

Sampling distribution from a normal distribution
Intuition Pump for Sampling Distribution from a Normal Distribution:



1. Visual Analogy: Imagine a large tank filled with balls, each representing a data point in a normal distribution. The colors of the balls vary to represent different values.
2. Sampling Action: Scoop out several balls at random using a cup to represent taking a sample. Each scoop simulates drawing a random sample.
3. Recording Results: For each sample, calculate the average of the values and plot these averages on a graph. Repeat this multiple times.
4. Observation of Distribution: As more sample averages are plotted, they form a new distribution, the sampling distribution, which will appear normally distributed.
5. Key Insight: Despite the randomness of individual samples, the distribution of sample averages tends to be normal and more concentrated around the true mean of the population, illustrating the Central Limit Theorem.