

# Data Visualization Charts graph uses


What is Data?

Data is nothing but facts and statistics stored or free flowing over a network, generally it's raw and unprocessed. For example: When you visit any website, they might store you IP address, that is data, in return they might add a cookie in your browser, marking you that you visited the website, that is data, your name, it's data, your age, it's data.

Data becomes information when it is processed.

## Types of data :

Categorical , discrete and continuous

Feature	Categorical Data	Continuous Data
Type of values	Non-numerical	Numerical
Number of values	Finite	Infinite
Order of values	No inherent order	Order matters
Examples	Hair color, blood type, shirt size	Height, weight, temperature, time
Visualization	Pie charts, bar charts, heatmaps	Line charts, scatter plots, histograms
 Export to Sheets		

Here's a clear explanation of the difference between discrete and continuous data, along with examples:

**Discrete data** consists of distinct, countable values that can't be subdivided into smaller units. It often involves integers (whole numbers) and represents items that can be counted.

Examples of discrete data:

- Number of students in a class (e.g., 25)
- Number of cars sold in a month (e.g., 120)
- Shoe size (e.g., 8, 9, 10)
- Number of pets owned (e.g., 0, 1, 2, 3)
- Number of goals scored in a game (e.g., 3)
- Number of items in a shopping cart (e.g., 5)

**Continuous data**, on the other hand, can take on any value within a given range, even values that include decimals or fractions. It represents measurements or quantities that can be divided into smaller and smaller units.

Examples of continuous data:

- Height (e.g., 1.75 meters)
- Weight (e.g., 65.3 kilograms)

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- Time (e.g., 2.5 hours)
- Temperature (e.g., 23.7 degrees Celsius)
- Distance (e.g., 100.2 kilometers)
- Speed (e.g., 60.5 kilometers per hour)
- Age (e.g., 25.8 years)

Key differences:

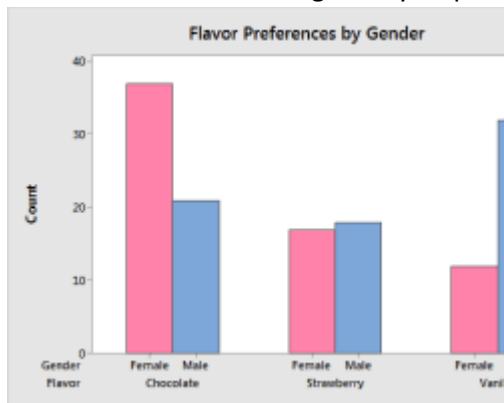
- Values: Discrete data has distinct, separate values, while continuous data can take on any value within a range.
- Countability: Discrete data can be counted, while continuous data cannot be counted but can be measured.
- Measurement: Discrete data is often measured using whole numbers, while continuous data is often measured using decimals or fractions.
- Visualization: Discrete data is often visualized using bar charts or pie charts, while continuous data is often visualized using line charts, scatter plots, or histograms.

## Uses of charts based on specification of data:

Here are some common data visualization charts, the types of data they're best suited for, and examples of their use:

### 1. Bar Charts:

- Data: Categorical or discrete data, comparisons between categories.
- Use Cases:
  - Comparing sales figures for different products.
  - Showing population distribution across regions.
  - Illustrating survey responses.



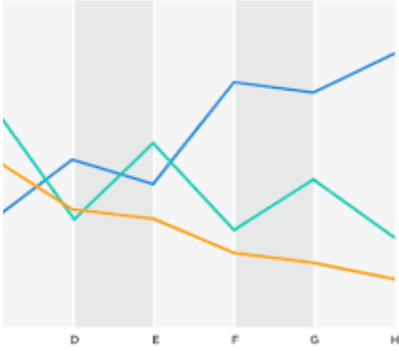
[Opens in a new window statisticsbyjim.com](https://statisticsbyjim.com)

Bar chart example

### 2. Line Charts:

- Data: Continuous data over time, trends, patterns.
- Use Cases:
  - Tracking temperature changes over a day.
  - Visualizing stock prices over a year.
  - Monitoring website traffic growth.

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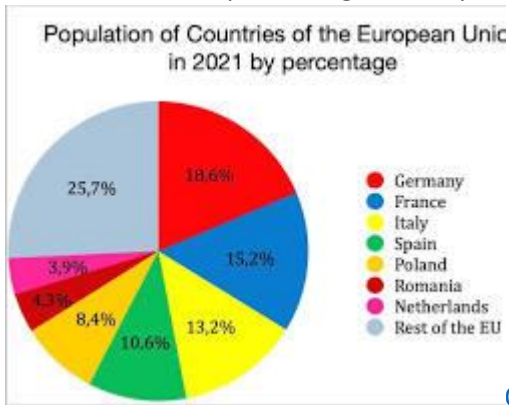


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Line chart example

### 3. Pie Charts:

- Data: Parts of a whole, proportions.
- Use Cases:
  - Showing budget allocation for different departments.
  - Illustrating market share for various companies.
  - Representing the composition of a population by age group.

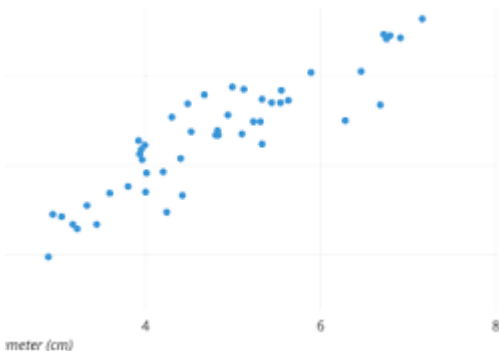


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Pie chart example

### 4. Scatter Plots:

- Data: Relationships between two numerical variables.
- Use Cases:
  - Exploring correlations between height and weight.
  - Analyzing the relationship between study hours and exam scores.
  - Investigating patterns in customer spending habits.



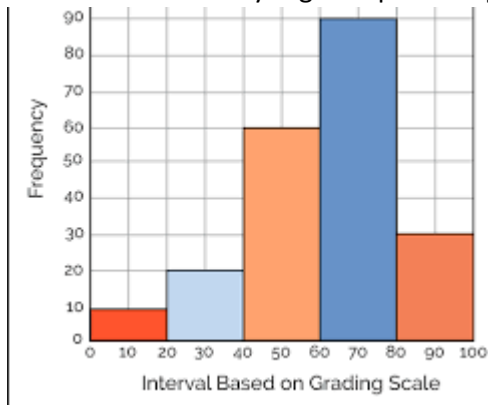
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Scatter plot example

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## 5. Histograms:

- Data: Distribution of continuous data.
- Use Cases:
  - Showing the distribution of test scores.
  - Visualizing the frequency of different income levels.
  - Analyzing the spread of product lifespans.

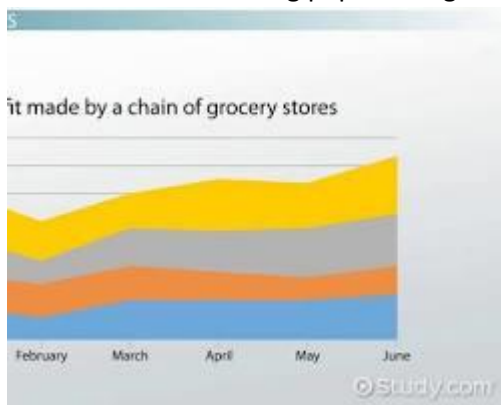


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Histogram example

## 6. Area Charts:

- Data: Change over time or cumulative values.
- Use Cases:
  - Visualizing rainfall patterns over a year.
  - Comparing total sales of different products.
  - Showing population growth over time.



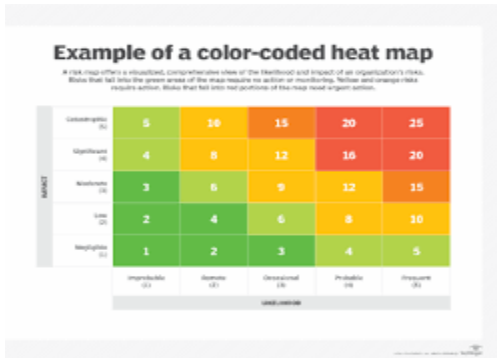
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Area chart example

## 7. Heatmaps:

- Data: Variation in intensity across two dimensions.
- Use Cases:
  - Visualizing website user clicks.
  - Showing geographic data like crime rates or population density.
  - Displaying gene expression patterns.

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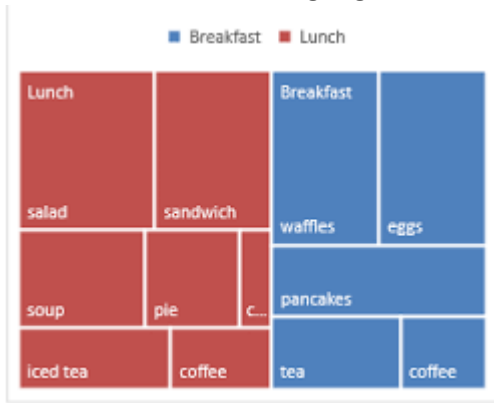


[Opens in a new window](#)  [techtarget.com](https://www.techtarget.com)

Heatmap example

## 8. Treemaps:

- Data: Hierarchical data, part-to-whole relationships.
- Use Cases:
  - Visualizing file structure on a computer.
  - Showing product categories and subcategories in a store.
  - Illustrating organizational structure.

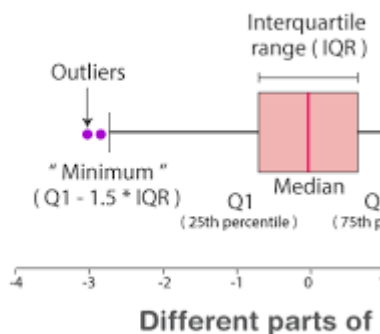


[Opens in a new window](#)  [microsoft.com](https://www.microsoft.com)

Treemap example

## 9. Box Plots:

- Data: Distribution of data, including outliers.
- Use Cases:
  - Comparing the distribution of test scores between different classes.
  - Analyzing the variability of product prices.
  - Investigating the spread of customer satisfaction ratings.



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Box plot example

Remember: The best chart type depends on the specific data you're working.