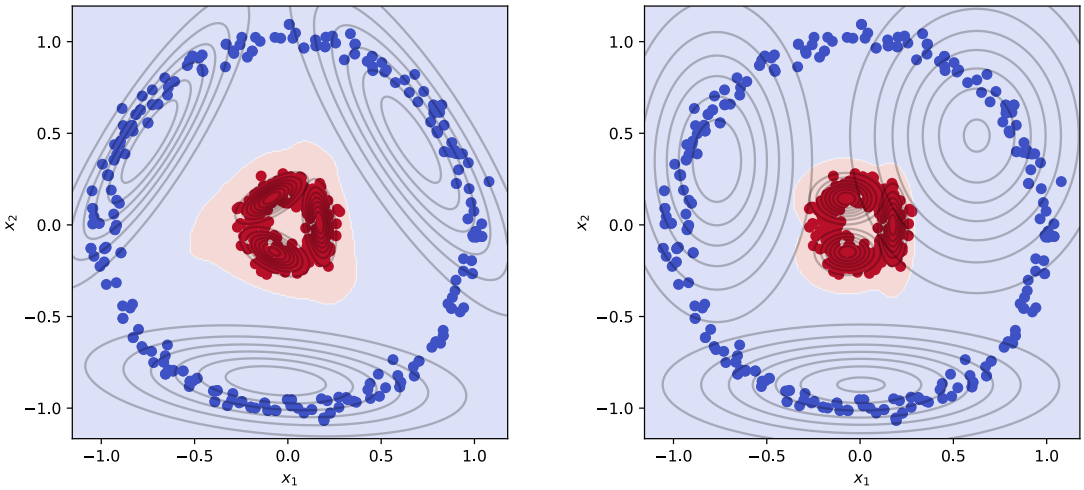
Results

Covariance	Components	Mode	Accuracy (%)
Full	3	Train	100.00
		Validation	**100.00**
		Test	100.00
	5	Train	100.00
		Validation	100.00
		Test	100.00
	7	Train	100.00
		Validation	100.00
		Test	100.00
Diagonal	3	Train	100.00
		Validation	**100.00**
		Test	100.00
	5	Train	100.00
		Validation	100.00
		Test	100.00
	7	Train	100.00
		Validation	100.00
		Test	100.00

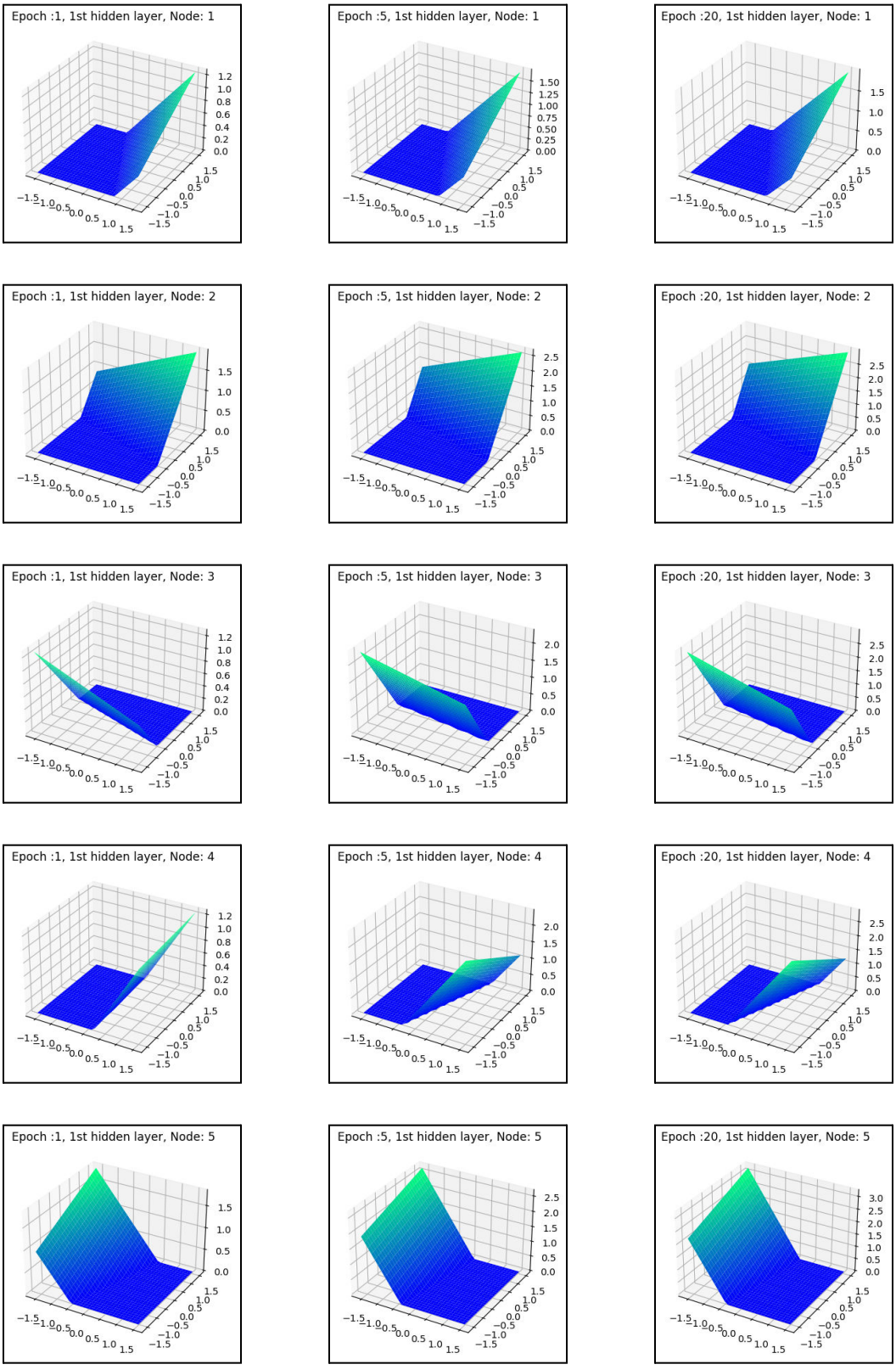
Table 2.9: Table of Classification Accuracy for Gaussian Mixture Model



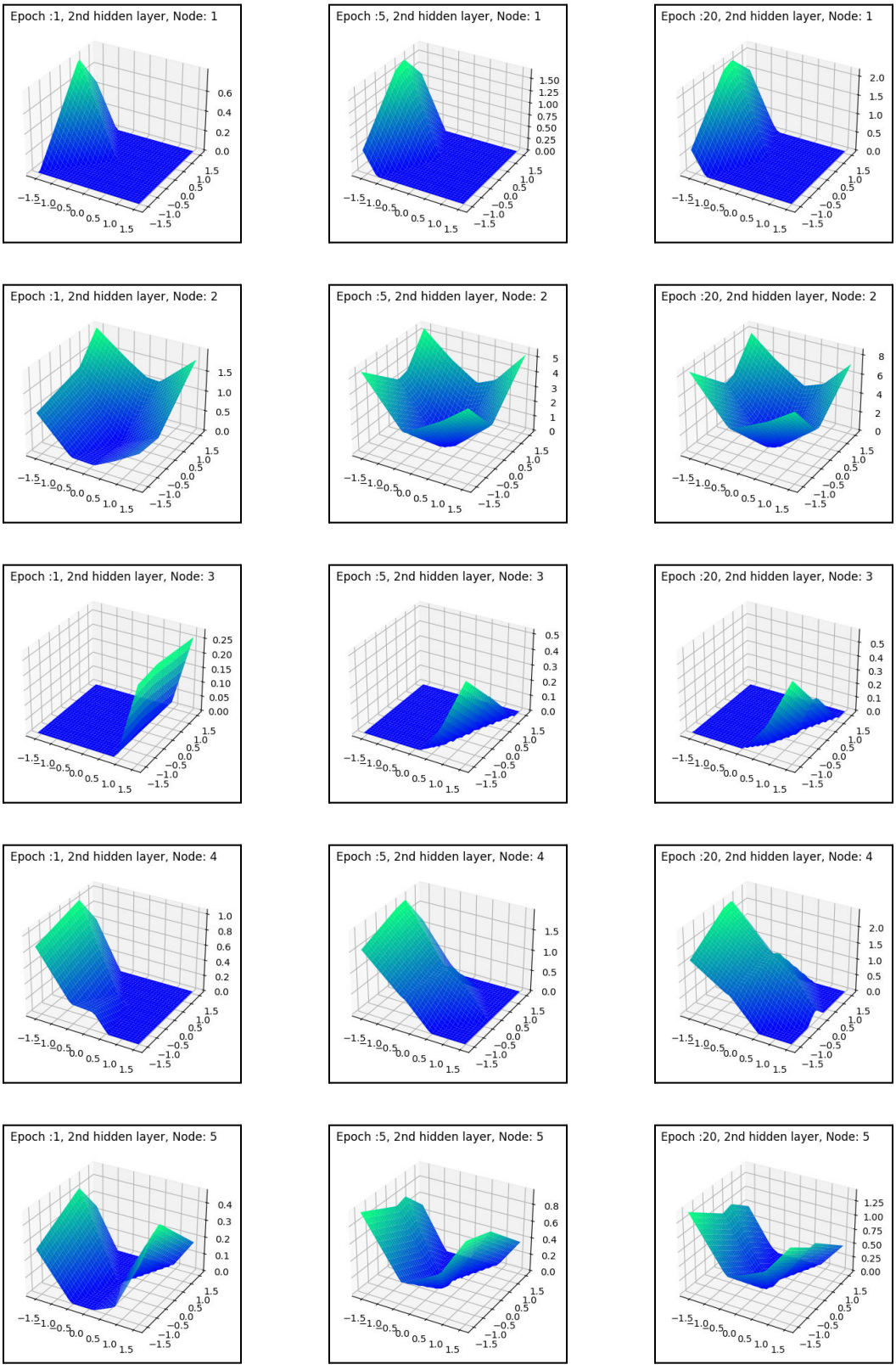
(a) Full Covariance

(b) Diagonal Covariance

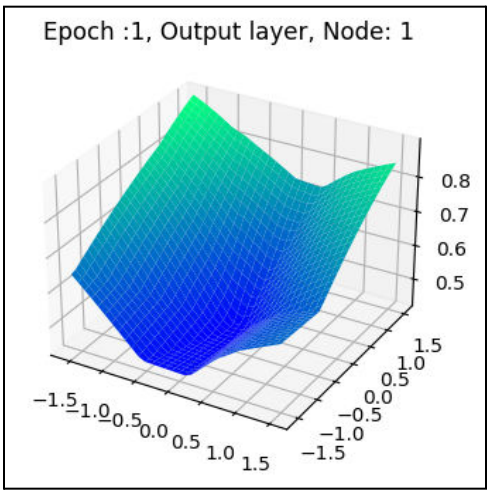
Figure 2.5: Plot of Decision Boundary for best Gaussian Mixture Model

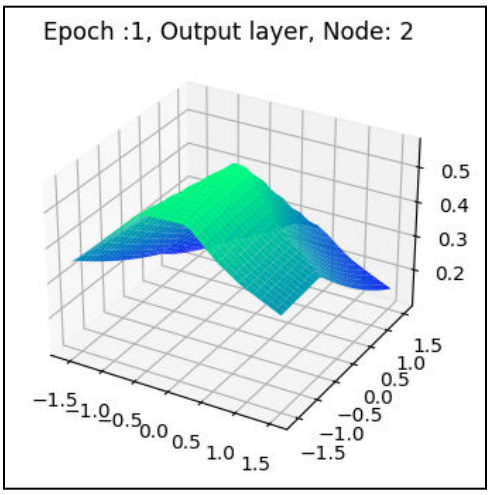


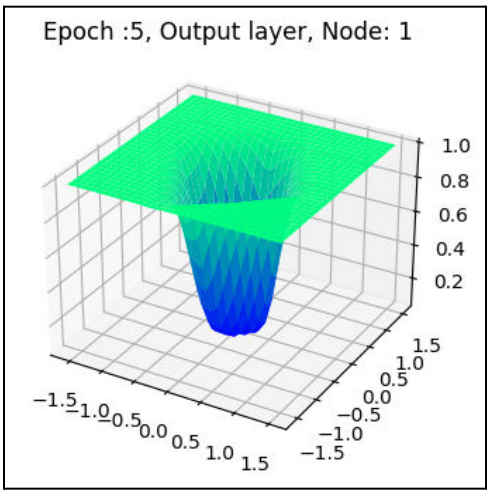
Graphs for all the nodes of hidden layer 1 after 1 epoch, 5 epochs and 20 epochs

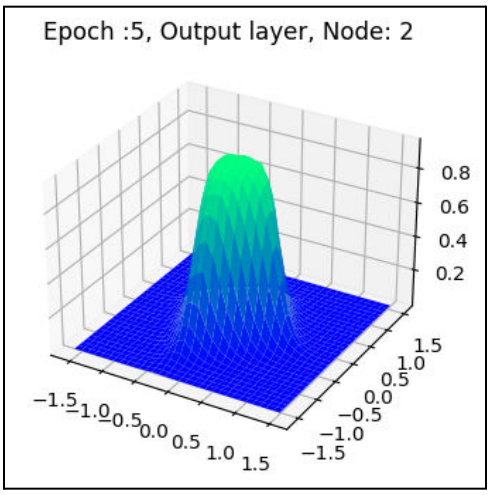


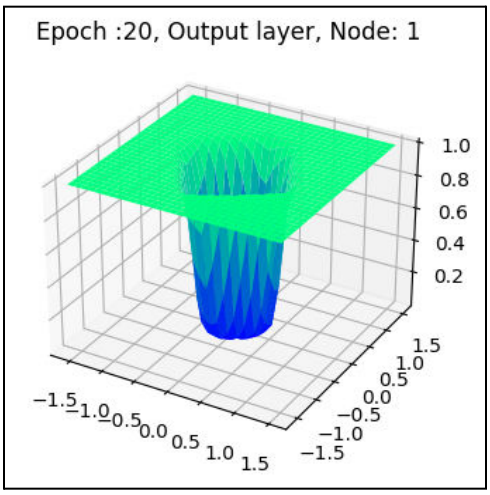
Graphs for all the nodes of hidden layer 2 after 1 epoch, 5 epochs and 20 epochs

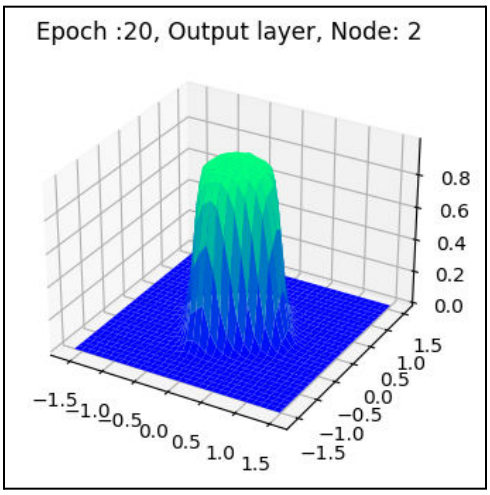

Epoch :1, Output layer, Node: 1

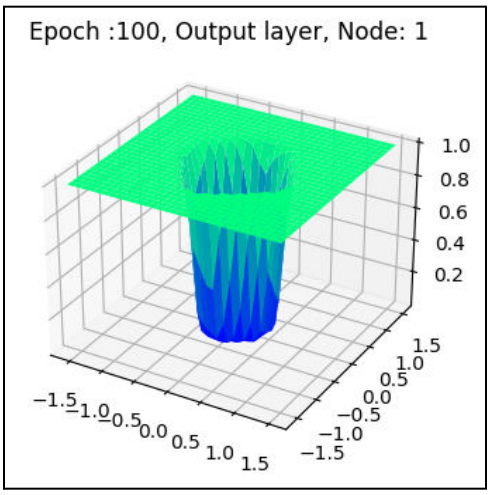

Epoch :1, Output layer, Node: 2

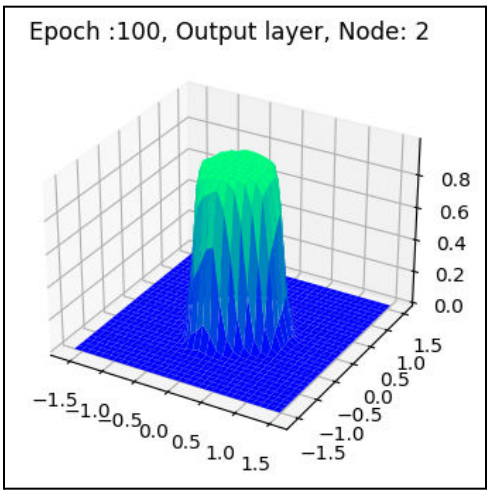

Epoch :5, Output layer, Node: 1


Epoch :5, Output layer, Node: 2


Epoch :20, Output layer, Node: 1


Epoch :20, Output layer, Node: 2





Graphs for all the nodes of output layer after 1 epoch, 5 epochs and 20 epochs

Observations

1) The best configuration model converges in very few no. of epochs (5 to 10). That's why we see similar plots for nodes for 5th and 10th epoch.
2) As we took ReLU activation functions for hidden layers ,this is clearly visible in the plots.
3) Looking at output layer node plots , the outer set of data points have greater values in node 1 than in node 2 . That's why they are classified as class 0 data points by the model. It goes similarly for the inner set as well.
4) As the model converges the steepness increases in the output layer nodes plot.