Properties of a normal distribution:

1. The curve maintains symmetry around its center.
2. The total area under the curve equals 1.
3. The mean, median, and mode are always equal.
4. Exactly half of the values lie to the left of the center, and the other half lie to the right.

Properties of the t-distribution:

1. Similar to the normal distribution, the t-distribution is bell-shaped and symmetric with a mean of zero.
2. The t-distribution spans from negative infinity to positive infinity.
3. The shape of the t-distribution varies with the degrees of freedom.
4. The variance is always greater than one and can be represented as Var(t) = [v / (v - 2)], where v is the degrees of freedom.
5. Unlike the normal distribution, the t-distribution is less concentrated at the center and has heavier tails, resembling a platykurtic distribution.
6. The dispersion of the t-distribution is higher than that of the normal distribution. It approaches a normal distribution as the sample size (n) becomes larger, typically n >= 30.

Characteristics of a uniform distribution:

1. The density function integrates to unity.
2. Each input value within the distribution has equal probability weight.

Characteristics of a Bernoulli distribution:

1. The number of trials for a single experiment must be predetermined.
2. Each trial has two possible outcomes: success or failure.
3. The probability of success in each experiment is constant.
4. The experiments are independent, meaning the outcome of one trial does not affect the outcome of another.

Properties of a binomial distribution:

1. In experiments with independent trials, each trial has two possible outcomes: success and failure.
2. The binomial distribution is characterized by two parameters, n and p.
3. The mean of the binomial distribution is given by μ = np.

Poisson distribution:

The Poisson distribution predicts the probability of a specific number of events occurring within a fixed time period when the average rate of events is known. It provides the probability of a certain number of events happening in a given time frame.

Exponential distribution:

Also known as the negative exponential distribution, it represents the time intervals between events in a Poisson process.

Beta distribution:

The beta distribution is a family of continuous probability distributions defined on the interval [0,1], parameterized by alpha and beta. It is often used to model uncertainty in the success probability of a random experiment and can compute confidence intervals for completion times.

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