

OBJECTIVES:

- To apply the concepts of Machine Learning to solve real-world problems
- To implement basic algorithms in clustering & classification applied to text & numeric data
- To implement algorithms emphasizing the importance of bagging & boosting in classification & regression
- To implement algorithms related to dimensionality reduction
- To apply machine learning algorithms for Natural Language Processing applications

EXERCISES RECOMMENDED

1. Solving Regression & Classification using Decision Trees
2. Root Node Attribute Selection for Decision Trees using Information Gain
3. Bayesian Inference in Gene Expression Analysis
4. Pattern Recognition Application using Bayesian Inference
5. Bagging in Classification
6. Bagging, Boosting applications using Regression Trees
7. Data & Text Classification using Neural Networks
8. Using Weka tool for SVM classification for chosen domain application
9. Data & Text Clustering using K-means algorithm
10. Data & Text Clustering using Gaussian Mixture Models
11. Dimensionality Reduction Algorithms in Image Processing applications
12. Application of CRFs in Natural Language Processing

TOTAL: 60 PERIODS**OUTCOMES:****Upon completion of the course, the student will be able to**

- To learn to use Weka tool for implementing machine learning algorithms related to numeric data
- To learn the application of machine learning algorithms for text data
- To use dimensionality reduction algorithms for image processing applications
- To apply CRFs in text processing applications
- To use fundamental and advanced neural network algorithms for solving real-world data

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	1	2	3	4	5	6	1	2	3
1.	√		√	√		√	√	√	√
2.	√		√	√		√	√	√	√
3.	√		√	√			√	√	√
4.	√		√	√			√	√	√
5.	√		√	√		√	√	√	√