WELCOME

TOPIC : PROPERTIES OF NORMAL DISTRIBUTION

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CONTENTS:

- INTRODUTION
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INTRODUCTION :

- **In probability theory and statistics, the Normal Distribution, also called the Gaussian Distribution, is the most significant continuous probability distribution.**

NORMAL DISTRIBUTION :

NORMAL DISTRIBUTION DEFINITION:

The Normal Distribution is defined by the probability density function for a continuous random variable in a system. Let us say, f(x) is the probability density function and X is the random variable. Hence, it defines a function which is integrated between the range or interval (x to x + dx), giving the probability of random variable X, by considering the values between x and x+dx.

FORMULA :

$$Z = \frac{(X - \mu)}{\sigma}$$

x is the variable

μ is the mean

σ is the standard deviation

PROBLEMS AND SOLUTIONS :

Question 1: Calculate the probability density function of normal distribution using the following data. X = 3, μ = 4 and σ = 2.

Solution: Given, variable, x = 3

Mean = 4 and

Standard deviation = 2

By the formula of the probability density of normal distribution, we can write;

normal distribution example

Hence, f(3,4,2) = 1.106.

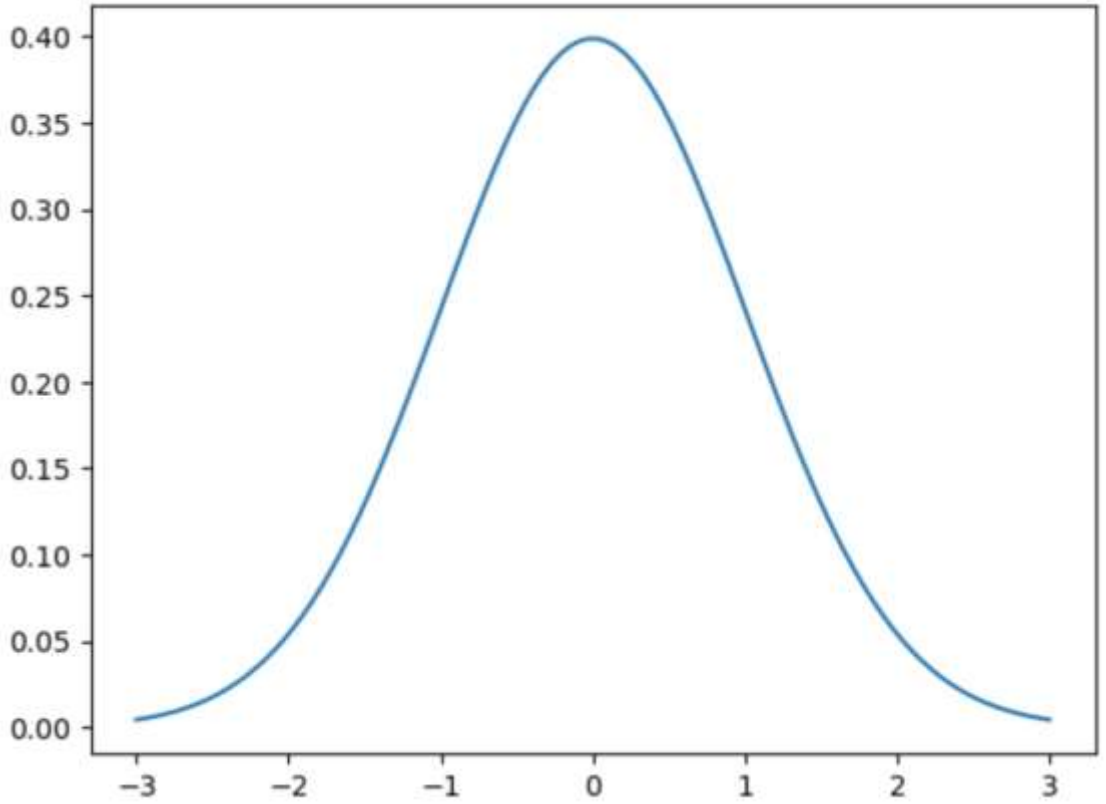
PROPERTIES :

- Symmetrical
- Bell-shaped
- Single peak
- Mean
- Standard deviation
- Variance
- Empirical rule
- Central limit theorem
- Mean = median = mode

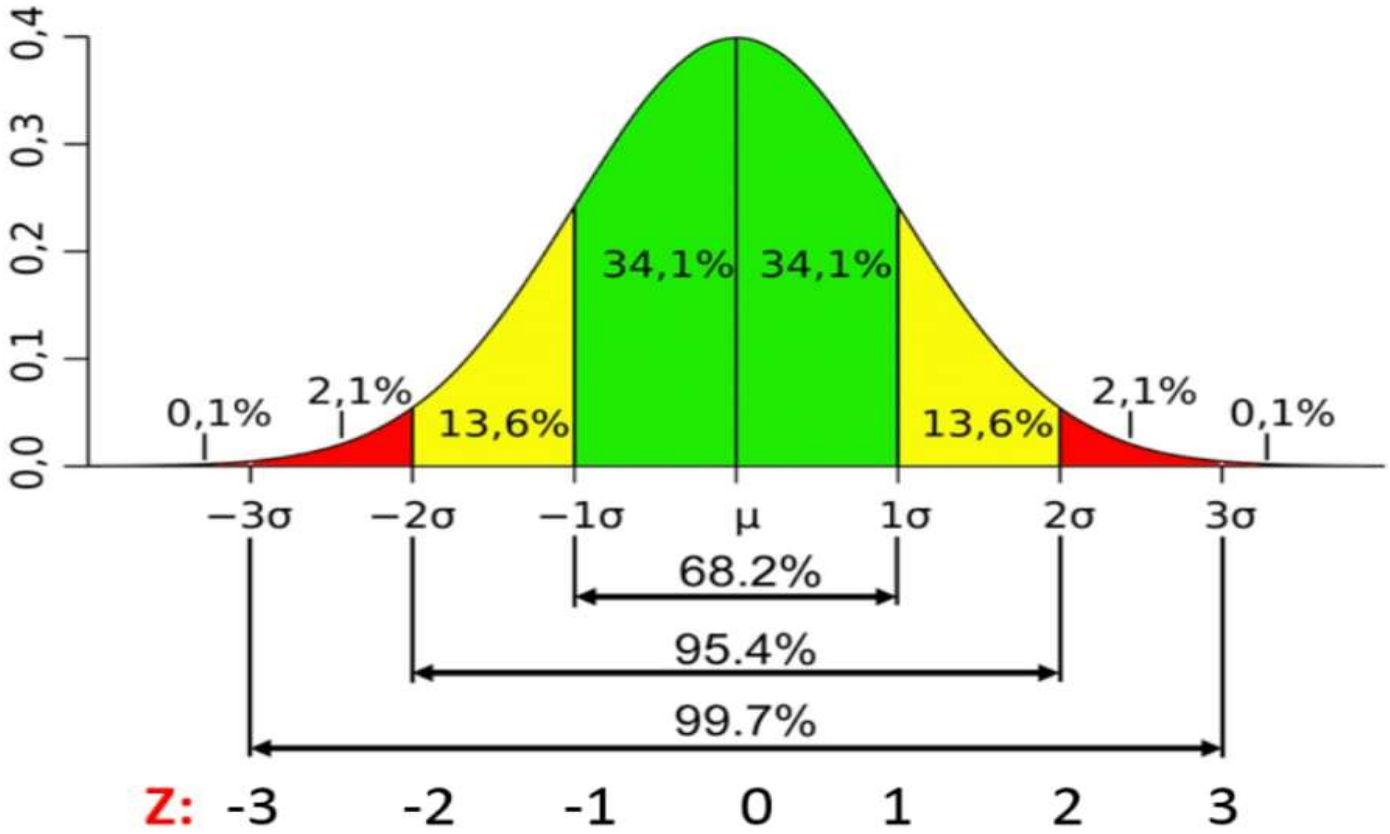
SYMMETRY :


Symmetry
Symmetry is having one side that exactly mirrors the other.
A line of symmetry divides a symmetrical shape in half.
An object may have more than one line of symmetry.
SHAPE
x
✓
✓
x
✓

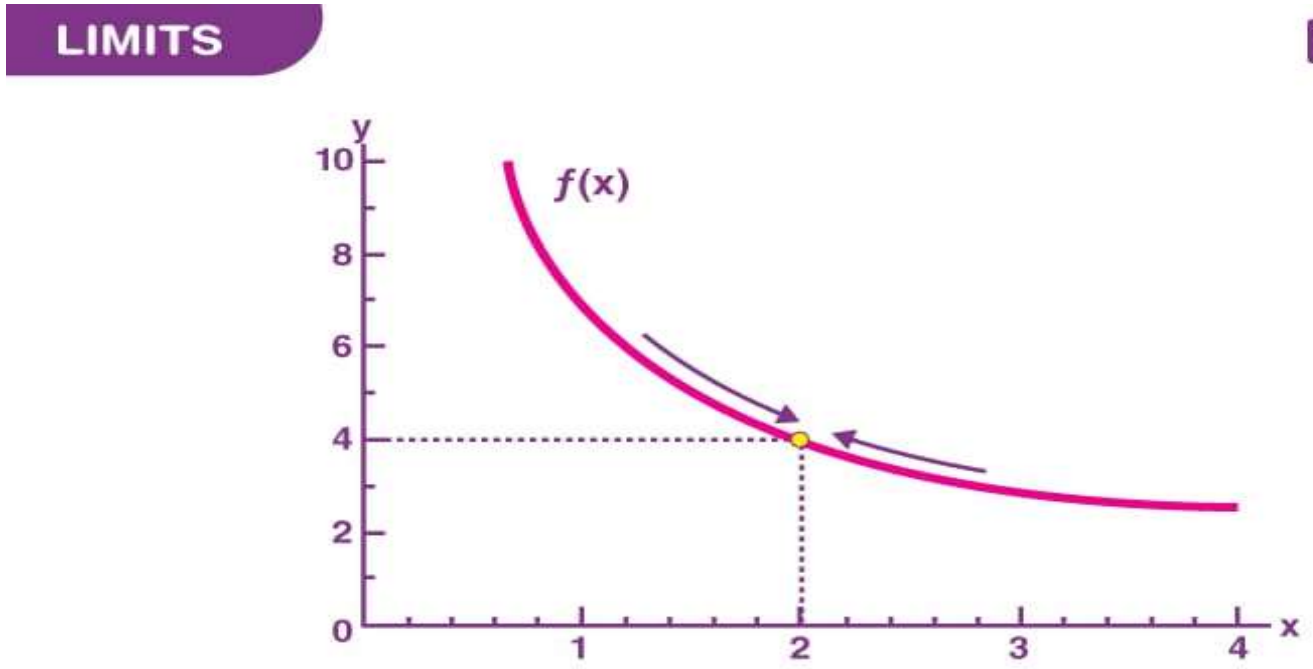
BELL SHAPE:



EMPIRICAL RULE :



CENTRAL LIMIT THEOREM :



CONCLUSION :

- It is characterized by its bell-shaped curve, which is symmetrical and centered around the mean.

THANK YOU