

# Data Science & Analytics

## UNIT –II (2 Marks)

- 1.What are outliers in the data?
- 2.How regression towards the mean differs other parameters ?Give an example
- 3.List the differences between the discrete and a continuous variable with an example?
- 4.What is the difference between correlation and covariance?
- 5.Define Interquartile Range?
- 6.Define probability density function?
- 7.Explain poisson distribution with an example?
- 8.What is the difference between univariate, bivariate, and multivariate analysis?
- 9.Briefly describe how PCA is applied to the Iris dataset.
- 10.Explain Linear Discriminant Analysis (LDA) and how it differs from PCA.
- 11.What is Principal Component Analysis (PCA) and why is it used in dimensionality reduction?
- 12.What is the purpose of univariate analysis in statistics?
- 13.State Bayes' Theorem and explain its use in probability analysis.
- 14.Define conditional probability and provide an example.
- 15.Explain the concept of standard deviation and variance.?

## UNIT-II(16 Marks):

- 1.Explain the mean, median, and mode, and how each measure is used in data analysis.(7 marks)
- 2.Define variance and standard deviation and explain their significance in understanding data variability. (6 marks).
3. Explain the concept of PDF and how it is used for continuous random variables.
4. Discuss the normal distribution, binomial distribution, and Poisson distribution with examples.
- 5.Define percentiles and explain their use. Additionally, explain statistical moments and their importance in describing distributions.
- 6.Apply PCA to the Iris dataset (from the UCI repository) and explain how it helps in visualizing high-dimensional data.
- 7.Explain the techniques of Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA), and compare their applications in dimensionality reduction.
- 8.Discuss the differences between univariate, bivariate, and multivariate analysis with examples.

9. Define conditional probability and Bayes' Theorem, and explain how they are applied in real-world scenarios.

10. Explain the difference between correlation and covariance, and describe how they are used to measure relationships between variables.