Table 1: Common distributions and densities.

Distribution	Notation	Density
Bernoulli	$Bernoulli(p)$	$P(X=k)=p^k(1-p)^{1-k}$; $k=0,1, \quad 0 \leq p \leq 1$
Binomial	$Binomial(n,p)$	$P(X=k)=\binom{n}{k}p^k(1-p)^{n-k}$; $k=0,1,\ldots,n, \quad 0 \leq p \leq 1$
Discrete Uniform	$DiscreteUniform(N)$	$P(X=x)=\frac{1}{N}$; $x=1,2,\ldots,N$
Geometric	$Geometric(p)$	$P(X=x)=(1-p)^{x-1}p$; $x=1,2,3\ldots, \quad 0 \leq p \leq 1$
Negative Binomial	$NegativeBinomial(r,p)$	$P(X=x)=\binom{x-1}{r-1}(1-p)^{x-r}p^r$; $x=r,r+1,r+2,\ldots, \quad 0 \leq p \leq 1$
Poisson	$Poisson\lambda$	$P(X=x)=e^{-\lambda}\frac{\lambda^x}{x!}$; $x=0,1,2,\ldots, \quad \lambda \geq 0$
Continuous Uniform	$Uniform(a,b)$	$f(x)=\frac{1}{b-a}$; $a \leq x \leq b$
Exponential	$Exponential(\lambda)$	$f(x)=\lambda e^{-\lambda x}$; $\lambda > 0,\ 0 \leq x < \infty$
Normal	$Normal(\mu,\sigma^2)$	$f(x)=\frac{1}{\sigma\sqrt{2\pi}}\exp^{\left(-(x-\mu)^2/(2\sigma^2)\right)}$; $-\infty < \mu < \infty,\ \sigma > 0, \ -\infty < x < \infty$
Gamma	$Gamma(\alpha,\lambda)$	$f(x)=\frac{\lambda^\alpha}{\Gamma(\alpha)}x^{\alpha-1}e^{-\lambda x}$; $\alpha > 0,\ \lambda > 0,\ 0 \leq x < \infty$
Beta	$Beta(\alpha,\beta)$	$f(x)=\frac{\Gamma(\alpha+\beta)}{\Gamma(\alpha)\Gamma(\beta)}x^{\alpha-1}(1-x)^{\beta-1}$; $\alpha > 0,\ \beta > 0,\ 0 \leq x \leq 1$