

CS 6375

ASSIGNMENT 3 (Part II)

Names of students in your group:

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Number of free late days used: 2

Note: You are allowed a **total** of 4 free late days for the **entire semester**. You can use at most 2 for each assignment. After that, there will be a penalty of 10% for each late day.

Please list clearly all the sources/references that you have used in this assignment.

Lecture Notes

Links in the provided in the instructions manual

Python Documentation - <https://docs.python.org>

REPORT

Assignment-3 (ii)

Analysis

Pre-processing

Strategy and assumption,

- The value of learning rate is 0.5
 - Initial weights are between the range [-1, 1]
 - The nominal values are assigned numerical values starting from 1
 - Activation function for all layers is sigmoid
 - For output layer,
number of output neurons = potential classes/values of a feature
- E.g.,** If a class can have 2 values either 'Male' or 'Female' then there will be 2 output neurons. If an instance is 'Male' then the output of 'male' neuron will be 1 while 'female' neuron's output will be 0.

Summary of Experiment/Best Results:

1. The best set of parameters for 'Adult Census' dataset,
 - Training Percent = 70%
 - Maximum Iterations = 30000
 - Number of hidden layers = 1
 - Number of neuron per layer = (4)

Best results observed from the above parameters,

- Accuracy = 77.95
- Training Error = 17.54
- Test Error = 18.06

2. The best set of parameters for 'Car Evaluation' dataset,
 - Training Percent = 90%
 - Maximum Iterations = 1500
 - Number of hidden layers = 2
 - Number of neuron per layer = (4,2)

Best results observed from the above parameters,

- Accuracy = 77.46
- Training Error = 11.92

- Test Error = 9.23
3. The best set of parameters for 'Iris' dataset,
- Training Percent = 90%
 - Maximum Iterations = 75 or 150
 - Number of hidden layers = 2 or 4
 - Number of neuron per layer = (4,2) or (2,3,3,2)

Best results observed from the above parameters,

- Accuracy = 46.67
- Training Error = 23.25
- Test Error = 22.15