Normal, Gamma, and Beta Distributions

When you are studying various parts of statistics you will need to make sure that you read about the distributions. There are three types that stand out as important when reading about it, they are normal, gamma and beta distribution. We end up not having enough time in class to be able to go over these. So we were tasked with authoring a paper on them so that we could understand them and learn about them. So the goal of this paper is to talk about them in plan words and how they are used in our everyday lives.

The first one that will be talked about is normal distribution. It is one of the most widely used continuous probability distribution. This distribution sometimes also goes by the name of gaussian distribution. It is symmetric about the mean and when you are looking data for it on a graph it will form a bell curve. When you are working with normal distributions most but not all of them are symmetrical. Some of the properties that are apart of normal distributions are mean, median, and mode, these end up all being equivalent to one another. These values represent different points from the peak of the spread of points. The width of the distribution is defined by the standard deviation if and when the distribution falls symmetrical. This is the formula for normal distribution.

A common place that normal distribution is used is when working with the stock market, or just in a normal sense of the word it is used for general finance work. Another area that this distribution is used is when taking the average height of people in the world.

The next type of distribution that we will talk about is gamma distribution. It is a type of distribution that has two parameters, and it falls under the continuous probability distribution. Those two parameters are shape and scale. Shape has to do with k which is the number of events that have occurred in a set period of time. Where for scale it pertains to theta that is in the equation which is the inverse of the rate that events occur. Diverse types of parameters can be chosen so that this distribution may fit in to the empirical data set. This distribution type is also a particular case that falls within normal distribution which can be used to predict some types of life events that occur in our lives. But this way of application is very often skewed and unbalanced with a skewed shape on the graph. This is the formula for gamma distribution,.

Some of the familiar places where gamma distribution is used are in our everyday lives. One of them is when the people on the news tell us about the weather for the day, the week, or the month. Another is the reliability of a tool that we use. The third way in any application is that there are only positive results.

The last and final type of distribution that we will talk about is beta distribution. It another form of continuous probabitlity distribution. It can be deified on the interaval of 0 to 1. It assums many different shapes for two different parametters. When just using this for stasts purposes it it sues to model the preportions of something vs another thing with in a place or thing. The formula for beta distribution is

Bata distribution is used in many different ways. One of them is doing something called Bayesian stastics, this type of is often used as a prior way of modeling when you are uncertain about its probability. Another way is doing a/b testing, which is used for modeling distribution of conversion rates. A third way that appers is when factauries do quality control on products that they make.

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