Machine Learning Lab

COURSE CODE: 18B1WCI674

COURSE CREDITS: 1

CORE/ELECTIVE: ELECTIVE

L-T-P: 0-0-2

Pre-requisite: None

Course Objectives:

1. To understand the working of Machine learning tools and languages.
2. To learn the implementation of classification techniques for any dataset.
3. To conduct experiments for clustering techniques for any dataset.
4. To discuss different classification and clustering algorithms based on the analysis of results obtained from experimental evaluation.

Course Outcomes:

S. No.	Course Outcomes	Level of Attainment
CO-1	To implement classification algorithms in python	Usage
CO-2	To implement Clustering algorithms in python	Usage
CO-3	To implement Genetic Algorithms in Python	Usage
CO-4	Top compare different algorithms based on some common factors	Assessment

List of Experiments:

S. No	Description	Hours
1	Selection of dataset and brief introduction about Python framework for machine learning experiments.	**2**
2	Dataset upload and visualization in Python. • How to upload a dataset in Python • How to retrieve rows and data in the dataset • How to create visualization of data	**2**
3	Decision tree using Entropy and Information Gain	**2**
4	Random forest tree and evaluation of Decision Tree	**2**
5	Linear Regression	**2**
6	Naive Bayes Classifier	**2**
7	Logistic regression	**2**
8	Support Vector Machine Kernel function and Kernel SVM	**4**
9	Implement dimensionality reduction techniques: Subset Selection, PCA, FA, MDS, and LDA.	**4**
10	Clustering: k-means	**2**
Total Lab hours		**24**

Suggested Books/Resources:

1. Tom Mitchell, “Machine Learning”, McGraw Hill, 1997, ISBN 0070428077
2. Sebastian Raschka, “Python Machine Learning”, Packt Publishing Ltd.
3. Andreas C. Müller, Sarah Guido, “Introduction to Machine Learning with Python”, O'Reilly Media, Inc.
4. Sunila Gollapudi, “Practical Machine Learning”, Packt Publishing Ltd
5. Wes McKinney, “Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython”, O'Reilly Media, Inc.
6. Willi Richert, “Building Machine Learning Systems with Python”, Packt Publishing Ltd.
7. Link to topics related to course:
   i. https://www.python-course.eu/machine_learning.php
   ii. https://www.analyticsvidhya.com/blog/2018/05/24-ultimate-data-science-projects-to-boost-your-knowledge-and-skills/
   iii. https://www.datacamp.com/

Evaluation Scheme:

1	Mid Sem. Evaluation	20 Marks
2	End Sem. Evaluation	20 Marks
3	Attendance	15 Marks
4	Lab Assessment	45 Marks
	Total	100 marks

Course Outcomes (COs) contribution to the Programme Outcomes(POs)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Average
CO-1	3	2	2	2	3	1	1	1	1	1	2	2	**1.8**
CO-2	3	3	3	3	3	2	1	2	2	1	2	3	**2.3**
CO-3	3	3	2	3	3	2	1	2	2	1	2	3	**2.3**
CO-4	3	3	3	3	3	2	1	2	2	1	2	3	**2.3**
Average	**3**	**2.8**	**2.5**	**2.8**	**3**	**1.8**	**1**	**1.8**	**1.8**	**1**	**2**	**2.8**	