Defense Implemented: Adversarial Training

	+	+			+		
	Metric	Clean	No Defe	nse Attack   w/ De	fense Attack	k	
	+=====	:====+=:		+=========	======+=		====
	Loss	0.0267	0.118	0.00246	1		
	+	+		+	+		
		•	92%	100%	. 1		
•	+	+			+		

## Example Misclassifications:

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No misclassified images for stage: Clean

Attack: cw\_bim\_attack

Dataset: MNIST Training Epochs: 10

Trained Clean Images: 54210

Test Images: 140 Accuracy: 1.00 Precision: 1.00 Recall: 1.00 F1-score: 1.00

ROC AUC score is not defined for a single class.

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Number of misclassified images for No Defense Attack: 5

Attack: cw\_bim\_attack

Dataset: MNIST Training Epochs: 10

Adversarial Training Images: 2086

Test Images: 140 Accuracy: 0.92 Precision: 0.96 Recall: 0.96 F1-score: 0.96

ROC AUC Score: 1.00

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## Misclassifications:

0 -> 7: 1 0 -> 2: 1 0 -> 5: 2 0 -> 6: 1

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No misclassified images for stage: w/ Defense Attack

Attack: cw\_bim\_attack

Dataset: MNIST Training Epochs: 10

Retrained Clean and Adversarial Images: 56296

Test Images: 140 Accuracy: 1.00 Precision: 1.00 Recall: 1.00 F1-score: 1.00

ROC AUC score is not defined for a single class.