PART – A: List of Experiments:

1. Implement and demonstrate the FIND-S algorithm for finding the most specific hypothesis based on a given set of training data samples. Read the training data from a .CSV file.
2. For a given set of training data examples stored in a .CSV file, implement and demonstrate the Candidate-Elimination algorithm to output a description of the set of all hypotheses consistent with the training examples.
3. Develop a program to demonstrate the working of the decision tree based ID3 algorithm. Use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample.
4. Build an Artificial Neural Network by implementing the Backpropagation algorithm and test the same using appropriate data sets.
5. Develop a program to implement the naïve Bayesian classifier for a sample training data set stored as a .CSV file. Compute the accuracy of the classifier, considering few test data sets.
6. Apply EM algorithm to cluster a set of data stored in a .CSV file. Use the same data set for clustering using k-Means algorithm. Compare the results of these two algorithms and comment on the quality of clustering. You can add Java/Python ML library classes/API in the program.
7. Implement and demonstrate the working of k-Nearest Neighbour algorithm and apply it to classify the iris data set.
8. Implement the non-parametric Locally Weighted Regression algorithm in order to fit data points. Select appropriate data set for your experiment and draw graphs.

PART – B: Mini Project on Machine Learning: 30 Marks

The main goal is to prepare students to apply machine learning algorithms to real-world tasks, or to leave students well-qualified to start machine learning or AI research. The mini project is intended to start in these directions.

Students shall carry out either one of the following three kinds of projects:

1. Application project. Pick an application that is of interest and explore how best to apply learning algorithms to solve it.
2. Algorithmic project. Pick a problem or family of problems, and develop a new learning algorithm, or a novel variant of an existing algorithm, to solve it.
3. Theoretical project. Prove some interesting/non-trivial properties of a new or an existing learning algorithm. (This is often quite difficult, and so very few, if any, projects will be purely theoretical.)

Phase 1-10 marks(Problem statement, Dataset, Algorithm,Litreture survey)
Phase 2-10 marks(Implementation of atleast 1 module, report)
Phase 3-10 marks(Complete implementaion and report, results)

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