



Summarization

Random Variable

- A random variable is a variable whose value is unknown or a function that assigns values to each of an experiment's outcomes.
- A random variable can be either discrete (having specific values) or continuous (any value in a continuous range).
- The use of random variables is most common in probability and statistics, where they are used to quantify outcomes of random occurrences.
- Risk analysts use random variables to estimate the probability of an adverse event occurring.

Types of Random Variables

Discrete Random Variables

- Discrete random variables take on a countable number of distinct values. Consider an experiment where a coin is tossed three times. If X represents the number of times that the coin comes up heads, then X is a discrete random variable that can only have the values 0, 1, 2, or 3 (from no heads in three successive coin tosses to all heads). No other value is possible for X .

Continuous Random Variables

- Continuous random variables can represent any value within a specified range or interval and can take on an infinite number of possible values. An example of a continuous random variable would be an experiment that involves measuring the amount of rainfall in a city over a year or the average height of a random group of 25 people.
- Drawing on the latter, if Y represents the random variable for the average height of a random group of 25 people, you will find that the resulting outcome is a continuous figure since height may be 5 ft or 5.01 ft or 5.0001 ft. Clearly, there is an infinite number of possible values for height.

What Are the 2 Kinds of Random Variables?

- Random variables may be categorized as either discrete or continuous. A discrete random variable is a type of random variable that has a countable number of distinct values, such as heads or tails, playing cards, or the sides of a die. A continuous random variable can reflect an infinite number of potential values, such as the average rainfall in a region.

What Is a Mixed Random Variable?

- A mixed random variable combines elements of both discrete and continuous random variables.