



# Machine Learning Analytic

## "Model Comparison" Results

by: jbae7@ncsu.edu

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## Model Comparison

Champion	Name	Algorithm Name	KS (Youden)
true	Gradient Boosting	Gradient Boosting	0.8323
false	Forest	Forest	0.7905
false	Forward Logistic Regression	Logistic Regression	0.4439
false	Stepwise Logistic Regression	Logistic Regression	0.4287
false	Decision Tree	Decision Tree	0.3611
false	Neural Network	Neural Network	0.4426
false	Ensemble	Ensemble	0.7346

Accuracy	Average Squared Error	Area Under ROC	Cumulative Lift
0.9362	0.0485	0.9743	4.9622
0.9178	0.0606	0.9667	4.9790
0.8349	0.1204	0.7981	3.4315
0.8342	0.1212	0.7949	3.3810
0.8607	0.1161	0.6876	3.8701
0.8294	0.1260	0.7874	3.3053
0.8827	0.0853	0.9407	4.6762

Cumulative Captured Response Percentage	Cutoff	Data Role	Depth
49.6215	0.5000	TRAIN	10
49.7897	0.5000	TRAIN	10
34.3146	0.5000	TRAIN	10
33.8099	0.5000	TRAIN	10
38.7011	0.5000	TRAIN	10
33.0530	0.5000	TRAIN	10

Cumulative Captured Response Percentage	Cutoff	Data Role	Depth
46.7620	0.5000	TRAIN	10

F1 Score	False Discovery Rate	False Positive Rate	Gain
0.8250	0.0885	0.0182	3.9622
0.7497	0.0455	0.0073	3.9790
0.4266	0.3055	0.0337	2.4315
0.4256	0.3107	0.0346	2.3810
0.4760	0.0456	0.0038	2.8701
0.3526	0.2749	0.0220	2.3053
0.5957	0.0463	0.0052	3.6762

Gini Coefficient	ROC Separation	Lift	Misclassification Rate
0.9486	0.7353	4.9117	0.0638
0.9334	0.6100	4.9453	0.0822
0.5962	0.2741	2.6913	0.1651
0.5898	0.2732	2.6241	0.1658
0.3751	0.3133	2.8087	0.1393
0.5749	0.2110	2.8764	0.1706
0.8813	0.4279	4.3734	0.1173

Multi-Class Log Loss	Misclassification at Cutoff	Misclassification Rate (Event)	Number of Observations
0.1744	0.0638	0.0638	5,960
0.2136	0.0822	0.0822	5,960
0.3907	0.1651	0.1651	5,960
0.3927	0.1658	0.1658	5,960

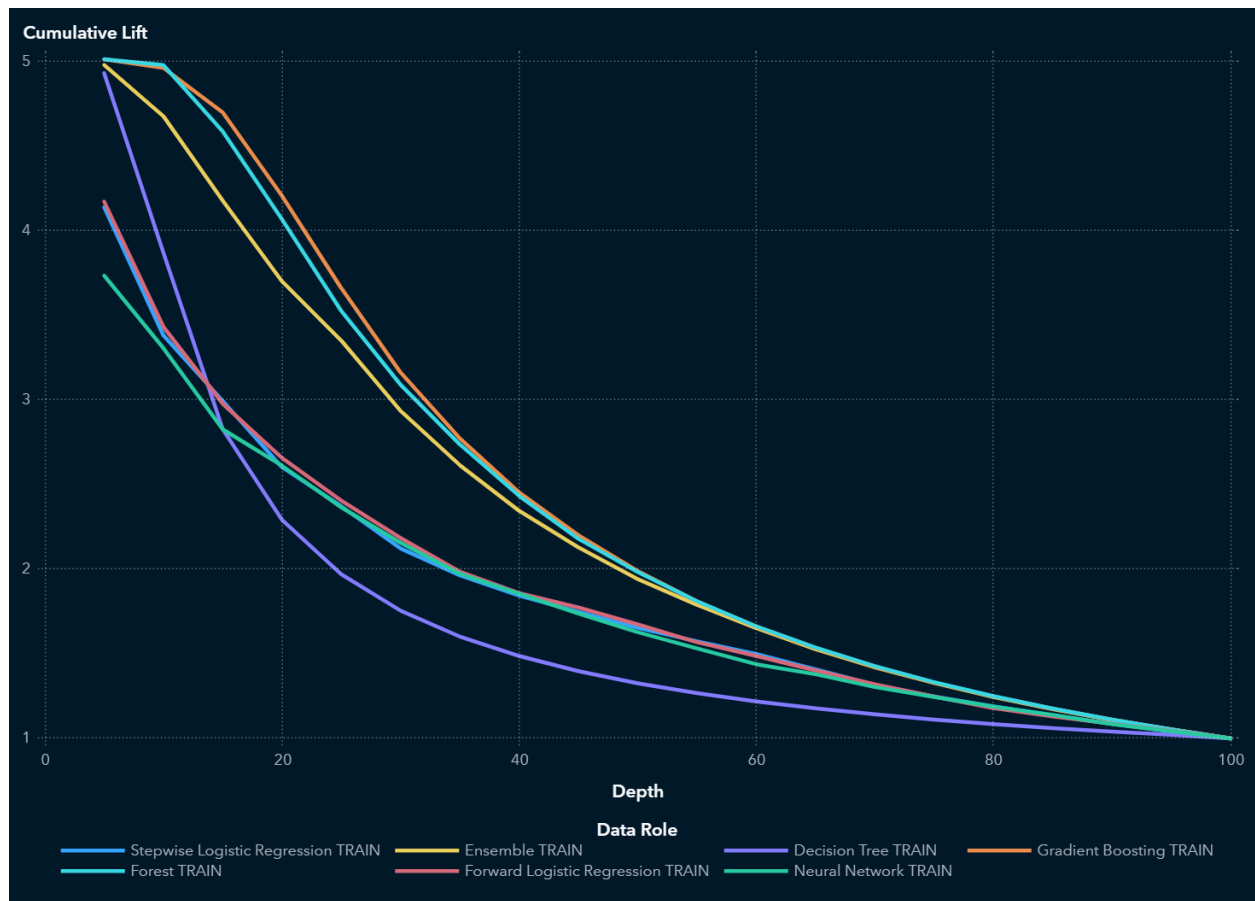
Multi-Class Log Loss	Misclassification at Cutoff	Misclassification Rate (Event)	Number of Observations
0.3881	0.1393	0.1393	5,960
0.4070	0.1706	0.1706	5,960
0.2939	0.1173	0.1173	5,960

Root Average Squared Error	Captured Response Percentage
0.2202	24.5585
0.2461	24.7267
0.3470	13.4567
0.3482	13.1203
0.3408	14.0433
0.3549	14.3818
0.2921	21.8671

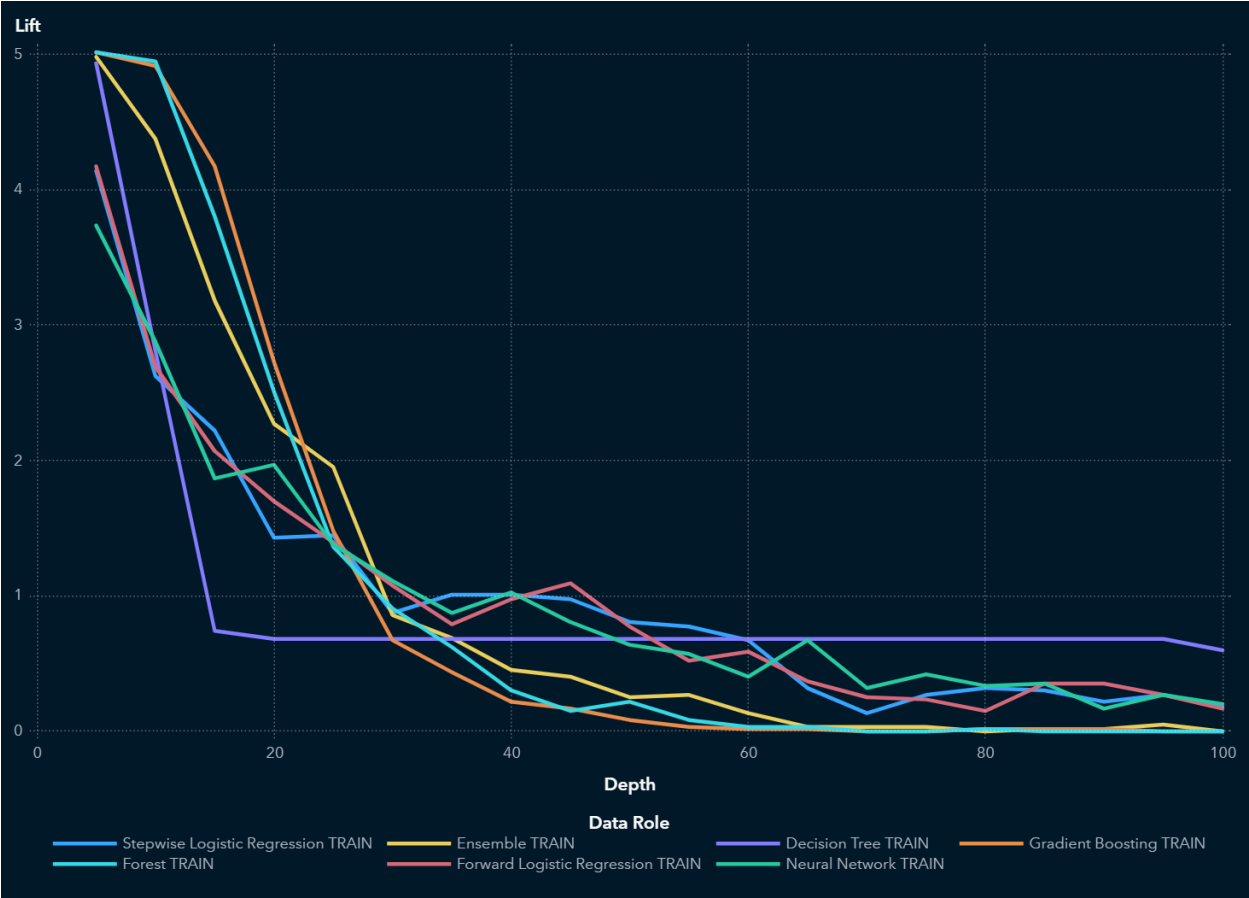
## Properties

Property Name	Property Value
selectionCriteriaClass	Kolmogorov-Smirnov statistic (KS)
selectionCriteriaInterval	Average squared error
selectionTable	Train
selectionDepth	10
cutoff	0.50

## Cumulative Lift

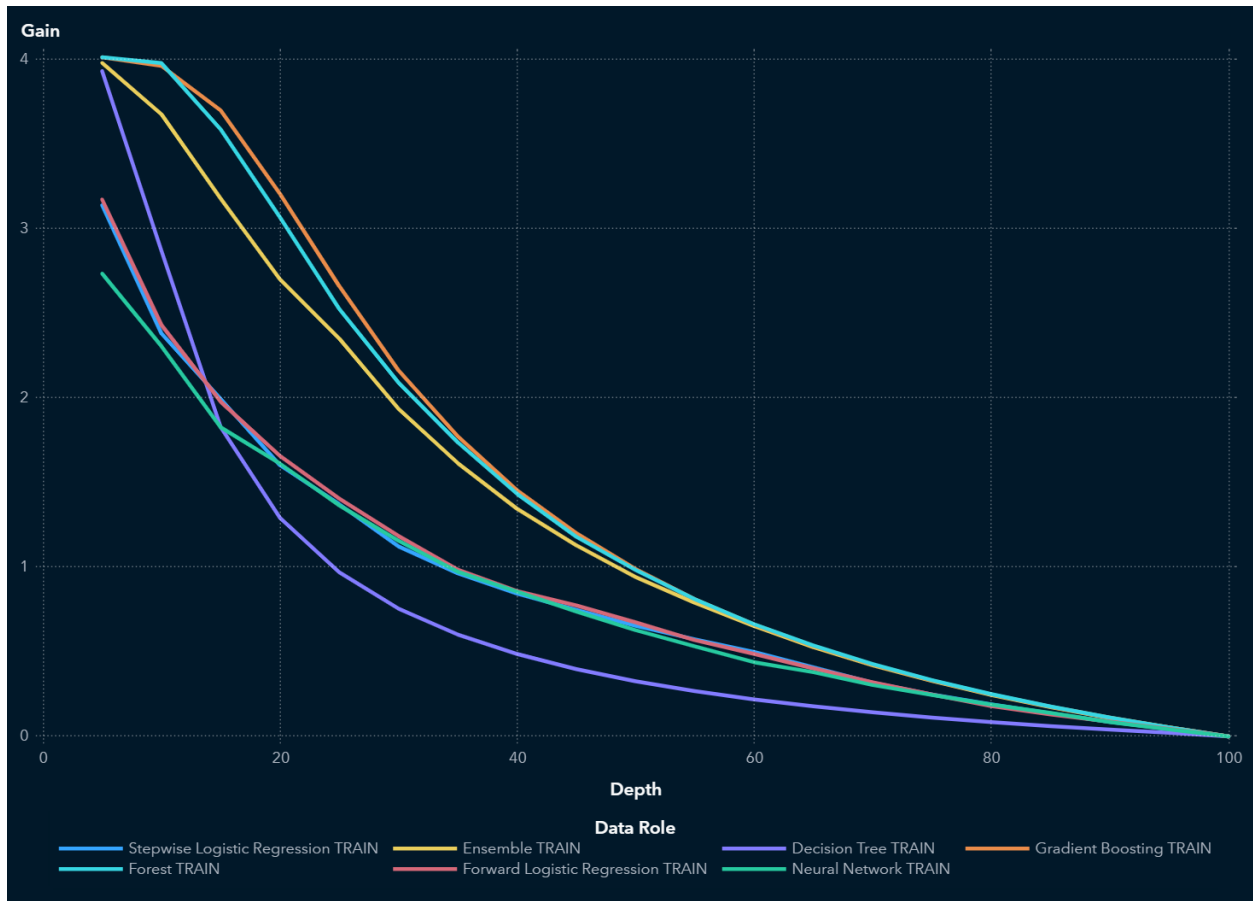


Lift

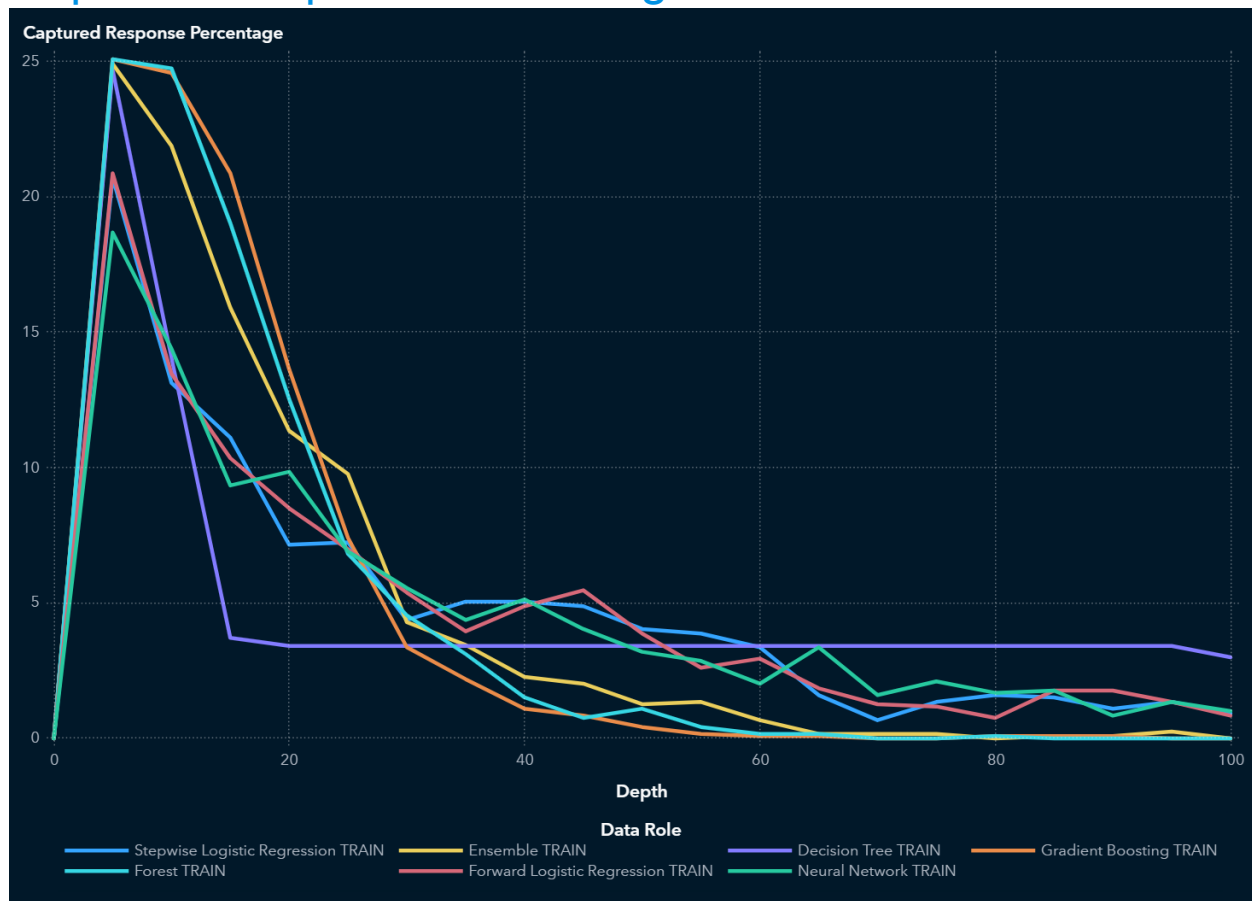




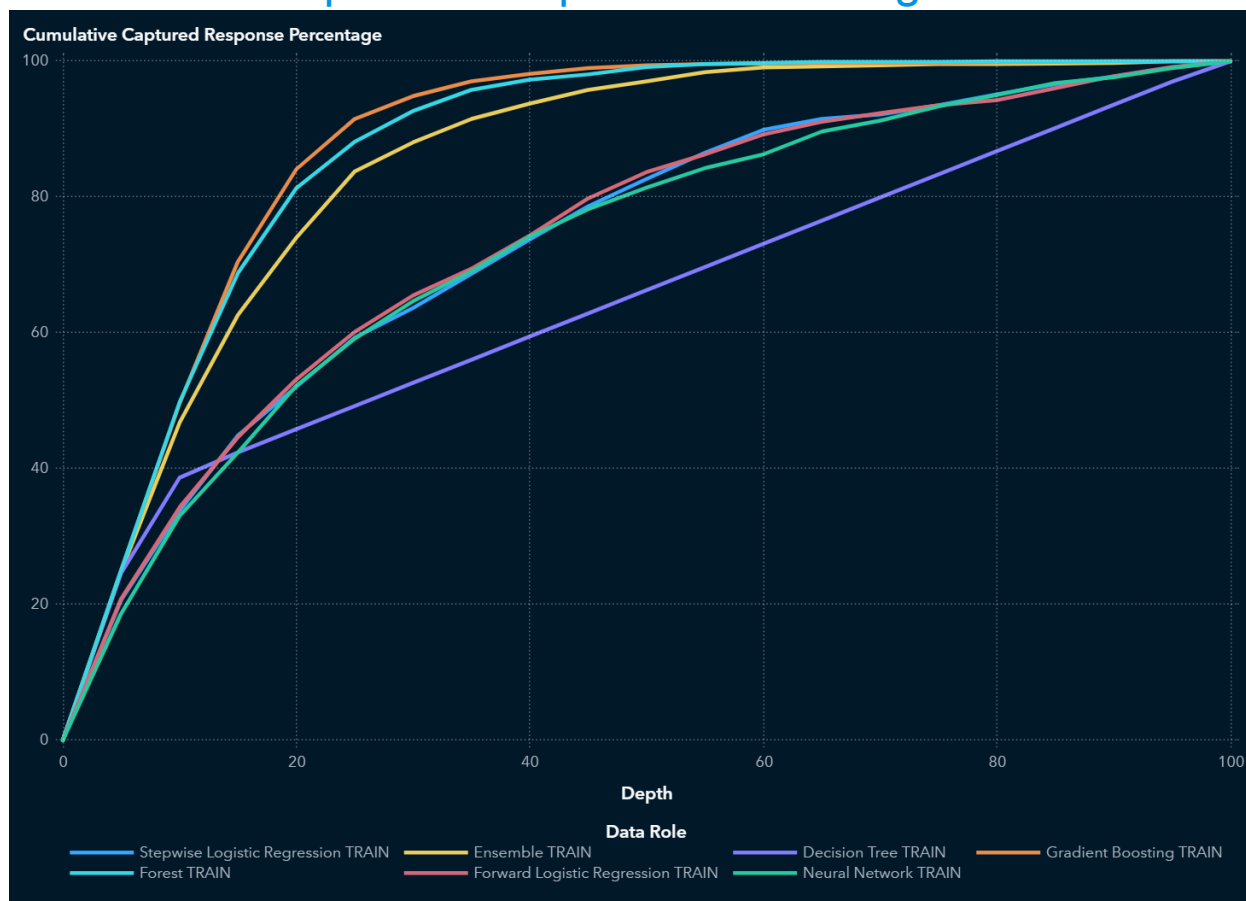
## Gain



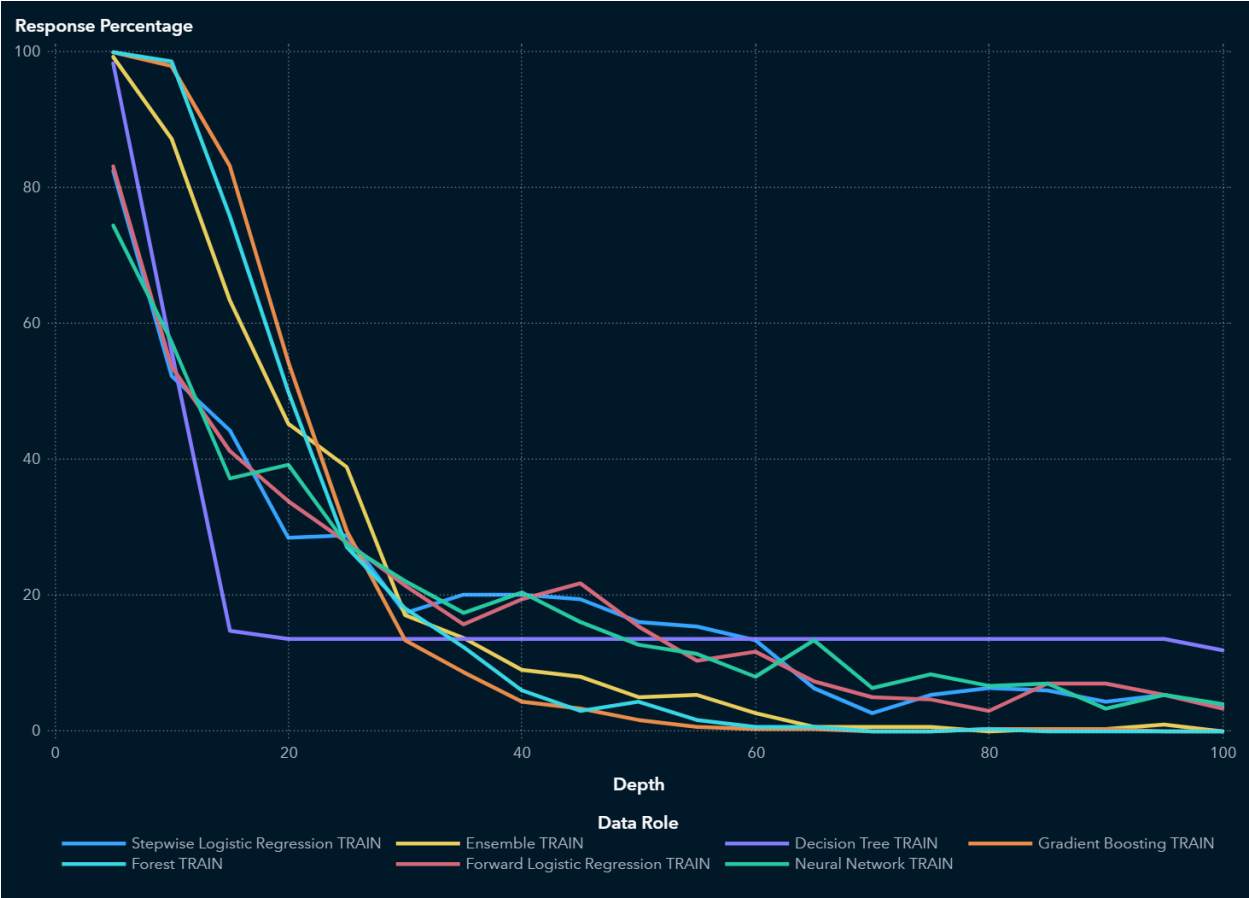
## Captured Response Percentage



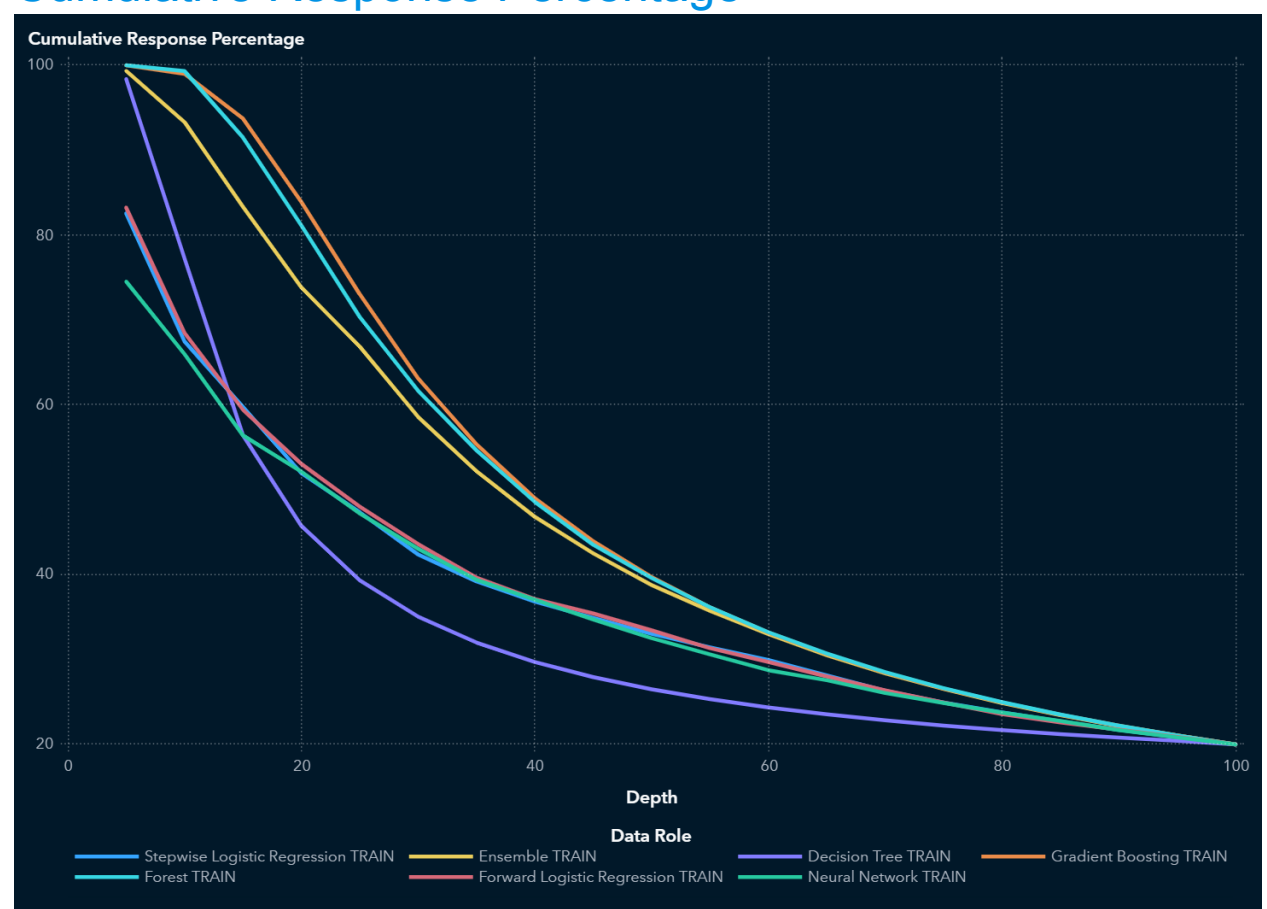
## Cumulative Captured Response Percentage



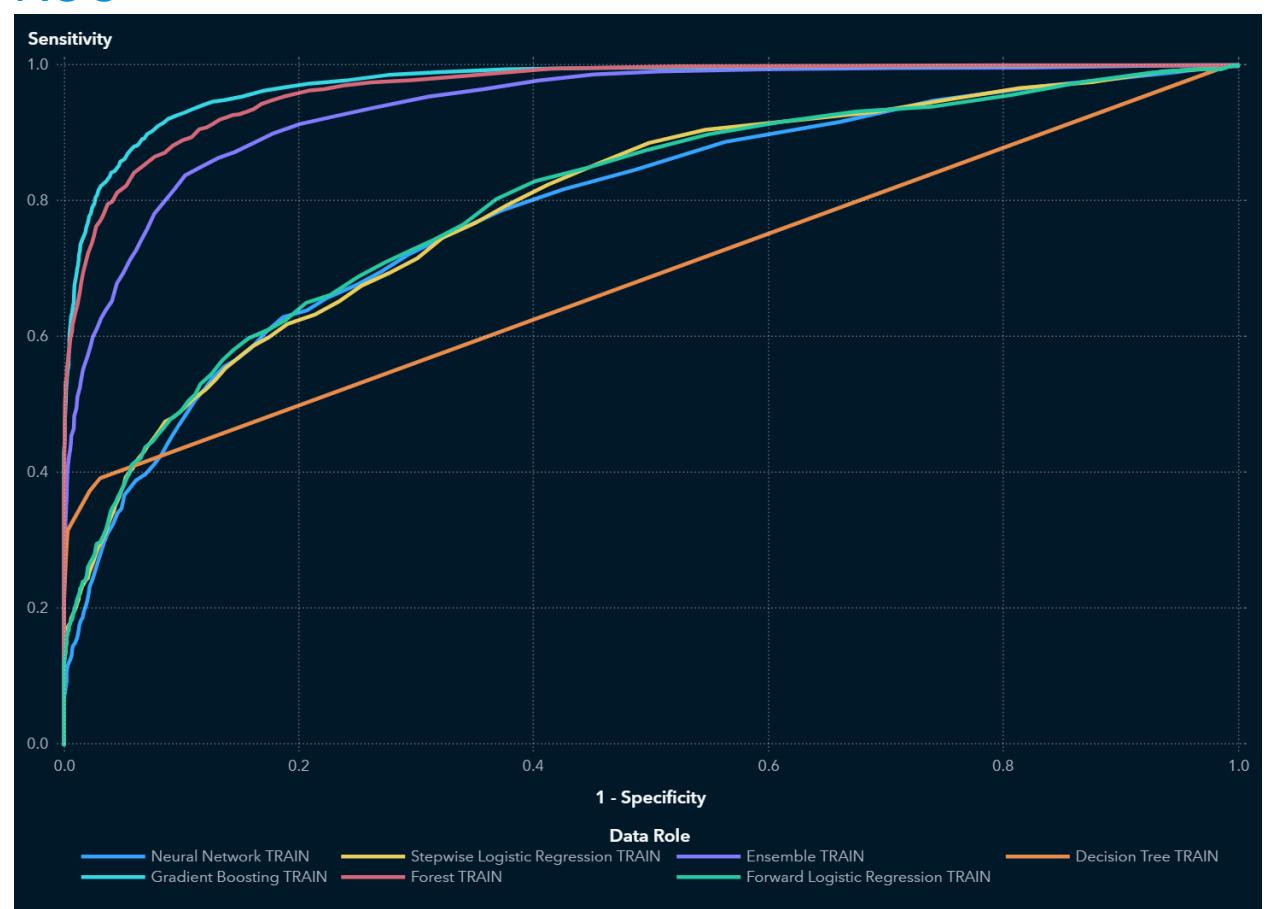
# Response Percentage



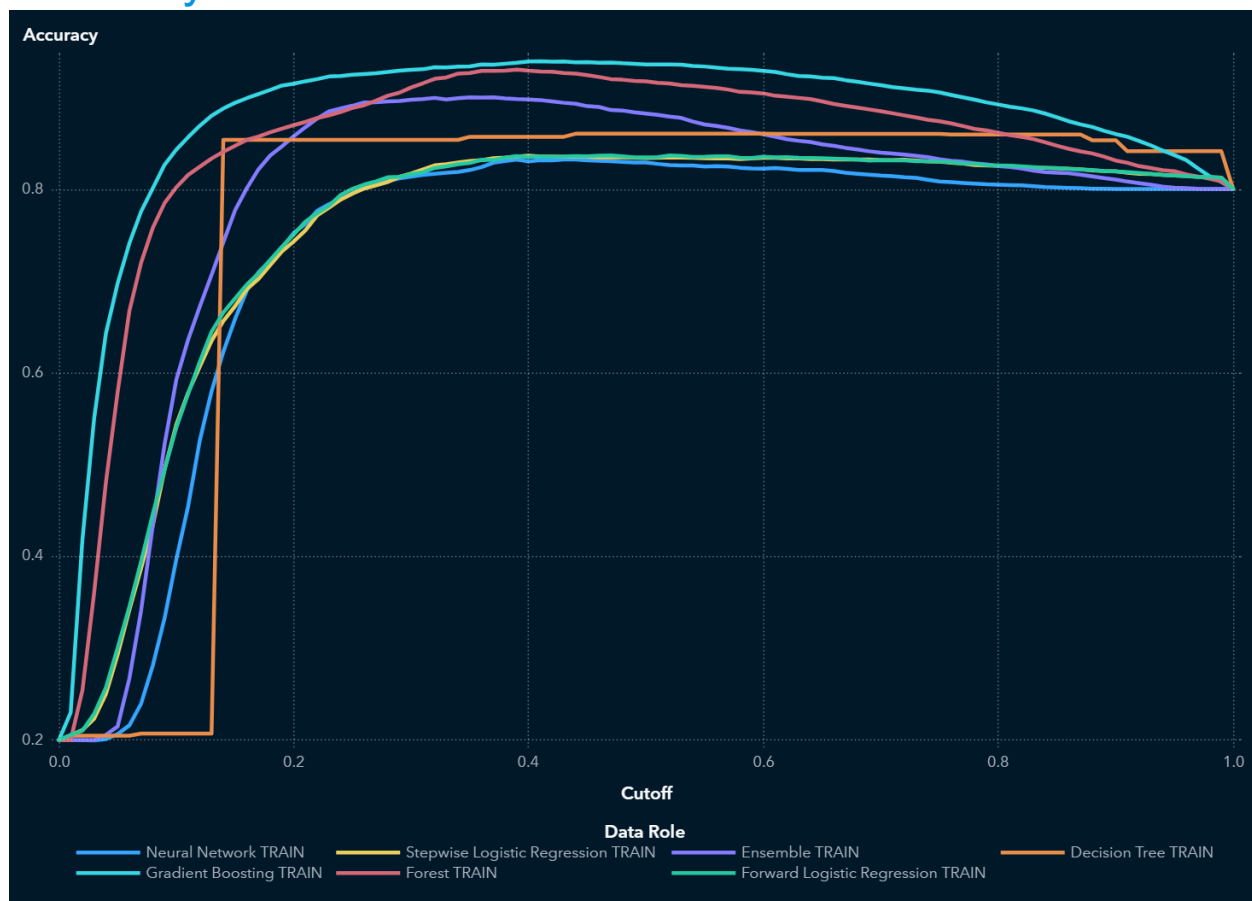
# Cumulative Response Percentage



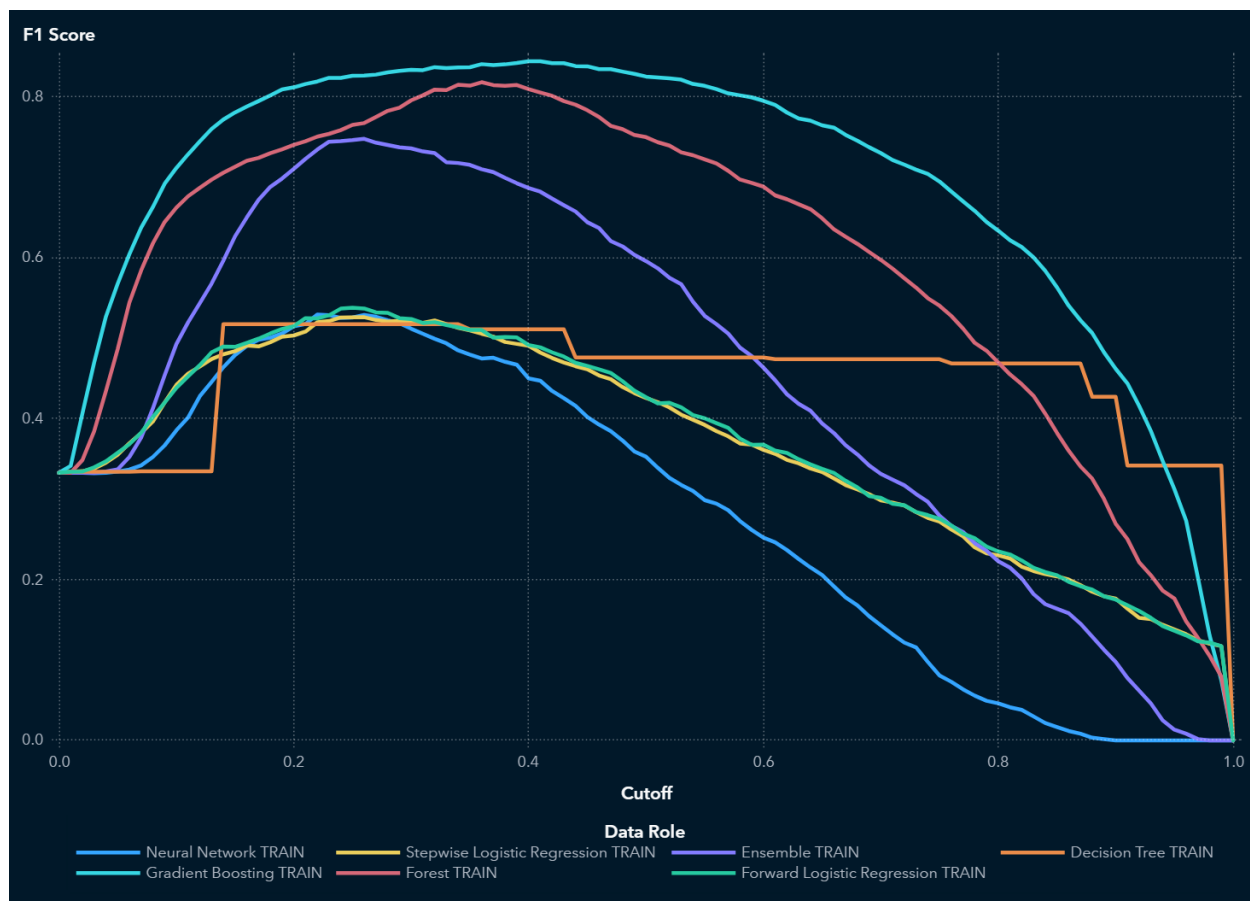
# ROC



## Accuracy



## F1 Score





## Fit Statistics

Statistics Label	TRAIN_Forward_Logistic Regression	TRAIN_Neural_Network	TRAIN_Stepwise_Logistic Regression
Area Under ROC	0.7981	0.7874	0.7949
Average Squared Error	0.1204	0.1260	0.1212
Divisor for ASE	5,960	5,960	5,960
Gamma	0.6062	0.5882	0.5998
Gini Coefficient	0.5962	0.5749	0.5898
KS (Youden)	0.4439	0.4426	0.4287
KS at User-Specified Cutoff	0.2741	0.2110	0.2732
KS Cutoff	0.2100	0.2200	0.2200
Misclassification Rate	0.1651	0.1706	0.1658
Misclassification Rate (Event)	0.1651	0.1706	0.1658
Misclassification Rate at KS Cutoff (Event)	0.2349	0.2233	0.2284
Multi-Class Log Loss	0.3907	0.4070	0.3927
Number of Observations	5,960	5,960	5,960
Root Average Squared Error	0.3470	0.3549	0.3482
Target Name	BAD	BAD	BAD
Tau	0.1904	0.1836	0.1884

TRAIN_Ensemble	TRAIN_Decision_Tree	TRAIN_Gradient_Boosting	TRAIN_Forest
0.9407	0.6876	0.9743	0.9667
0.0853	0.1161	0.0485	0.0606

TRAIN_Ensemble	TRAIN_Decision_Tree	TRAIN_Gradient_Boosting	TRAIN_Forest
5,960	5,960	5,960	5,960
0.8876	0.9026	0.9513	0.9368
0.8813	0.3751	0.9486	0.9334
0.7346	0.3611	0.8323	0.7905
0.4279	0.3133	0.7353	0.6100
0.2300	0.1400	0.1900	0.2500
0.1173	0.1393	0.0638	0.0822
0.1173	0.1393	0.0638	0.0822
0.1149	0.1460	0.0867	0.1111
0.2939	0.3881	0.1744	0.2136
5,960	5,960	5,960	5,960
0.2921	0.3408	0.2202	0.2461
BAD	BAD	BAD	BAD
0.2815	0.1198	0.3030	0.2982