M 362K Synopses for 2/26

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In a discrete uniform distribution, the probability of each outcome is the same. A random variable X is said to have a discrete uniform distribution if its probability function is $Pr(X = x) = p(x) = \frac{1}{n}$ for $x = 1, 2, \ldots, n$. Therefore, $E[X] = \frac{n+1}{2}$ and $Var[X] = \frac{n^2-1}{12}$.

A Bernoulli trial is an experiment that has two outcomes. When a random variable X is a Bernoulli random variable and $X = 1$, then it is considered success. If $X = 0$, then it is considered a failure. In this case, $E[X] = p$ and $Var[X] = p * q = p * (1 - p)$. For a trial of n times, $E[X] = n * p$ and $Var[X] = n * p * q = n * p * (1 - p)$.