23CS32P1 – MACHINE LEARNING LAB

Course Category:	Professional Core	**Credits:**	1.5
Course Type:	Practical	**Lecture-Tutorial-Practical:**	0-0-3
Prerequisite:	Nil	**Sessional Evaluation:** **Univ. Exam Evaluation:** **Total Marks:**	30 70 100
Course Objectives:	**Students undergoing this course are expected:**		
	• To learn about computing central tendency measures and Data pre processing techniques • To learn about classification and regression algorithms • To apply different clustering algorithms for a problem.		

Course Content:

Software Required: Python/R/Weka

Lab should cover the concepts studied in the course work, sample listof Experiments:

1. Compute Central Tendency Measures: Mean, Median, Mode Measure of Dispersion: Variance, Standard Deviation.
2. Apply the following Pre-processing techniques for a given dataset.
   a. Attribute selection
   b. Handling Missing Values
   c. Discretization
   d. Elimination of Outliers
3. Apply KNN algorithm for classification and regression
4. Demonstrate decision tree algorithm for a classification problem and perform parameter tuning for better results
5. Demonstrate decision tree algorithm for a regression problem
6. Apply Random Forest algorithm for classification and regression
7. Demonstrate Naïve Bayes Classification algorithm.
8. Apply Support Vector algorithm for classification
9. Demonstrate simple linear regression algorithm for a regression problem
10. Apply Logistic regression algorithm for a classification problem
11. Demonstrate Multi-layer Perceptron algorithm for a classification problem
12. Implement the K-means algorithm and apply it to the data you selected. Evaluate performance by measuring the sum of the Euclidean distance of each example from its class center. Test the performance of the algorithm as a function of the parameters K.
13. Demonstrate the use of Fuzzy C-Means Clustering
14. Demonstrate the use of Expectation Maximization based clustering algorithm