

MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT (AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad) Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act, 1956

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2260580 MACHINE LEARNING LAB

B. Tech.III Year-II Sem

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COURSE OUTCOMES - CO'S

- Extract and preprocess data from databases for machine learning applications using Python.
- Design and apply k-nearest neighbors (KNN) and k-means clustering algorithms for classification and clustering tasks.
- Analyze real-world datasets to compute probabilities and evaluate relationships between variables for conditional and unconditional probabilities.
- Apply machine learning techniques like linear regression, Naïve Bayes classifier, and genetic algorithms for prediction, classification, and optimization tasks.
- Build and evaluate a finite-word classification system using neural networks with the back propagation algorithm

LIST OF EXPERIMENTS:

1. The probability that it is Friday and that a student is absent is 3 %. Since there are 5 school days in a week, the probability that it is Friday is 20 %. What is the probability that a student is absent given that today is Friday? Apply Baye's rule in python to get the result.(Ans: 15%)

- 2. Extract the data from database using python
- 3. Implement Find-S algorithm using python.
- 4. Implement Candidate-Elimination algorithm using python.
- 5. Implement Decision-Tree Learning algorithm using python.
- 6. Implement k-nearest neighbors classification using python



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7. Given the following data, which specify classifications for nine combinations of VAR1 and VAR2 predict a classification for a case where VAR1=0.906 and VAR2=0.606, using the result k- means clustering with 3 means (i.e., 3 centroids)

VAR1VAR2CLASS

1.713 1.586 0 0.180 1.786 1 0.353 1.240 1 0.940 1.566 0 1.486 0.759 1

1.266 1.106 0 1.540 0.419 1 0.459 1.799 1 0.773 0.186 1

8. The following training examples map descriptions of individuals onto high, medium and low creditworthiness.

Medium skiing design single twenties no-> high Risk

High golf trading married forties yes-> low Risk

Low speedway transport married thirties yes-> med Risk

Medium football banking single thirties yes-> low Risk

High flying media married fifties yes-> high Risk

Low football security single twenties no-> med Risk

Medium golf media single thirties yes-> med Risk

Medium golf transport married forties yes-> low Risk

High skiing banking single thirties yes-> high Risk

Input attributes are (from left to right) income, recreation, job, status, age-group, home owner.

Find the unconditional probability of `golf' and the conditional probability of `single' given `medRisk' in the dataset?

9. Implement linear regression using python.

10. Implement Naïve Bayes theorem to classify the English text

11. Implement an algorithm to demonstrate the significance of genetic algorithm

12. Implement the finite words classification system using Back-propagation algorithm