

Department of Computer Science & Engineering (Data Science)

Lesson Plan & Work-done Diary for AY: 2024-25, EVEN Semester

Course with Code: Machine Learning lab - BCSL606				Faculty: Dr Anitha D B			Semester & Section: 6A	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
1.		Develop a program to create histograms for all numerical features and analyze the distribution of each feature. Generate box plots for all numerical features and identify any outliers. Use California Housing dataset.	Jupyter Notebook					
2.		Develop a program to Compute the correlation matrix to understand the relationships between pairs of features. Visualize the correlation matrix using a heatmap to know which variables have strong positive/negative correlations. Create a pair plot to visualize pairwise relationships between features. Use California Housing dataset	Jupyter Notebook					
3.		Develop a program to implement Principal Component Analysis (PCA) for reducing the dimensionality of the Iris dataset from 4 features to 2.	Jupyter Notebook					

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4.		For a given set of training data examples stored in a .CSV file, implement and demonstrate the Find-S algorithm to output a description of the set of all hypotheses consistent with the training examples	Jupyter Notebook					
5.		Develop a program to implement k-Nearest Neighbour algorithm to classify the randomly generated 100 values of x in the range of [0,1]. Perform the following based on dataset generated. 1. Label the first 50 points {x1,...,x50} as follows: if ($x_i \leq 0.5$), then $x_i \in \text{Class1}$, else $x_i \in \text{Class2}$ 2. Classify the remaining points, x51,...,x100 using KNN. Perform this for k=1,2,3,4,5,20,30	Jupyter Notebook					
6.		Implement the non-parametric Locally Weighted Regression algorithm in order to fit data points. Select appropriate data set for your experiment and draw graphs	Jupyter Notebook					
7.		Develop a program to demonstrate the working of Linear Regression and Polynomial Regression. Use Boston Housing Dataset for Linear Regression and Auto MPG Dataset (for vehicle fuel efficiency prediction) for Polynomial Regression	Jupyter Notebook					

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8.		Develop a program to demonstrate the working of the decision tree algorithm. Use Breast Cancer Data set for building the decision tree and apply this knowledge to classify a new sample	Jupyter Notebook					
9.		Develop a program to implement the Naive Bayesian classifier considering Olivetti Face Data set for training. Compute the accuracy of the classifier, considering a few test data sets	Jupyter Notebook					
10		Develop a program to implement k-means clustering using Wisconsin Breast Cancer data set and visualize the clustering result	Jupyter Notebook					

	Activity	Planned	Actual	Remarks
1	Theory Classes + Practical Classes	0+28P		
2	Assignments/ Quizzes/ Self-study/Programs	-		
3	Tutorials/ Extra classes	-		
4	Internal Assessments	2		
5	ICT based Teaching(% of usage in Curriculum)	-		
Planning			Execution	
Faculty Signature:			Faculty Signature:	
HoD Signature:			HoD Signature:	