**Scenario A: Hard Activation**

1. Data plot & separation line for 75% training data

Attached on the next page.

1. Data plot & separation line for 25% training data

Attached on the next page.

1. Comparison

Error for 75% training: .125

Error for 25% training: .375

Provided the values, it is evident that hard activation using 75% data to train the model was a better fit for the values since it was able to use more data to adjust weight values. Hard activation using only 25% data to train the model was not as accurate because the data values may have been spread out and insufficient to train the dataset for overlapping values.

**Scenario B: Soft Activation**

1. Data plot & separation line for 75% training data

Attached on the next page.

1. Data plot & separation line for 25% training data

Attached on the next page.

1. Comparison

Error for 75% training:

Error for 25% training:

**Extra Credit**

The hard and soft activation functions differ mainly in that the “out” value calculation is different for each. Whereas hard activation simply assigns a value of “1” or “0” based off of whether the net values is less than or greater than 0, soft activation calculates “out” through a sigmoid function using net as an input value.

During the 75% data simulation, the error value

**Individual Contribution**

Bansri-Hard Activation, overall code, debugging, deliverable report

Vishakha-Soft Activation, overall code, debugging, deliverable report

Mit-Error calculation, overall code, debugging, deliverable repot