CleanAI Analysis Report

Model Informations

The table below shows general information about the 'NeuralNetwork' model.

	Model name	Total params	Number of layers
Informations	NeuralNetwork	669706	8

Coverage Values of Layers (For Only One Input)

The table below shows coverage values about the 'NeuralNetwork' model's all layers. The 'mean of layer' value shows the average of neurons in that layer. When calculating the number of covered neurons, this value is accepted as the threshold value for that layer. NOTE: The coverage value of a layer is the ratio of the number of covered neurons to the total number of neurons in that layer. The values in the table below, it was formed as a result of giving the '2\7086.png' input in the data set to the model.

Layer index	Activation function	Number of covered neurons	Number of total neurons	Coverage value	Mean of layer
Layer 4	ReLU	198	512	38.67%	0.46
Layer 6	ReLU	189	512	36.91%	0.47
All model	-	387	1024	37.79%	

Coverage Values of Layers (For Multiple Inputs) 30 Inputs

The table below shows coverage values for multiple inputs about the 'NeuralNetwork' model. The values in the table below, it was formed as a result of giving the '30' inputs in the data set to the model.

Layer index	Number of covered neurons	Number of total neurons	Coverage value
All model	11918	30720	38.80%

Threshold Coverage Values of Layers (TH = 0)

The table below shows threshold coverage values about the 'NeuralNetwork' model's all layers. NOTE: The threshold coverage value of a layer is the ratio of the number of covered neurons (number of neurons greater than the threshold value) to the total number of neurons in that layer. The values in the table below, it was formed as a result of giving the '2\7086.png' input in the data set to the model.

Layer index	Activation function	Number of covered neurons	Number of total neurons	Coverage value
Layer 4	ReLU	368	512	71.88%
Layer 6	ReLU	343	512	66.99%
All model	-	711	1024	69.43%

Threshold Coverage Values of Layers (TH = 0.75)

The table below shows threshold coverage values about the 'NeuralNetwork' model's all layers. NOTE: The threshold coverage value of a layer is the ratio of the number of covered neurons (number of neurons greater than the threshold value) to the total number of neurons in that layer. The values in the table below, it was formed as a result of giving the '2\7086.png' input in the data set to the model.

Layer index	Activation function	Number of covered neurons	Number of total neurons	Coverage value
Layer 4	ReLU	127	512	24.80%
Layer 6	ReLU	136	512	26.56%
All model	-	263	1024	25.68%

Sign Coverage and Value Coverage (TH = 0.75) Values of Model

The table below shows Sign Coverage and Value Coverage values of the 'NeuralNetwork' model. Sign Coverage: When given two different test inputs, it checks whether the signs of a specific neuron's value after the activation function are the same. If the signs are not the same, the counter is incremented. Value Coverage: When given two different test inputs, it checks whether the difference between the values of a specific neuron after the activation function is greater than the given threshold value. If the difference is greater than the threshold value, the counter is incremented. The values in the table below, it was formed as a result of giving the '2\7086.png' and '0\4262.png' input in the data set to the model.

Coverage Metric	Number of covered neurons	Number of total neurons	Coverage value
Sign Coverage	361	1024	35.25%
Value Coverage	90	1024	8.79%

SS, SV, VS and VV Coverage (TH = -5) Values of Model

The table below shows Sign-Sign Coverage, Sign-Value Coverage, Value-Sign Coverage and Value-Value Coverage values of the 'NeuralNetwork' model. Sign-Sign Coverage: When given two different test inputs, it checks whether the signs of a specific neuron's value after the activation function are the same. If the signs are not the same, the counter is incremented. Value Coverage: When given two different test inputs, it checks whether the difference between the values of a specific neuron after the activation function is greater than the given threshold value. If the difference is greater than the threshold value, the counter is incremented. The values in the table below, it was formed as a result of giving the '2\7086.png' and '0\4262.png' input in the data set to the model.

Coverage Metric	Number of covered neuron pairs	Number of total neuron pairs	Coverage value
Sign-Sign Coverage	0	262144	0.00%
Sign-Value Coverage	0	262144	0.00%
Value-Sign Coverage	0	262144	0.00%

| Value-Value Coverage | 0 | 262144 | 0.00% |