



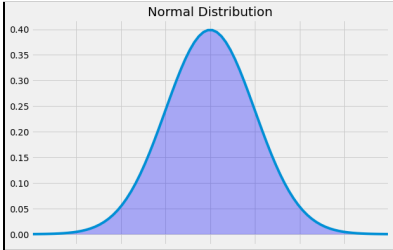
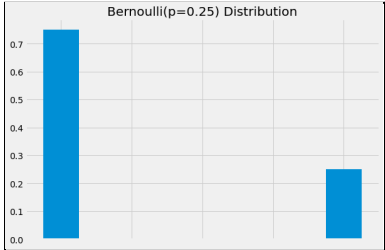
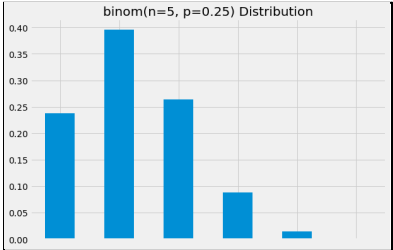
M5-03: Cumulative Distribution Function (CDF)

Part of the "Polling, Confidence Intervals, and the Normal Distribution" Learning Badge

Video Walkthrough: <https://discovery.cs.illinois.edu/m5-03/>

.cdf(), the Cumulative Distribution Function (CDF)

The .cdf() function returns the CDF. Mathematically, the CDF is $P(X \leq x)$, or **the area to the left of an x-axis value** for the distribution that is being used.

Distribution, Real-World Example, and Visualization:		
D = norm()	D = bernoulli(p=0.4)	D = binom(p=0.25, n=5)
The distribution of anything normally distributed (ex: height of men/women, etc).	The distribution of success in picking a red marble from a bag of 2 red and 3 blue marbles.	<i>Ex:</i> The distribution of the number of questions correct on a MCQ exam with 5 questions and each question has 4 choices.
		
norm()	bernoulli(p=0.25)	binom(p=0.25, n=5)
Cumulative Distribution Function (CDFs) in Python:		
Python Code: D.cdf(0.8) Result:	Python Code: D.cdf(0.8) Result:	Python Code: D.cdf(0.8) Result:
Python Code: D.cdf(-0.5) Result:	Python Code: D.cdf(0.5) Result:	Python Code: D.cdf(1.5) Result:
Python Code: D.cdf(0) Result:	Python Code: D.cdf(1) Result:	Python Code: D.cdf(2) Result:
Python Code: D.cdf(2) Result:	Python Code: D.cdf(2) Result:	Python Code: D.cdf(10) Result:



M5-03: Cumulative Distribution Function (CDF)

Part of the "Polling, Confidence Intervals, and the Normal Distribution" Learning Badge

Video Walkthrough: <https://discovery.cs.illinois.edu/m5-03/>
