Poisson random variables are concerned with the number of random events occurring per **unit** of time or space, if there is a constant rate of random events occurring across this unit.
E.g. the number of patients arriving at an emergency room in a hour.
If we have a **non-unit interval (or space) of length t**: λt can be used in the pmf instead of λ, so that $p(x) = \frac{e^{-\lambda t}(\lambda t)^x}{x!}, x = 0, 1, 2, \ldots$, and $X \sim Poi(\lambda t)$. Now we see λ as the rate at which random events occur and λt as the mean number of events in t.
Uniform U({1, 2, ..., n}): Let X be a random variable on {1,2,...,n} with pmf $p(x) = \frac{1}{n}, x = 1, 2, \ldots, n$. Then X is said to follow a discrete uniform distribution and $X \sim U(\{1,2,\ldots,n\})$.
Mean: $\mu = \frac{n+1}{2}$, **Variance:** $\sigma^2 = \frac{n^2-1}{12}$.

Distribution	rv	pmf	μ	σ^2
Bernoulli(p)	$X \in \{0, 1\}$	$p^x(1-p)^x$	p	$p(1-p)$
Binomial(n, p)	$X \in \{0, \ldots, n\}$	$\binom{n}{x} p^x(1-p)^{n-x}$	np	$np(1-p)$
Geometric(p)	$X \in \{1, 2, \ldots\}$	$p(1-p)^{x-1}$	$\frac{1}{p}$	$\frac{(1-p)}{p^2}$
Alternative Geometric(p)	$Y = X - 1$ $X \sim$ Geometric(p)	$p(1-p)^y$	$\frac{(1-p)}{p}$	$\frac{(1-p)}{p^2}$
Poisson(λ)	$X \in \{0, 1, \ldots\}$	$\frac{e^{-\lambda}\lambda^x}{x!}$	λ	λ
Uniform($1, n$)	$X \in \{1, \ldots, n\}$	$\frac{1}{n}$	$\frac{n+1}{2}$	$\frac{n^2-1}{12}$