22DS2L1: MACHINE LEARNING LAB

Course Name	Machine Learning Lab			L	T	P	C	CIA	SEE	TM
Course Code	22DS2L1			4	0	0	4	30	70	100
Year of Introduction: 2021		Year of Offering: 2021	Year of Revision: 2022			Percentage of Revision: NIL				
L-Lecture, T-Tutorial, **P**-Practical, **C**-Credits, **CIA**-Internal Marks, **SEE**-External Marks, **TM**-Total Marks										

Course Description and Purpose:

Machine Learning Lab is a course that illustrates concepts of *Load Data Sets from Different Sources*, *Basics of Data Pre-processing* and *Feature Selection*, *Supervised Learning and Regression Algorithms*, *Supervised Learning and Classification Algorithms*, *Concepts of Clustering Algorithms*.

Course Objectives:

This course will help enable the students to understand learn, apply / implement the *Load Data Sets from Different Sources*, *Basics of Data Pre-processing* and *Feature Selection*, *Supervised Learning and Regression Algorithms*, *Supervised Learning and Classification Algorithms*, Concepts of *Clustering Algorithms.*

The learning objectives include:

- To know the concepts of *Load Data Sets* from different Sources.
- To understand basics of *Data Pre-processing* and *Feature Selection*.
- To learn *Supervised Learning* and *Regression Algorithms*.
- To learn *Supervised Learning* and *Classification Algorithms*.
- To understand the concepts of *Clustering Algorithms*.

Course Outcomes:

Upon successful completion of the course, the student will be able to:
CO1: Know the concepts of *Load Data Sets* from Different Sources.
CO2: Understand basics of *Data Pre-processing* and *Feature Selection*.
CO3: Learn *Supervised Learning* and *Regression Algorithms.*
CO4: Learn *Supervised Learning* and *Classification Algorithms*.
CO5: Understand the concepts of *Clustering Algorithms*.

1. Write a program to open Data Sets in Python. (CO1,L1)
2. Explain various *Plotting Techniques* of Python. (CO2, L2)

REGRESSION ALGORITHMS

3. Demonstrate *Simple Linear Regression* in Python with Sample Data Sets. (CO3,L2)
4. Demonstrate *Multiple Linear Regression* in Python with Sample Data Sets. (CO3,L2)
5. Demonstrate *Decision Tree Regression* in Python with Sample Data Sets. (CO3,L2)
6. Demonstrate *Support Vector Regression* in Python with Sample Data Sets. (CO3,L2)
7. Demonstrate *Random Forest Regression* in Python with Sample Data Sets. (CO3,L2)

CLASSIFICATION ALGORITHMS

8. Demonstrate *Logistic Regression in Python* with Sample Data Sets. (CO4,L2)
9. Demonstrate *Support Vector Classification* in Python with Sample Data Sets. (CO4,L2)
10. Demonstrate *Random Forest Classification* in Python with Sample Data Sets. (CO4,L2)

CLUSTERING ALGORITHMS

11. Demonstrate *K-Means Clustering* with Sample Data Sets. (CO5,L2)
12. Demonstrate *Hierarchical Clustering* with Sample Data Sets. (CO5,L2)

Note: The list of experiments is not limited to the above list. If the existing laboratory experiments completed in advance, the additional laboratory programs can added , and to be executed in the laboratory.