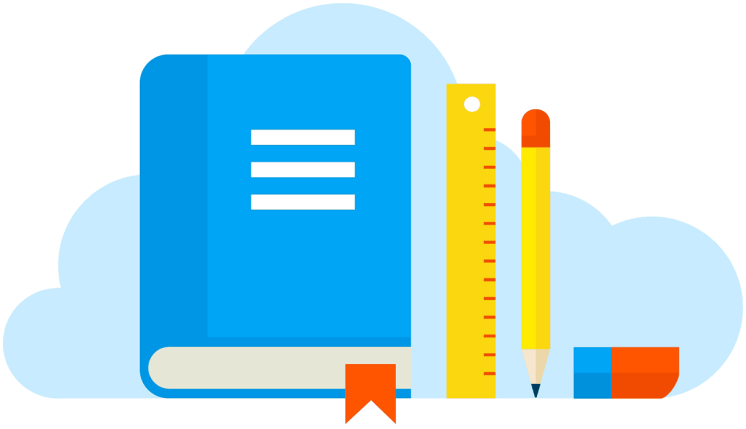


Data Science Notes by Sarowar Ahmed

📊 Chapter: Probability Theory

📊 Topic: Normal Distribution

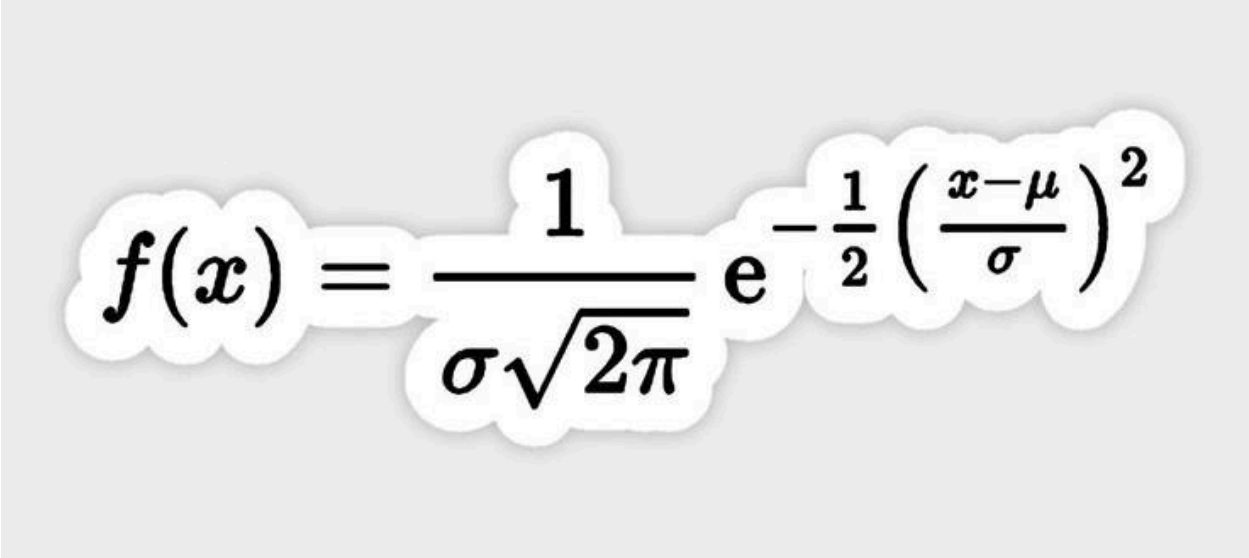
🔎 Hey there, GitHub family! Today, let's explore one of the most fascinating concepts in Probability Theory - the Normal or Gaussian Distribution. I'll make sure to break it down in a way that's easy to understand for everyone, regardless of age or background!

🎲 What is the Normal Distribution?
Imagine you're plotting the heights of students in your class on a graph. Most students are of average height, with fewer students being either very tall or very short. The distribution of these heights

forms a symmetrical, bell-shaped curve known as the Normal Distribution.

📏 Formula for Normal Distribution:

The probability density function (PDF) of the normal distribution is given by:



Where:
▪ μ is the mean (average) of the distribution.
▪ σ is the standard deviation , which measures the spread of the distribution.

📊 Examples of the Normal Distribution:

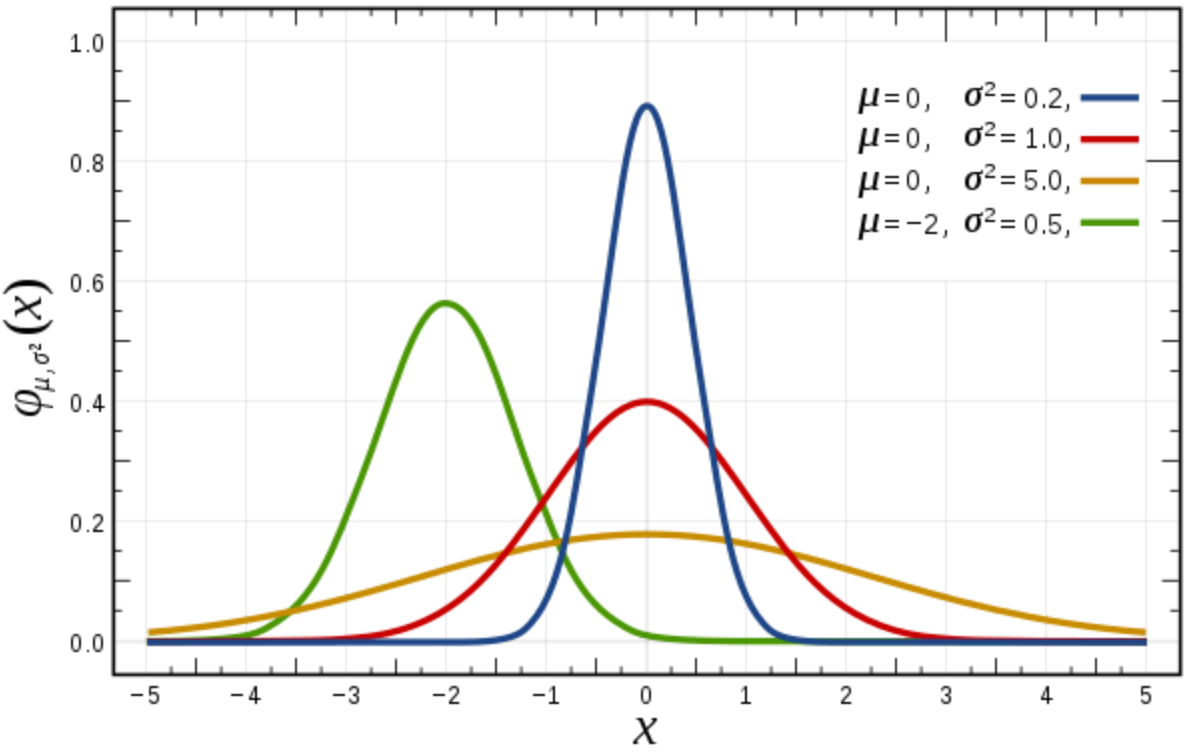
Height of Students:
▪ Let's say the average height of students in a class is 160 cm, with a standard deviation of 10 cm. Using the normal distribution formula,

we can calculate the probability of a student being between 150 cm and 170 cm tall.

IQ Scores:

▪ IQ scores are often distributed according to a normal distribution with a mean of 100 and a standard deviation of 15. This distribution helps in understanding how intelligence levels are distributed in a population.

📈 Visualizing the Bell Curve:



The red curve is the standard normal distribution.

🌟 Why Does This Matter?

The Normal Distribution is ubiquitous in various fields, from finance and economics to psychology and biology. Understanding it helps us model and analyze real-world phenomena with accuracy and precision.

Got any questions about Normal Distribution!? Feel free to ask me via Linkedin! Let's keep learning together.

My LinkedIn Date: 09/04/2024