1. Train a neural network for classification of Fisher’s Iris data (refer ‘IRIS\_TrainData.csv’) to predict the species of Iris flower. It has two classes ‘Iris setosa’ and ‘Iris versicolor’. The dataset contains four features for each sample: sepal length, sepal width, petal length and petal width.

Design a neural network with the following parameters:

* No. of nodes in the input layer: 4
* No. of hidden layers: 1
* No. of nodes in the input layer: 6
* No. of output nodes: 1
* Sigmoid activation function for both hidden layer and output layer

Sigmoid function is given as,

* Learning rate: 0.3
* Cost function: , where ok is calculated output and tk is the target output.

Implement neural network with functions for forward propagation, error calculation, back propagation and weight update.

**(Do not use in-built functions or toolboxes for forward propagation, gradient calculation and back propagation)**

After training, classify the following samples:

[4.4 3.2 1.3 0.2]

[5 3.5 1.6 0.6]

[5.6 2.7 4.2 1.3]

[5.7 3 4.2 1.2]

(Note: Do not forget to normalize the data)