

U.G. 5th Semester Examination - 2020

COMPUTER SCIENCE

[HONOURS]

Discipline Specific Elective (DSE)

Course Code : Com.Sc(H)-P-DSE-502/PR

[PRACTICAL]

Full Marks : 75

Time : 4 Hours

Distribution of Marks:

Experiment : 60

Lab Note Book : 05

Viva-voce : 10

Use **Matlab/Octave** or **Python** to write the one of the following codes and that to be allotted on lottery basis.

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. Implement the non-parametric Locally Weighted Regression algorithm in order to fit data points. Select appropriate data set for your experiment and draw graphs.
4. Build an Artificial Neural Network by implementing the Back-propagation algorithm and test the same using appropriate data set.
5. Write 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. Assuming a set of documents that need to be classified, use the Naïve Bayesian Classifier model to perform this task.
7. Write a program to construct a Bayesian network considering medical data. Use this model to demonstrate the diagnosis of heart patients using standard Heart Disease Data (heart.csv) Set (the data can be found in this link :: <https://github.com/g-shreekant/Heart-Disease-Predictionusing-Machine-Learning/archive/master.zip>).

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8. Assuming a set of documents that need to be classified, use the Naïve Bayesian Classifier model to perform this task. Built-in Java classes/API can be used to write the program. Calculate the accuracy, precision, and recall for your data set.
 9. Create a 4×4 matrix and find its inverse. Colour plot both the matrices as each row being values for different functions.
 10. Consider the function $y = \cos(x)$ and plot the function. Now from this function find discrete values of y for x values 0,1,2,3 and 4. Create a table for the x and y values. Now using linear regression find values of y for appropriate x values. Plot for the regressed value and original function.
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