LAB Assignments (Part - III)

Subject: Machine Learning

All the datasets are available in the following link:
https://drive.google.com/drive/folders/15i6Zy9o3VwQZD823ZdJdmMuM6e4IcUUM?usp=sharing

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11. Design and train a network of perceptrons that computes the functionality of XOR.

12. Perform Multilayer perceptron neural network to classify flower type. Utilize the number of hidden layers 5 and 200 to 400 epochs with learning rate. Try with different loss functions/ activation functions such as MSE, Cross entropy, sigmoid, tanh, ReLU along with different optimizer GD, SGD, Adam. Illustrate the result with performance metrics and observe Weight, Loss curve and accuracy curve.

    Dataset: iris.csv

13. Perform k- means clustering algorithm for customer segmentation from given features. Utilize Euclidean distance and Manhattan distance for this problem. Also, plot in terms of 2D and 3D clusters this problem.

    Dataset: Cust_Segmentation.csv

14. Perform hierarchical clustering such as Agglomerative algorithm and Divisive algorithm to group several vehicles. Utilize single, complete and average linkage to define the cluster. Also draw the dendrogram for this problem.

    Dataset: cars_clus.csv