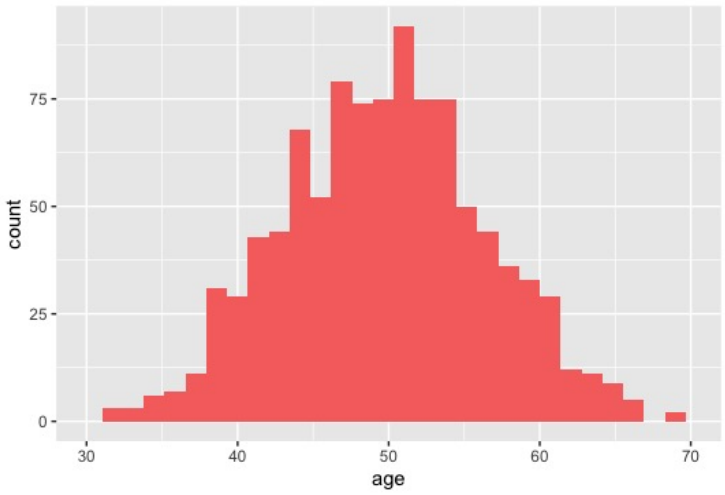
Data with a yes-or-no outcome. Binary data can be treated as a special type of categorical data for most visualizations. Member renewals, event attendance, and recertification are all examples of binary data.

Visualizations

One Variable - Numeric

Type: Histogram

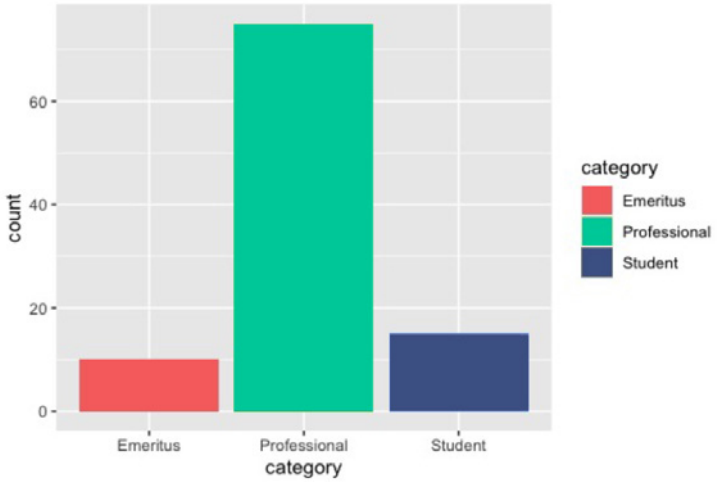
Shows how numeric data is distributed across your dataset. Histograms put summary statistics like an average into a greater context by showing how common that average actually is.



One Variable - Categorical / Binary

Type: Bar Chart

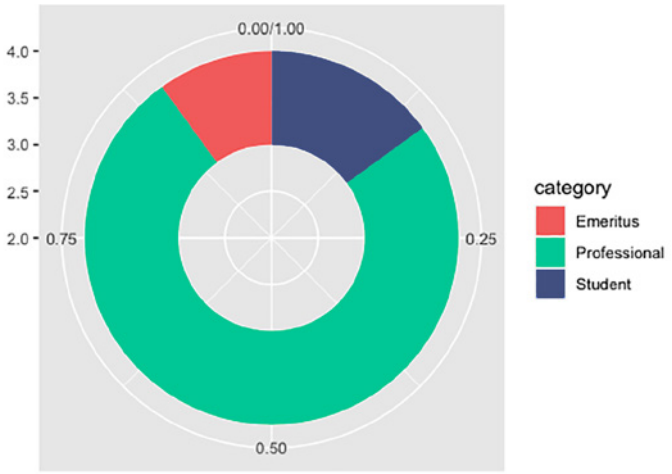
Bar charts allow you to compare different categories of data side-by-side. When you have a bar chart you can see which categories have the most data in them.



One Variable - Categorical / Binary

Type: Donut Chart

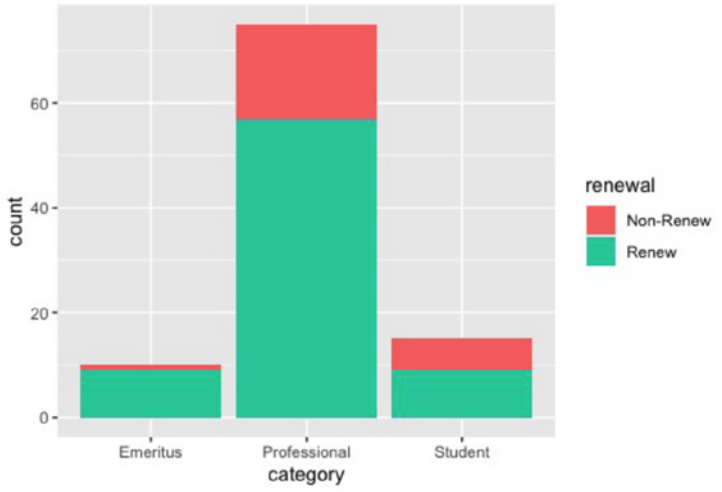
A donut chart not only communicates the number of members in a category, it also communicates the relationship between those categories as a percentage of the whole.



Two Variables - Both Categorical / Binary

Type: Stacked Bar Plot

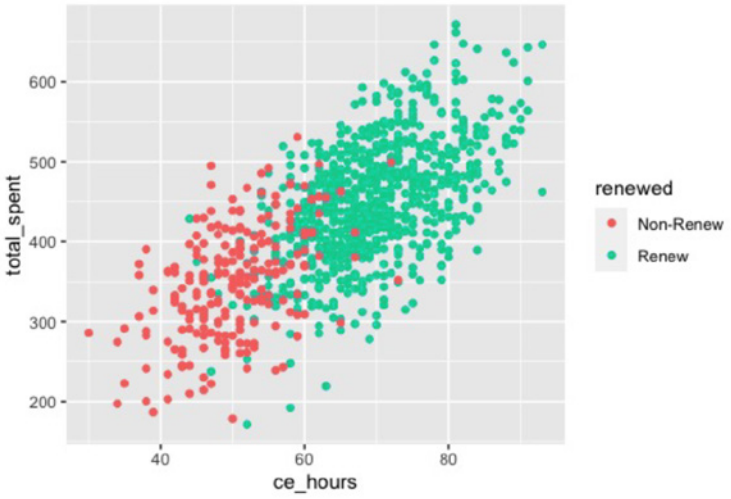
Stacked bar plots are excellent when your goal is to explore the relationship between two categorical variables, for example membership renewals and membership type. In these charts you create a bar for each member type and show the number of renewals and non-renewals “stacked” on top of each other. This allows you to see if there is a significant difference between renewal rates and types of membership.



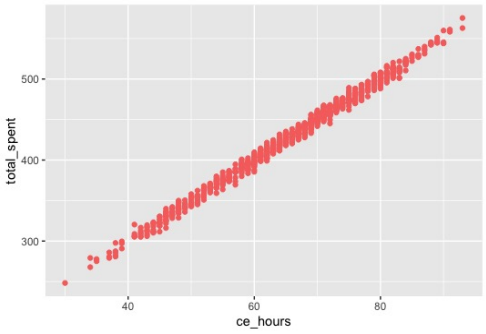
Two Variables - Both Numeric

Type: Scatter Plot

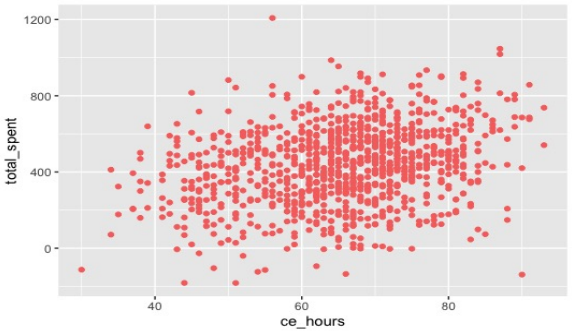
Scatter plots allow you to explore the relationship between two numeric variables, like the number of continuing education hours obtained and total dollars spent. The closer to a line, the closer the correlation between the two variables.



Closely correlated



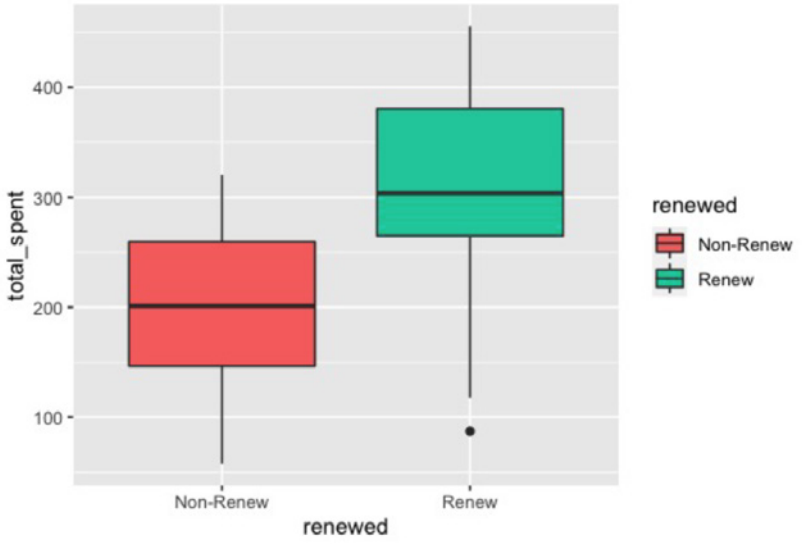
Weakly correlated



Two Variables - Numeric & Categorical / Binary

Type: Box Plot

Box plots allow you to inspect the relationship between numeric and categorical data. The way to read a box plot is each box represents a category, the height of the box is determined by the maximum and minimum values of the numeric data.



Two Variables - Numeric & Categorical / Binary

Type: Density Plot

Another way to visualize the relationship between categorical and numeric data is with a density plot. The way to analyze these plots is to look for multiple peaks on the plot, or a significant difference in shape between the two categories. When you see these peaks, or other changes in shape, this is a signal that there is a relationship between these two data points.