# what are some Examples of Cluster Analysis in Real Life?

Authored by

**stats writer**

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Customer segmentation in marketing, disease clustering in healthcare, fraud detection in banking, image and text clustering in social media, and crime analysis in law enforcement are all applications of cluster analysis. This statistical technique is used to group data points with similar characteristics and identify patterns and trends within a population. In marketing, companies utilize cluster analysis to segment customers based on demographics, behavior, and preferences, allowing them to tailor their marketing strategies to specific customer segments. In healthcare, cluster analysis is used to identify patterns and clusters of diseases in a population, aiding in the development of targeted prevention and treatment methods. Banks and financial institutions use cluster analysis to detect fraudulent activities and protect customers' financial assets. Social media platforms use this technique to group similar content and recommend relevant posts to users based on their interests. In law enforcement, cluster analysis is used to identify high-crime areas and patterns of criminal activity, helping police departments deploy resources effectively and prevent crime in specific areas.

## 5 Examples of Cluster Analysis in Real Life

## Cluster analysis is a technique used in that attempts to find clusters of observations within a dataset.

## The goal of cluster analysis is to find clusters such that the observations within each cluster are quite similar to each other, while observations in different clusters are quite different from each other.

## The following examples show how cluster analysis is used in various real-life situations.

### Example 1: Retail Marketing

## Retail companies often use clustering to identify groups of households that are similar to each other.

**For example, a retail company may collect the following information on households:**

**Household income**
**Household size**
**Head of household Occupation**
**Distance from nearest urban area**

**They can then feed these variables into a clustering algorithm to perhaps identify the following clusters:**

**Cluster 1: Small family, high spenders**
**Cluster 2: Larger family, high spenders**
**Cluster 3: Small family, low spenders**
**Cluster 4: Large family, low spenders**

**The company can then send personalized advertisements or sales letters to each household based on how likely they are to respond to specific types of advertisements.**

### Example 2: Streaming Services

**Streaming services often use clustering analysis to identify viewers who have similar behavior.**

**For example, a streaming service may collect the following data about individuals:**

**Minutes watched per day**
**Total viewing sessions per week**
**Number of unique shows viewed per month**

**Using these metrics, a streaming service can perform cluster analysis to identify high usage and low usage users so that they can know who they should spend most of their advertising dollars on.**

### Example 3: Sports Science

**Data scientists for sports teams often use clustering to identify players that are similar to each other.**

**Points per game**
**Rebounds per game**
**Assists per game**
**Steals per game**

**They can then feed these variables into a clustering algorithm to identify players that are similar to each other so that they can have these players practice with each other and perform specific drills based on their**

strengths and weaknesses.

### Example 4: Email Marketing

Many businesses use cluster analysis to identify consumers who are similar to each other so they can tailor their emails sent to consumers in such a way that maximizes their revenue.

For example, a business may collect the following information about consumers:

Percentage of emails opened
Number of clicks per email
Time spent viewing email

Using these metrics, a business can perform cluster analysis to identify consumers who use email in similar ways and tailor the types of emails and frequency of emails they send to different clusters of customers.

### Example 5: Health Insurance

Actuaries at health insurance companies often used cluster analysis to identify "clusters" of consumers that use their health insurance in specific ways.

**For example, an actuary may collect the following information about households:**

**Total number of doctor visits per year**
**Total household size**
**Total number of chronic conditions per household**
**Average age of household members**

**An actuary can then feed these variables into a clustering algorithm to identify households that are similar. The health insurance company can then set monthly premiums based on how often they expect households in specific clusters to use their insurance.**

**The following tutorials explain how to perform various types of cluster analysis using statistical programming languages:**