**statistics**

The field of **statistics** is concerned with collecting, analysing, interpreting, and presenting data.

**When is statistics actually used in real life?**

It turns out that it’s used in many different fields for a variety of applications.

**Example 1: Weather Forecasting**

Statistics is used heavily in the field of weather forecasting.

In particular, probability is used by weather forecasters to assess how likely it is that there will be rain, snow, clouds, etc. on a given day in a certain area.

Forecasters will regularly say things like “there is a 90% chance of rain today between after 5PM” to indicate that there’s a high likelihood of rain during certain hours.

**Example 2: Sales Tracking**

Retail companies often use [descriptive statistics](https://www.statology.org/descriptive-inferential-statistics/) like the mean, median, mode, standard deviation, and interquartile range to track the sales behaviour of certain products.

This gives companies an idea of how many products they can expect to sell during different time periods and allows them to know how much they should keep in inventory.

### ****Example 3: Health Insurance****

Health insurance companies often use statistics and probability to determine how likely it is that certain individuals will spend a certain amount on healthcare each year.

For example, an actuary at a health insurance company might use factors like age, existing medical conditions, current health status, etc. to determine that there’s a 80% probability that a certain individual will spend $10,000 or more on healthcare in a given year.

### ****Example 4: Traffic****

Traffic engineers regularly use statistics to monitor total traffic in different areas of a city, which allows them to decide whether or not they should add or remove roads to optimize traffic flow.

Also, traffic engineers often use [time series analysis](https://www.statology.org/time-series-analysis-real-life-examples/) to monitor how traffic changes throughout the day so they can optimize the behaviour of traffic lights.

### ****Example 5: Investing****

Investors use statistics and probability to assess how likely it is that a certain investment will pay off.

For example, a given investor might determine that there is a 5% chance that the stock of company A will increase 100x during the upcoming year. Based on this probability, they’ll decide how much of their portfolio to invest in the stock.

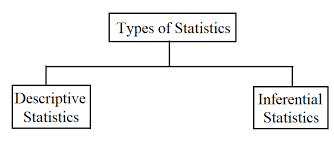
### ****Example 6: Medical Studies****

Statistics is regularly used in medical studies to understand how different factors are related.

For example, medical professions often use [correlation](https://www.statology.org/pearson-correlation-coefficient/) to analyse how factors like weight, height, smoking habits, exercise habits, and diet are related.

If a certain diet and overall weight is found to be negatively correlated, a medical professional may recommend the diet to an individual who needs to lose weight.

**Types of statistics**



**Descriptive statistics** answer the following questions:

* What is the value that best describes the data set?
* How much a data set speads from its average value?
* What is the smallest and largest number in a data set?

It provides information on summary statistics that includes *Mean, Standard Error, Median, Mode, Standard Deviation, Variance, Kurtosis, Skewness, Range, Minimum, Maximum, Sum, and Count*.

# **Measure of Central Tendency**

# It  describes a whole set of data with a single value that represents the centre of its distribution. There are three main measures of central tendency: the mode, the median and the mean.