

## **Using Mean, Median and Mode**

### **Scenario:**

You are doing population statistics. You are asked to give an estimate of the typical income of a single person in the country. There is one snag: wealth distribution is out of whack, and 10% of the population holds 70% of the nation's wealth.

### **Measure:**

Median: the middle-most value in a sequence of numbers. This provides a good measure of what is typical in a set of values. Unlike the mean, this value is unaffected by extreme outliers in the data or by differences in the distribution of the data.

### **Scenario:**

You are running a restaurant, and you are reviewing your menu. You have a list of all orders over the last six months. You are trying to find out which item you should keep based on what customers seem to like the most.

### **Measure:**

Mode: whichever number appears the most frequently in the data. Like the median, this is a good measure of the "typical" value of something. However, the mode is better suited for working with categorical data.

### **Scenario:**

You have been buying electricity once a month for the first six months of the year. You are trying to budget your electricity for the rest of the year and therefore need to estimate how much you will spend for the remainder of the year.

### **Measure:**

Mean: the sum of all values divided evenly by the number of values. The main property of the mean is that if all values included were the mean value, it would add up to the same total.

### **Scenario:**

You work in healthcare insurance. You are asked to provide an estimate of the typical amount of money spent on healthcare. This is taking into account the fact that there are a few people who spend a large amount of money on medical healthcare due to major issues.

**Measure:**

Median: the middle-most value in a sequence of numbers. This provides a good measure of what is typical in a set of values. Unlike the mean, this value is unaffected by extreme outliers in the data or by differences in the distribution of the data.

**Using Variance and Standard Deviation****Scenario:**

You are choosing a new Internet provider. You find two providers with the same mean speed, but you want to have a more stable connection. You get a list of all reported speeds over the last month and are trying to find the provider that doesn't move too much from the mean value.

**Measure:**

Variance: an absolute measure of how "spread out" the data is. In statistics, variance can be used to explain how useful a statistic the mean is.

**Scenario:**

You are going on holiday to Mauritius. You need to find a shuttle from the airport to your hotel, but you are worried about being overcharged or undercharged (being undercharged might mean that you get unreliable transport). You get a list of all available shuttle service prices and need to find out which services, if any, are overcharging or undercharging.

**Measure:**

Standard Deviation: the square root of the variance. It is commonly used when defining outliers.