Pre-processing strategy

- The adult census income dataset has total of 14 attributes, out of which 6 are continuous(numerical) and 8 are nominal attributes.
- There are a few missing values in the dataset, and the rows containing them are dropped in the pre-processing stage.
- Next, the numerical attributes are standardized, using the following formula.

  Xi – Mean(X) / Std Dev(X)

- Next, the nominal attributes are encoded using this strategy, each unique label is given a number.
- Example: the attribute sex has 2 values, Male and Female, they are given 0 and 1 respectively.
- Similarly all the other nominal attributes are encoded.
- The class labels are also categorical: >50k, <=50k
- The are given values as 0, 1 respectively
- Labels: >50k : 0, <=50k : 1

Best Parameters

Training Size = 70

Max Iterations = 50

Learning Rate = 0.9

No. of Hidden Layers = 3

No. of Hidden Nodes in each layer = 5, 4, 3

Best Results

Training Accuracy = 76.41

Testing Accuracy = 77.9

Log of Experiments

Training Size = 70

Max Iterations = 50

Learning Rate = 0.9

No. of Hidden Layers = 3

No. of Hidden Nodes in each layer = 5, 4, 3

Training Accuracy = 76.41

Testing Accuracy = 77.9

Training Size = 80

Max Iterations = 80

Learning Rate = 0.9

No. of Hidden Layers = 5

No. of Hidden Nodes in each layer = 5, 4, 4, 3, 2

Training Accuracy = 75.29

Testing Accuracy = 75.22

Training Size = 75

Max Iterations = 120

Learning Rate = 0.9

No. of Hidden Layers = 6

No. of Hidden Nodes in each layer = 7, 4, 5, 4, 2, 3

Training Accuracy = 75.02

Testing Accuracy = 75.35

Training Size = 50

Max Iterations = 50

Learning Rate = 0.8

No. of Hidden Layers = 5

No. of Hidden Nodes in each layer = 6, 5, 3, 4, 5

Training Accuracy = 75.21

Testing Accuracy = 75