Decision Tree

Tree Depths and Fit Times: Decision Tree

Learning Curve: NBA Shots

Learning Curve: Fraud

Model Fit Time: NBA Shots

Model Fit Time: Fraud
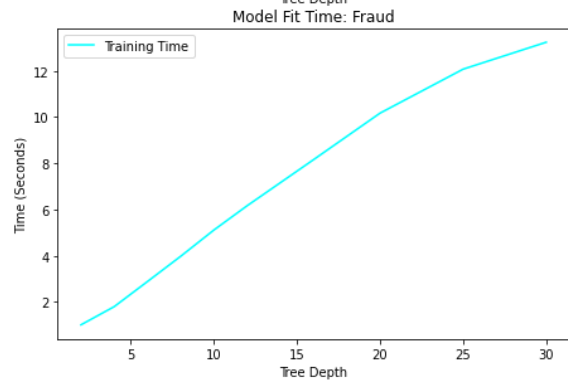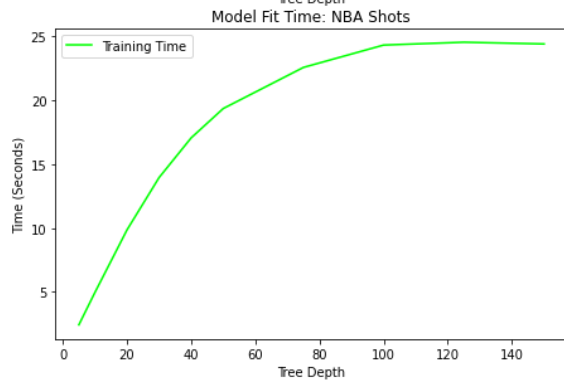
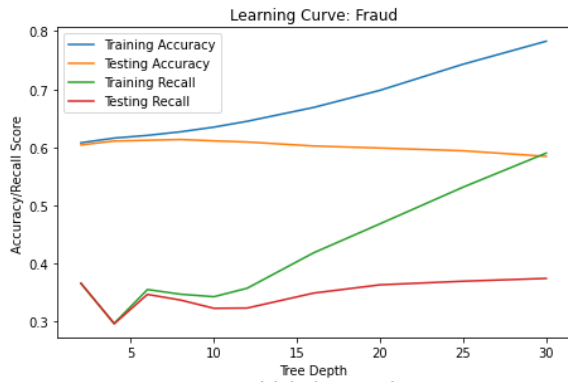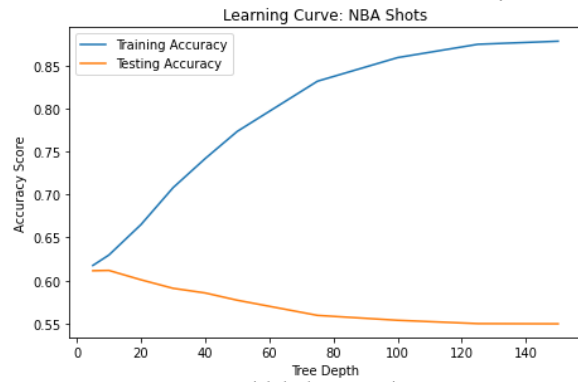# Learning Curves and Fit Times: Tuned Decision Tree

Learning Curve: NBA Shots

Learning Curve: Fraud

Model Fit Time: NBA Shots

Model Fit Time: Fraud
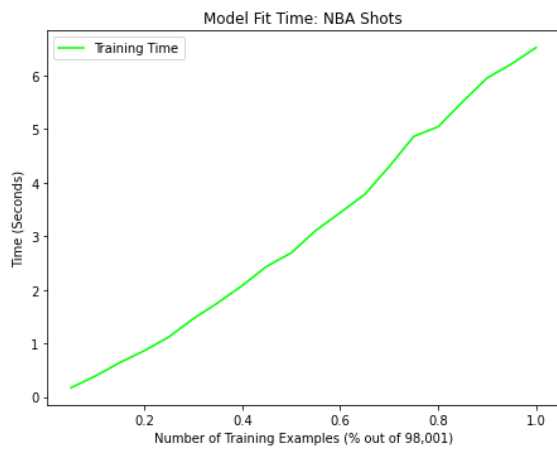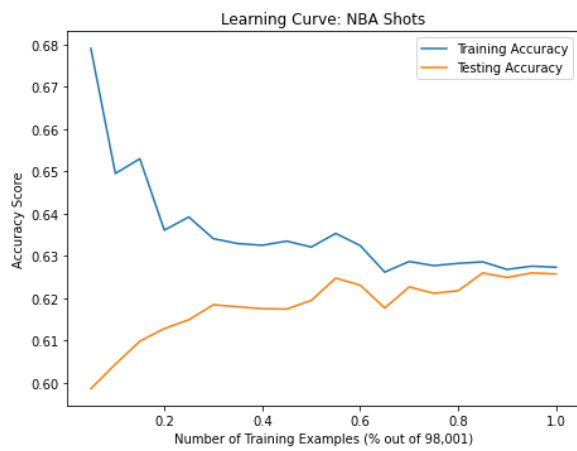
AdaBoost

Test Metrics at Varying AdaBoost Learning Rates and # Estimators

Test Accuracy Heatmap: NBA Shots

Test Recall Heatmap: Fraud
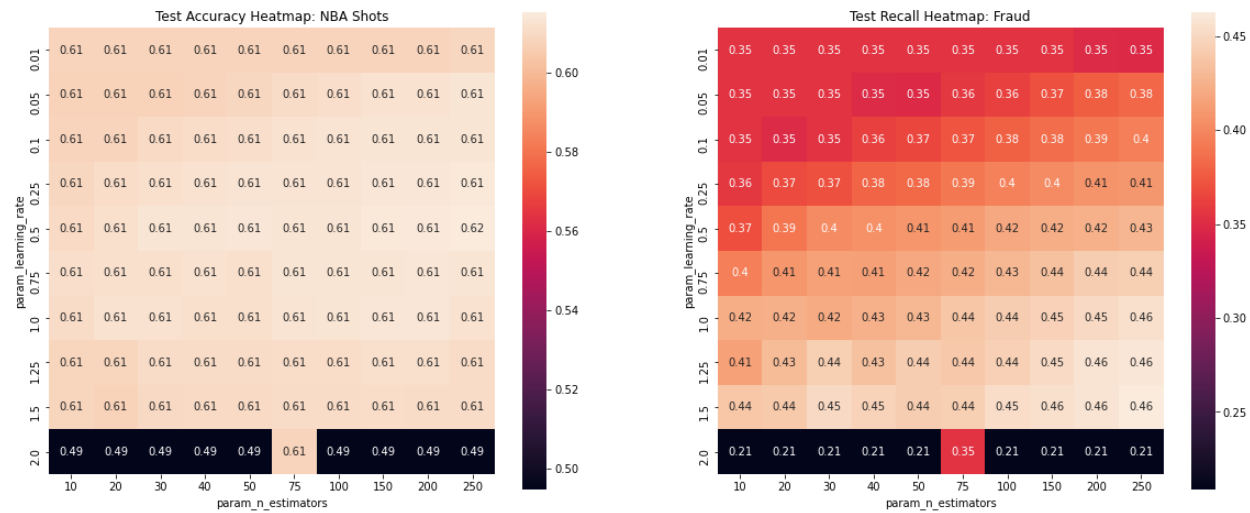
AdaBoost 5-Fold CV Average Fit and Test Times

Average Fit Time: NBA Shots

Average Fit Time: Fraud

Average Test Time: NBA Shots

Average Test Time: Fraud
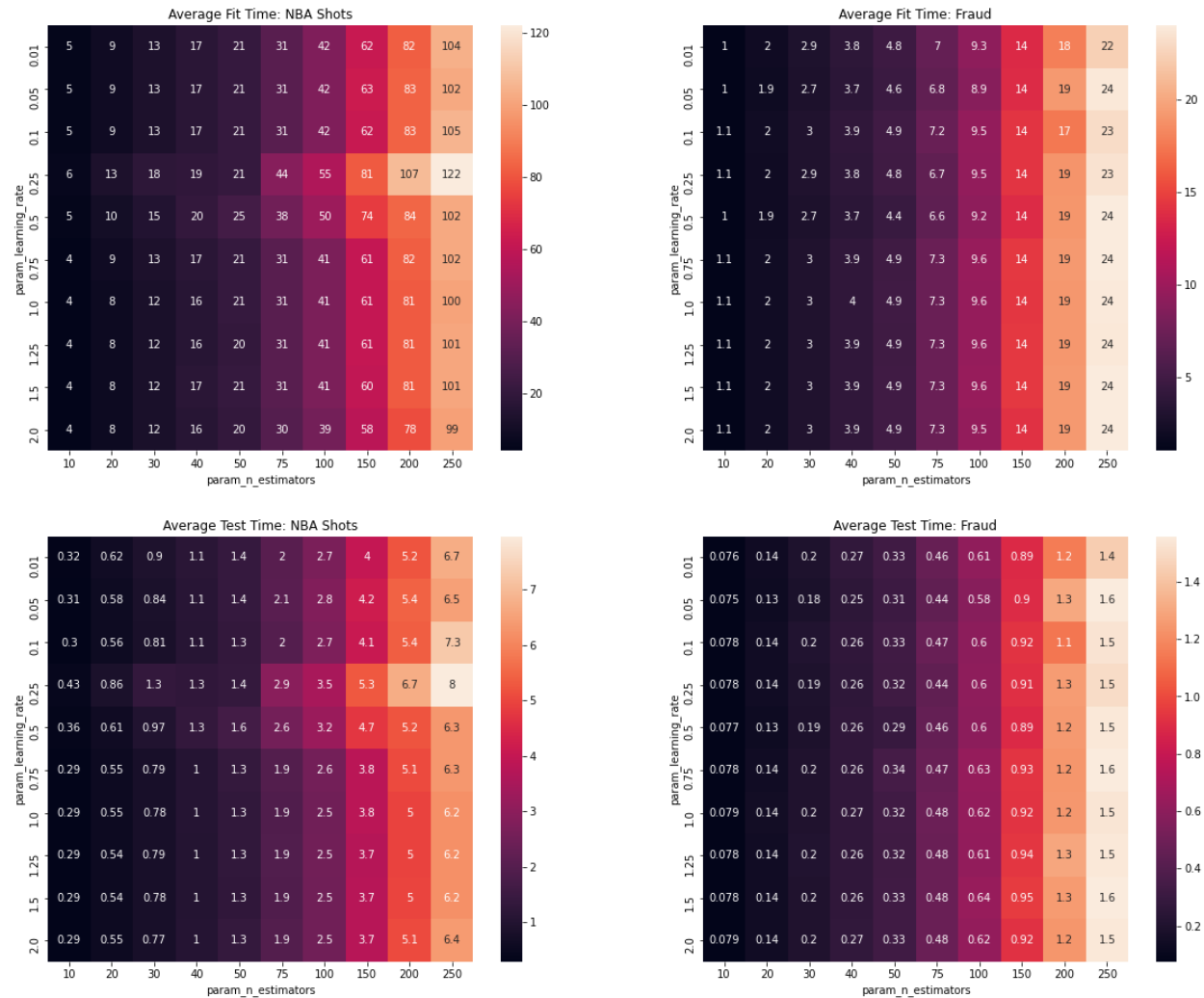
K Nearest Neighbors

Test Metrics at Varying KNN Weights and # Neighbors

Test Accuracy Heatmap: NBA Shots

	1	3	5	10	15	20	30	50
distance	0.51	0.51	0.51	0.52	0.52	0.52	0.52	0.53
uniform	0.51	0.51	0.52	0.53	0.52	0.53	0.53	0.54

Test Recall Heatmap: Fraud

	1	3	5	10	15	20	30	50
distance	0.48	0.45	0.44	0.42	0.39	0.37	0.34	0.3
uniform	0.48	0.45	0.43	0.29	0.37	0.28	0.26	0.24

KNN 5-Fold CV Average Fit and Test Times

Average Fit Time: NBA Shots

	1	3	5	10	15	20	30	50
distance	1.7	1.6	1.7	1.5	1.5	1.5	1.6	1.5
uniform	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.5

Average Fit Time: Fraud

	1	3	5	10	15	20	30	50
distance	0.4	0.4	0.39	0.39	0.4	0.39	0.39	0.39
uniform	0.4	0.41	0.39	0.39	0.39	0.39	0.38	0.39

Average Test Time: NBA Shots

	1	3	5	10	15	20	30	50
distance	32	34	46	41	40	40	42	41
uniform	35	34	45	45	41	41	41	41

Average Test Time: Fraud

	1	3	5	10	15	20	30	50
distance	1.8	1.9	2.6	2.6	2.6	2.6	2.7	2.6
uniform	1.9	2.1	2.8	2.7	2.8	2.7	2.7	2.7

Learning Curves and Fit Times: Tuned K-Nearest Neighbors

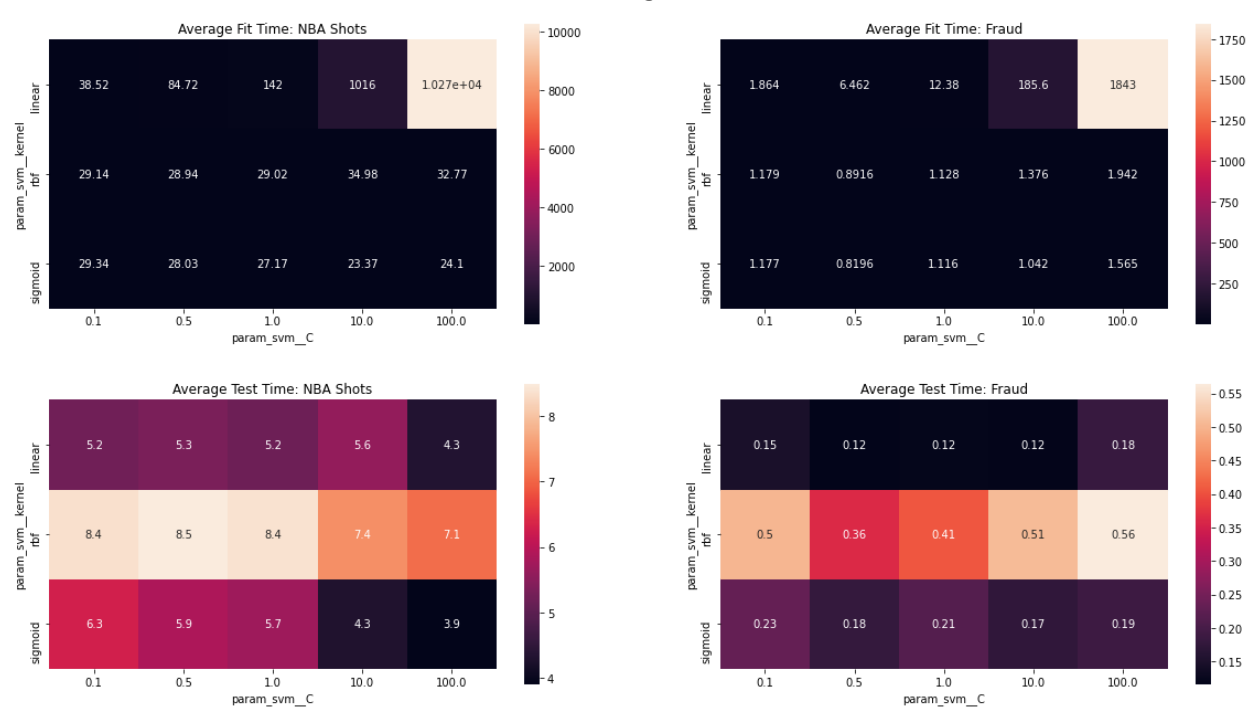Learning Curve: NBA Shots

Learning Curve: Fraud

Model Fit Time: NBA Shots
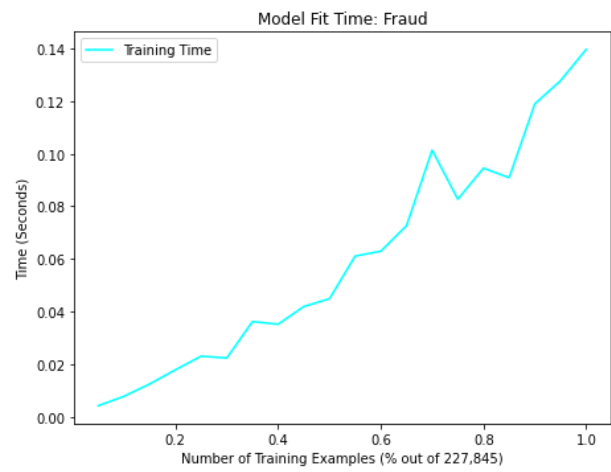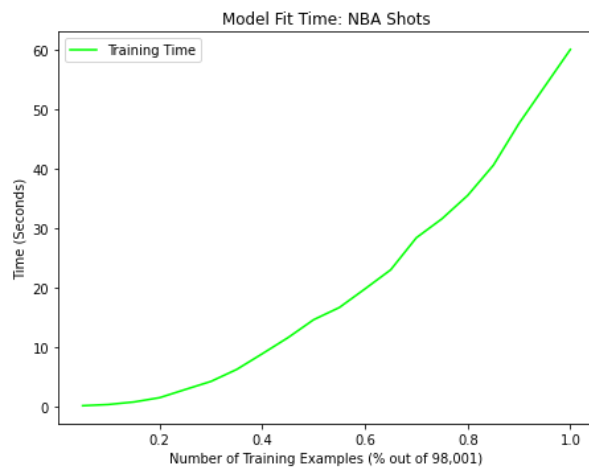

Model Fit Time: Fraud
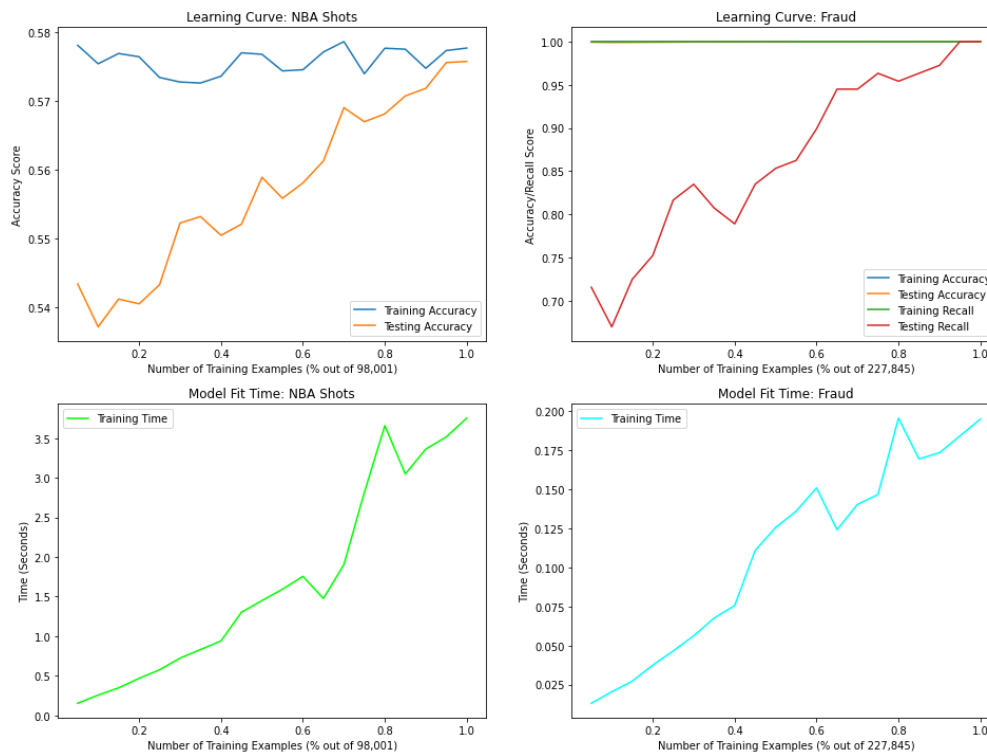
Support Vector Machines

Test Metrics at Varying SVM Kernels and Regularization Parameters

Test Accuracy Heatmap: NBA Shots

param_svm__kernel	0.1	0.5	1.0	10.0	100.0
linear	0.58	0.58	0.58	0.58	0.58
rbf	0.55	0.56	0.56	0.56	0.56
sigmoid	0.55	0.57	0.57	0.58	0.58

Test Recall Heatmap: Fraud

param_svm__kernel	0.1	0.5	1.0	10.0	100.0
linear	0.5	0.5	0.5	0.49	0.5
rbf	0	0.16	0.37	0.47	0.47
sigmoid	0	0.32	0.42	0.47	0.5

SVM 5-Fold CV Average Fit and Test Times

Average Fit Time: NBA Shots

param_svm__kernel	0.1	0.5	1.0	10.0	100.0
linear	38.52	84.72	142	1016	1.027e+04
rbf	29.14	28.94	29.02	34.98	32.77
sigmoid	29.34	28.03	27.17	23.37	24.1

Average Fit Time: Fraud

param_svm__kernel	0.1	0.5	1.0	10.0	100.0
linear	1.864	6.462	12.38	185.6	1843
rbf	1.179	0.8916	1.128	1.376	1.942
sigmoid	1.177	0.8196	1.116	1.042	1.565

Average Test Time: NBA Shots

param_svm__kernel	0.1	0.5	1.0	10.0	100.0
linear	5.2	5.3	5.2	5.6	4.3
rbf	8.4	8.5	8.4	7.4	7.1
sigmoid	6.3	5.9	5.7	4.3	3.9

Average Test Time: Fraud

param_svm__kernel	0.1	0.5	1.0	10.0	100.0
linear	0.15	0.12	0.12	0.12	0.18
rbf	0.5	0.36	0.41	0.51	0.56
sigmoid	0.23	0.18	0.21	0.17	0.19

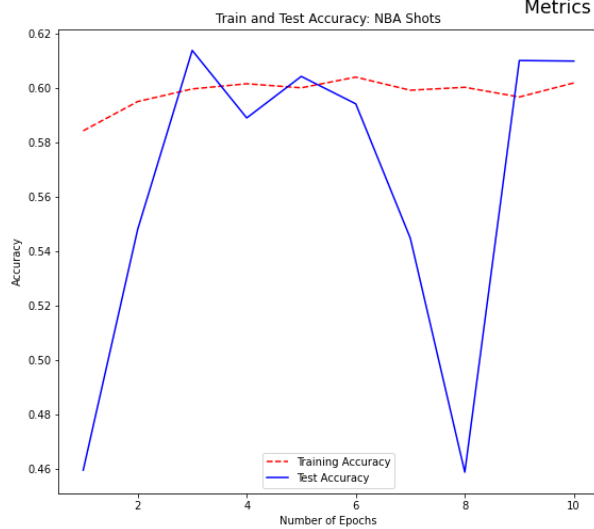## Learning Curves and Fit Times: Tuned Support Vector Machine

Learning Curve: NBA Shots

Learning Curve: Fraud

Model Fit Time: NBA Shots

Model Fit Time: Fraud
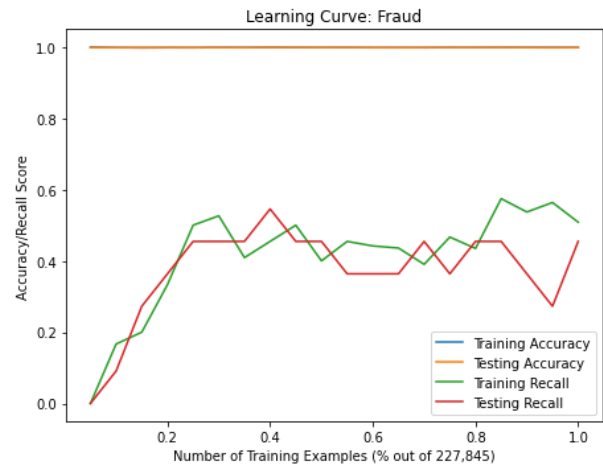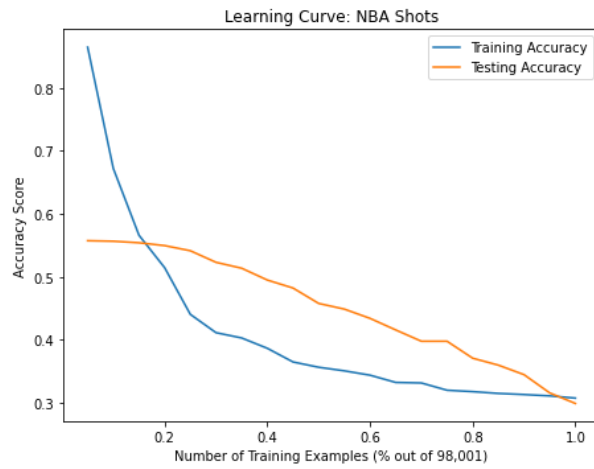
Neural Network

Metrics Over 10 Epochs

Train and Test Accuracy: NBA Shots

Train and Test Accuracy: Credit Card Fraud
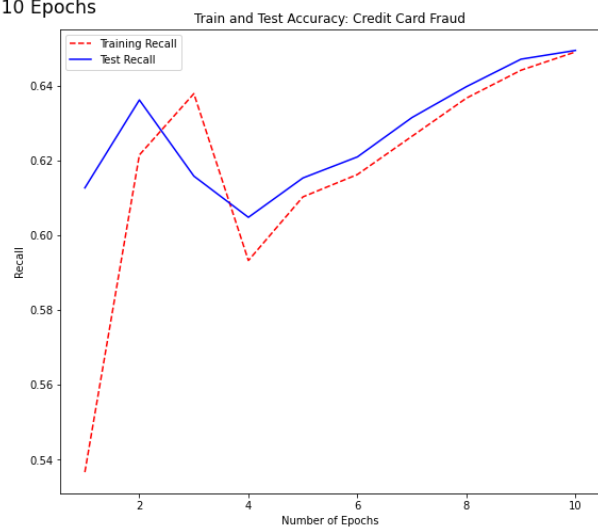
Learning Curves and Fit Times: Tuned Neural Networks