

Statistics



**ASSIGN
BUSTER**

THE NORMAL DISTRIBUTION STATISTICS FOR MANAGERS CHAPTER 6

(SUMMARY) The present chapter discusses probability statistical distributions and computation by applying these techniques, with special focus on continuous probability distributions including Normal Distribution, Uniform Distribution and Exponential Distribution. The chapter defines different terms including continuous and discrete variables. A variable that touches every value while changing its position is called a continuous variable. The examples include temperature, height, weight and time etc. On the contrary, discrete variable does not touch every value while changing its position. Discrete variables include price of commodities etc. The chapter elaborates the characteristics of Normal distribution, which include:

Continuous probability random variable,

Uni-modal, bell-shaped

Symmetrical to the mean

Mean = median = mode = μ

The area under the normal distribution is equal to unity i. e. 1. 00 approximately

68% of the area under the curve is within one standard deviation of the mean (i. e. between $\mu \pm \sigma$)

95% of the area under the curve is within two standard deviations of the mean (i. e. between $\mu \pm 2 \sigma$)

99. 7% of the area under the curve is within three standard deviations of the mean (i. e. between $\mu \pm 3 \sigma$)

Mean of the normal distribution is equal to 4/5 of its standard deviation (σ)

All odd order moments about mean in a normal distribution vanish i. e.

$\mu_{2n+1} = 0$ and $\mu_{2n+3} = 0$

Normal distribution has points of inflexion, which are equallant at $\mu + \sigma$ and $\mu - \sigma$

The random variable has an infinite theoretical range: $-\infty$ to $+\infty$

REFERENCE:

Levine, David M. et al. Statistics for Managers Using Microsoft Excel. 5th ed.
Upper Saddle River: Pearson-Prentice Hall, 2008.