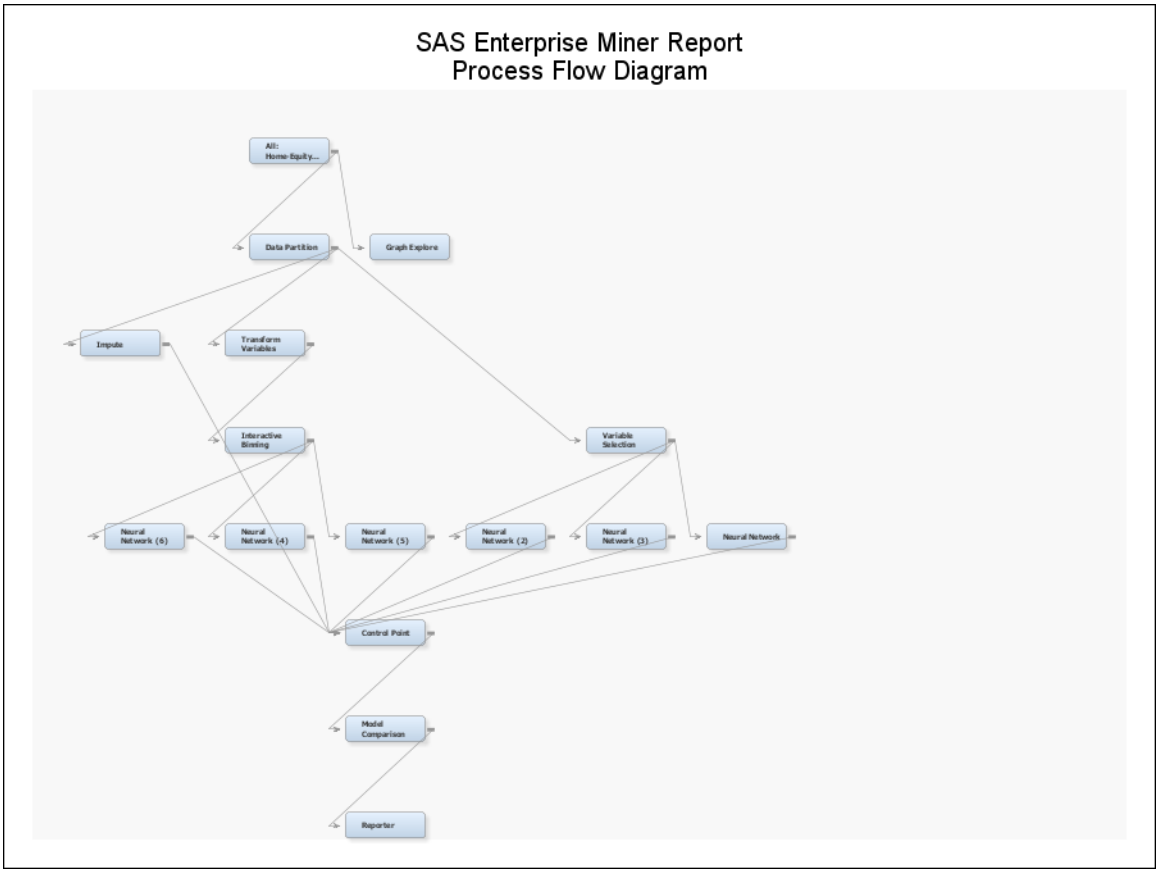
SAS Enterprise Miner Report

User = sakerb01
Date = 16:36:56 November 02
Project = Project_3
Diagram = Diagram_3

Start Node = Report
Node label = Reporter
Nodes = PATH
Showall = N

Format = PDF
Style = LISTING



SAS Enterprise Miner Report

Node=All: Home-Equity Loan Scoring Data Summary

Node id = Ids
Node label = All: Home-Equity Loan Scoring Data
Meta path = Ids
Notes =

Node=All: Home-Equity Loan Scoring Data Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	DataSource		DsCreatedBy	sakerb01		NBytes	656384	.
ApplyIntervalLevelLowerLimit	Y		DsId	allhomeequityloanscoringdata		NCols	13	.
ApplyMaxClassLevels	Y		DsModifiedBy	sakerb01		NObs	5960	.
ApplyMaxPercentMissing	Y		DsModifyDate	1762095899.9		NewTable		
CMeta	WORK.M1OJX73O		DsSampleName			NewVariableRole	REJECT	
ComputeStatistics	N		DsSampleSize			OutputType	VIEW	
DBPassThrough	Y		DsSampleSizeType			Role	TRAIN	
Data	SAMPSIO.DMAHMEQ		DsScope	LOCAL		Sample	D	
DataSelection	DATASOURCE		IdentifyEmptyColumns	Y		SampleSizeObs	10000	
DataSource	allhomeequityloanscoringdata		IntervalLowerLimit	20		SampleSizePercent	20	
DataSourceRole	TRAIN		Library	SAMPSIO		SampleSizeType	PERCENT	
Description	All: Home-Equity Loan Scoring Data		MaxClassLevels	20		Scope	LOCAL	
DropMapVariables	N	Y	MaxPercentMissing	50		Segment		
DsCreateDate	1762095899.8		MetaAdvisor	BASIC		Table	DMAHMEQ	

Node=All: Home-Equity Loan Scoring Data Data Attributes

Attribute	Value	Attribute	Value	Attribute	Value
Data Name	DMAHMEQ	Date Created	20Jun2013:01:47:04	Data Size	656384
Data Type	DATA	Date Modified	20Jun2013:01:47:04	Role	TRAIN
Data Label	All: Home-Equity Loan Scoring Data	Number Rows	5960	Segment	
Engine	V9	Number Columns	13	Data Library	SAMPSIO

Node=All: Home-Equity Loan Scoring Data Variables List

Name	Label	Role	Level	Type	Length	Format	Creator
bad	Default or seriously delinquent	TARGET	BINARY	N	8		
clage	Age of oldest trade line in months	INPUT	INTERVAL	N	8		
clno	Number of trade (credit) lines	INPUT	INTERVAL	N	8		
debtinc	Debt to income ratio	INPUT	INTERVAL	N	8		
delinq	Number of delinquent trade lines	INPUT	INTERVAL	N	8		
derog	Number of major derogatory reports	INPUT	INTERVAL	N	8		
job	Prof/exec sales mngr office self other	INPUT	NOMINAL	C	6		
loan	Amount of current loan request	INPUT	INTERVAL	N	8		
mortdue	Amount due on existing mortgage	INPUT	INTERVAL	N	8		
ninq	Number of recent credit inquiries	INPUT	INTERVAL	N	8		
reason	Home improvement or debt consolidation	INPUT	NOMINAL	C	7		
value	Value of current property	INPUT	INTERVAL	N	8		
yoj	Years on current job	INPUT	INTERVAL	N	8		

SAS Enterprise Miner Report

Node=Data Partition
Summary

Node id = Part
Node label = Data Partition
Meta path = Ids => Part
Notes =

Node=Data Partition
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Partition		Method	DEFAULT		TestPct	0	30
ClassDistribution	Y		OutputType	DATA		TrainPct	50	40
IntervalDistribution	Y		RandomSeed	12345		ValidatePct	50	30

Node=Data Partition
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	INTERVAL	10	clage clno debtinc delinq derog loan mortdue ninq value yoj
INPUT	NOMINAL	2	job reason

SAS Enterprise Miner Report

Node=Variable Selection
Summary

Node id = Varsel
Node label = Variable Selection
Meta path = Ids => Part => Varsel
Notes =

Node=Variable Selection
Properties

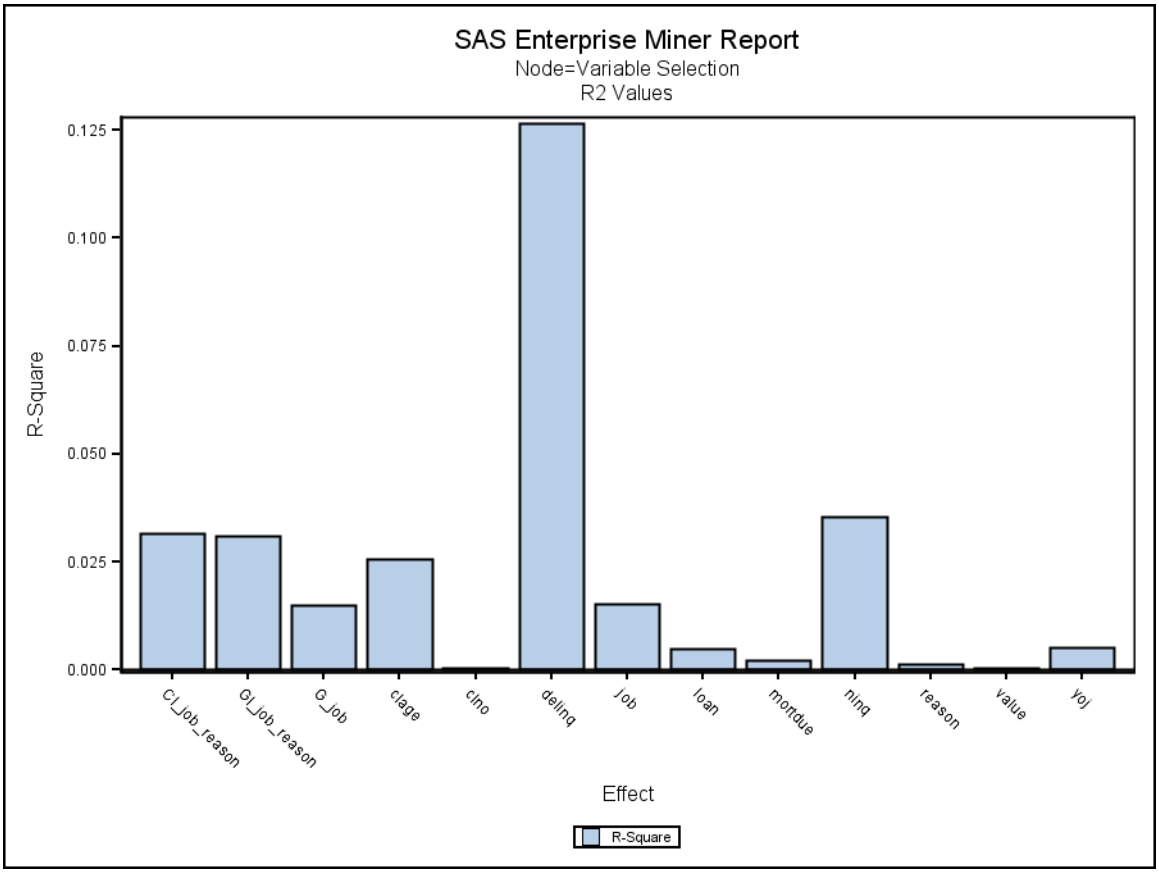
Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	VariableSelection		MaxLevel	100		RoleUnusedVars	DEFAULT	
Bins	50		MaxMissingPercent	10	50	SASSPDS	Y	
ByPassVars	NONE		MaxRows	3000		StopR2	0.0005	
ByPassVarsRole	INPUT		MinR2	0.005		TargetModel	RSQUARE	DEFAULT
ChiSquare	3.84		Passes	6		UseAov16	N	
HideRejectedVars	Y		PrintOption	DEFAULT		UseGroups	Y	
HideUnusedInputVars	Y		RejectUnusedInputVars	Y		UseInteractions	N	

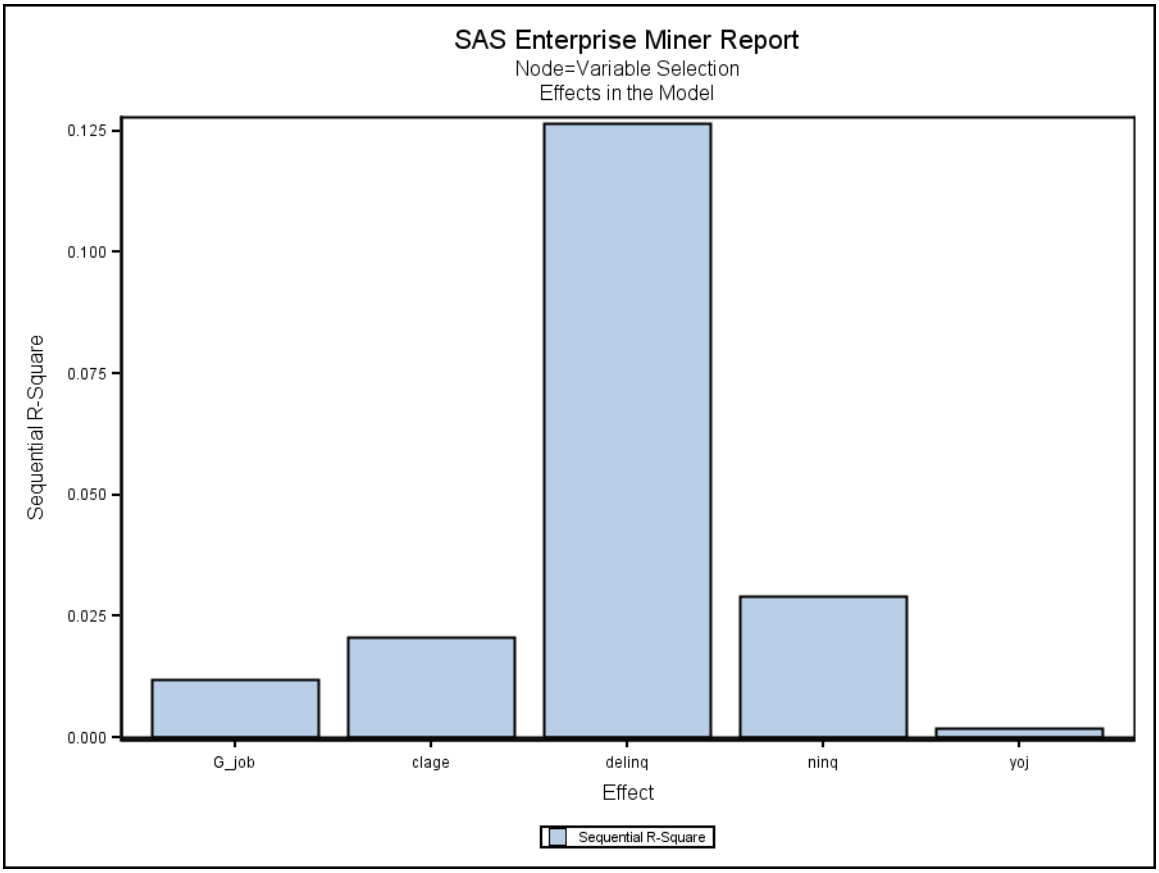
Node=Variable Selection
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	INTERVAL	10	clage clno debtinc delinq derog loan mortdue ninq value yoj
INPUT	NOMINAL	2	job reason

Node=Variable Selection
Variable Selection

Variable Name	Role	Measurement Level	Type	Label	Reasons for Rejection
G_job	INPUT	NOMINAL	N	Grouped Levels for job	
clage	INPUT	INTERVAL	N	Age of oldest trade line in months	
clno	REJECTED	INTERVAL	N	Number of trade (credit) lines	Varsel:Small R-square value
debtinc	REJECTED	INTERVAL	N	Debt to income ratio	Varsel:Exceed the missing percent of 10
delinq	INPUT	INTERVAL	N	Number of delinquent trade lines	
derog	REJECTED	INTERVAL	N	Number of major derogatory reports	Varsel:Exceed the missing percent of 10
job	REJECTED	NOMINAL	C	Prof/exec sales mngr office self other	Varsel:Small R-square value, Group variable preferred
loan	REJECTED	INTERVAL	N	Amount of current loan request	Varsel:Small R-square value
mortdue	REJECTED	INTERVAL	N	Amount due on existing mortgage	Varsel:Small R-square value
ninq	INPUT	INTERVAL	N	Number of recent credit inquiries	
reason	REJECTED	NOMINAL	C	Home improvement or debt consolidation	Varsel:Small R-square value
value	REJECTED	INTERVAL	N	Value of current property	Varsel:Small R-square value
yoj	INPUT	INTERVAL	N	Years on current job	


SAS Enterprise Miner Report
Node=Variable Selection
R2 Values
R-Square
0.125
0.100
0.075
0.050
0.025
0.000
CJ_job_reason
GJ_job_reason
G_job
clage
clno
delinq
job
loan
mortdue
ninq
reason
value
yoj
Effect
R-Square


SAS Enterprise Miner Report
Node=Variable Selection
Effects in the Model
Sequential R-Square
0.125
0.100
0.075
0.050
0.025
0.000
G_job
clage
delinq
ninq
yoj
Effect
Sequential R-Square

SAS Enterprise Miner Report

Node=Transform Variables
Summary

Node id = Trans
Node label = Transform Variables
Meta path = Ids => Part => Trans
Notes =

Node=Transform Variables
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Transform		EmSampleSize	DEFAULT		MissingValue	USEINSEARCH	
DefaultClassMethod	NONE		GroupCutoff	0.1	0.5	NumberofBins	VARIABLES	
DefaultClassTargetMethod	NONE		GroupMissing	N		Offset	1	
DefaultMethod	NONE		HideVariable	Y		RejectVariable	Y	
DefaultTargetMethod	NONE		MaxOptimalBins	4		SummaryStatistics	Y	
EmRandomSeed	12345		MinOffset	Y		SummaryVariables	TRANSFORMED	
EmSampleMethod	FIRSTN		MissingAsLevel	N		UseMetaTransform	Y	

Node=Transform Variables
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	INTERVAL	10	clage clno debtinc delinq derog loan mortdue ninq value yoj
INPUT	NOMINAL	2	job reason

Node=Transform Variables
Transformations Statistics

Source	Method	Variable Name	Formula	Number of Levels	Non Missing	Missing	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Label
Input	Original	delinq		.	2687	292	0.00000	15.0000	0.46223	1.20527	4.30907	26.7906	Number of delinquent trade lines
Input	Original	derog		.	2627	352	0.00000	10.0000	0.24096	0.81271	5.63730	43.4571	Number of major derogatory reports
Input	Original	yoj		.	2729	250	0.00000	41.0000	8.86836	7.63404	1.02350	0.4802	Years on current job
Output	Formula	INDELINQ	delinq > 0	.	2979	0	0.00000	1.0000	0.19705	0.39783	1.52404	0.3229	
Output	Formula	INDEROG	derog > 0	.	2979	0	0.00000	1.0000	0.11782	0.32245	2.37200	3.6288	
Output	Formula	LogYoj	log(yoj)	.	2520	459	-2.30259	3.7136	1.88465	0.98047	-0.78485	0.5744	

SAS Enterprise Miner Report

Node=Interactive Binning Summary

Node id = BINNING
Node label = Interactive Binning
Meta path = Ids => Part => Trans => BINNING
Notes =

Node=Interactive Binning Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Binning		GiniCutoff	20	20.0	MaxVar	10	
ApplyLevelRule	N		GroupCutoff	0.5		MissingAsLevel	Y	
BinMethod	QUANTILE		GroupMissing	N		NumBins	4	
ClassGroupRare	Y		GrpMsmnt	ORDINAL		Precision	2	
CreateGrouping	N		INTTARGETMETHOD	CUTMEAN		RejectIntTarget	N	
CreateMethod	OVERWRITE		ImportData			USERCUTVALUE	0.20	0.2
Freeze	N		ImportGrouping	N		VarSelMethod	GINI	

Node=Interactive Binning Variable Summary

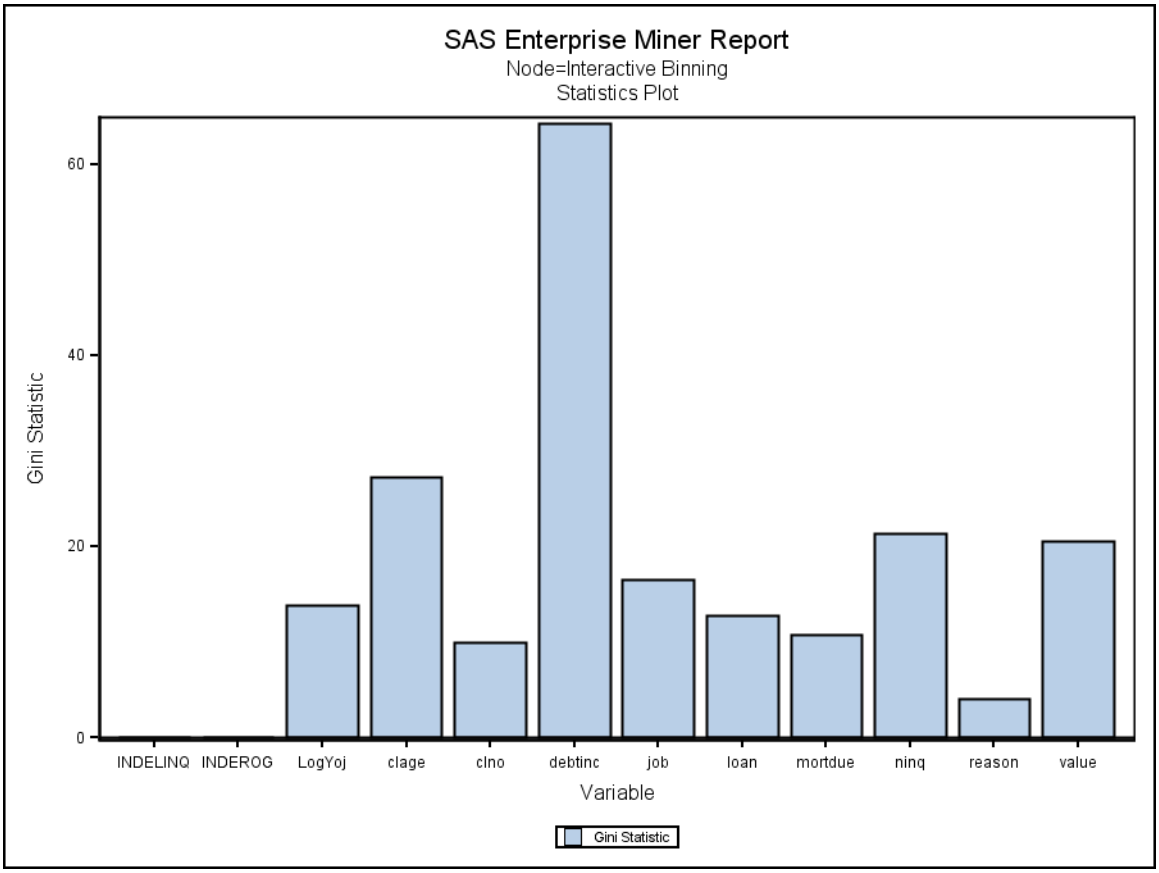
Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	INTERVAL	10	INDELINQ INDEROG LogYoj clage clno debtinc loan mortdue ninq value
INPUT	NOMINAL	2	job reason
ID	INTERVAL	1	_dataobs_

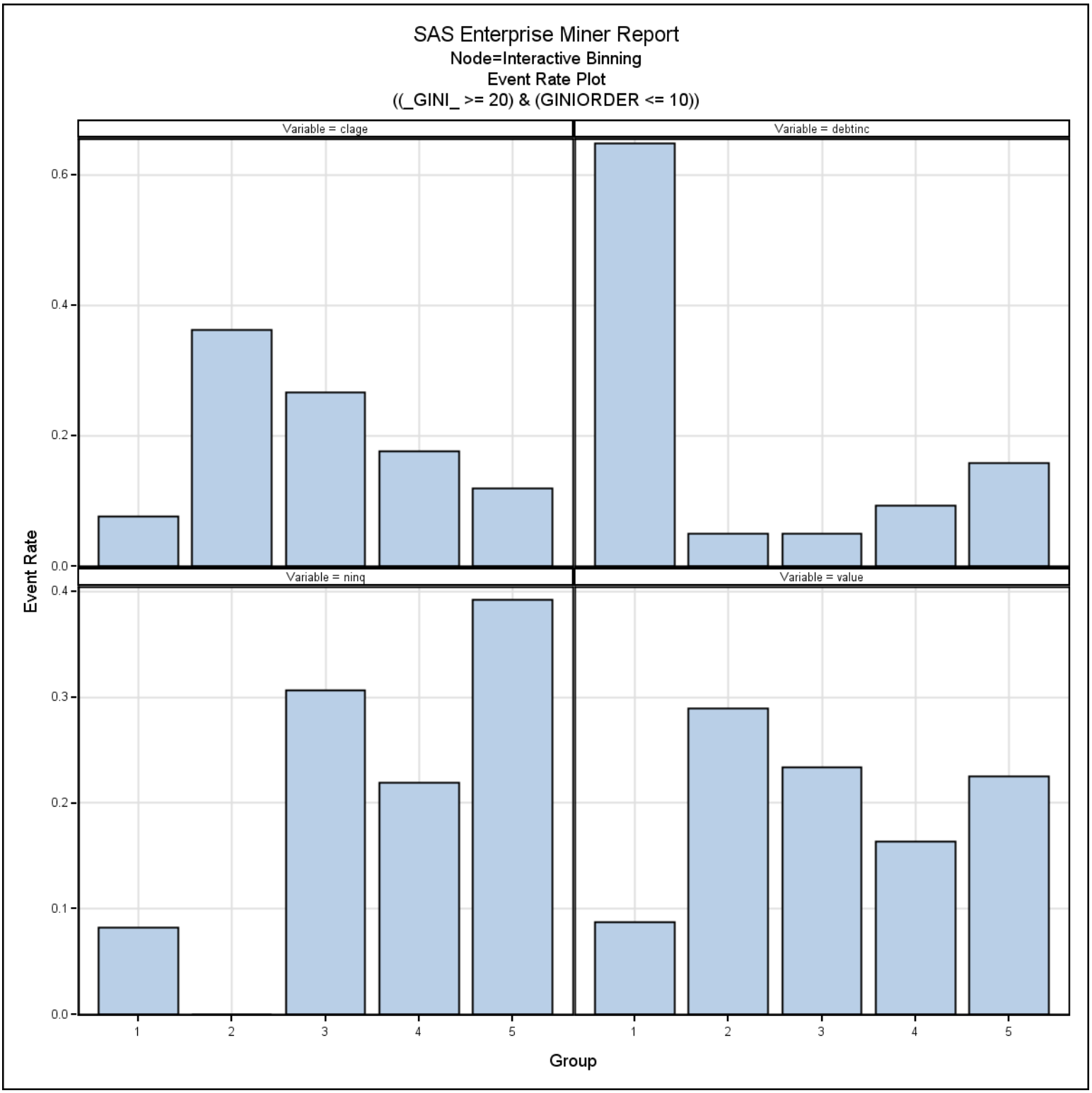
Node=Interactive Binning Created Variables Summary

Role	Level	Frequency Count	Name
INPUT	ORDINAL	4	GRP_clage GRP_debtinc GRP_ninq GRP_value

Node=Interactive Binning Output Variables

Variable	Gini Statistic	Level for Interactive	Calculated Role	New Role	Level	Label	Gini Ordering
debtinc	64.245	INTERVAL	Input	Default	INTERVAL	Debt to income ratio	1
clage	27.279	INTERVAL	Input	Default	INTERVAL	Age of oldest trade line in months	2
ninq	21.393	INTERVAL	Input	Default	INTERVAL	Number of recent credit inquiries	3
value	20.553	INTERVAL	Input	Default	INTERVAL	Value of current property	4
job	16.512	NOMINAL	Rejected	Default	NOMINAL	Prof/exec sales mngr office self other	5
LogYoj	13.885	INTERVAL	Rejected	Default	INTERVAL		6
loan	12.733	INTERVAL	Rejected	Default	INTERVAL	Amount of current loan request	7
mortdue	10.686	INTERVAL	Rejected	Default	INTERVAL	Amount due on existing mortgage	8
clno	9.901	INTERVAL	Rejected	Default	INTERVAL	Number of trade (credit) lines	9
reason	3.975	NOMINAL	Rejected	Default	NOMINAL	Home improvement or debt consolidation	10
INDELINQ	0.000	INTERVAL	Rejected	Default	INTERVAL		11
INDEROG	0.000	INTERVAL	Rejected	Default	INTERVAL		12


SAS Enterprise Miner Report
Node=Interactive Binning
Statistics Plot
Gini Statistic
60
40
20
0
INDELINQ
INDEROG
LogYoj
clage
clno
debtinc
job
loan
mortdue
ninq
reason
value
Variable
Gini Statistic


SAS Enterprise Miner Report
Node=Interactive Binning
Event Rate Plot
((_GINI_ >= 20) & (GINIORDER <= 10))
Variable = clage
Variable = debtinc
Variable = ninq
Variable = value
Event Rate
0.0
0.1
0.2
0.3
0.4
0.6
1
2
3
4
5
Group

SAS Enterprise Miner Report
Node=Interactive Binning
Event Rate Plot
((_GINI_ >= 20) & (GINIORDER <= 10))

Variable	Group Values	Group	Role	Event Rate
clage	Missing	1	Input	0.07576
clage	clage< 116.22	2	Input	0.36195
clage	116.22<= clage< 175.17	3	Input	0.26599
clage	175.17<= clage< 230.94	4	Input	0.17677
clage	230.94<= clage	5	Input	0.11953
debtinc	Missing	1	Input	0.64815
debtinc	debtinc< 28.87	2	Input	0.05051
debtinc	28.87<= debtinc< 34.73	3	Input	0.05051
debtinc	34.73<= debtinc< 39.21	4	Input	0.09259
debtinc	39.21<= debtinc	5	Input	0.15825
ninq	Missing	1	Input	0.08249
ninq	ninq< 0	2	Input	0.00000
ninq	0<= ninq< 1	3	Input	0.30640
ninq	1<= ninq< 2	4	Input	0.21886
ninq	2<= ninq	5	Input	0.39226
value	Missing	1	Input	0.08754
value	value< 66345	2	Input	0.28956
value	66345<= value< 89107	3	Input	0.23401
value	89107<= value< 121714	4	Input	0.16330
value	121714<= value	5	Input	0.22559

SAS Enterprise Miner Report

Node=Impute
Summary

Node id = Impt
Node label = Impute
Meta path = Ids => Part => Impt
Notes =

Node=Impute
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Impute		IndicatorRole	REJECTED		MinCatSize	5	
ABWTuning	9		IndicatorSource	IMPUTED		Normalize	Y	
AHUBERTuning	1.5		LeafSize	5		Nrules	5	
AWAVETuning	6.2831853072		MaxPctMissing	50		Nsurrs	2	
DefaultChar			Maxbranch	2		RandomSeed	12345	
DefaultNum	.		Maxdepth	6		ReplaceVariable	N	
DistributionMissing	N		MethodClass	COUNT		SpacingProportion	90	
HideVariable	Y		MethodInterval	MEAN		Splitsize	.	
ImputeNoMissing	N		MethodTargetClass	NONE		ValidateTestMissing	N	
Indicator	NONE		MethodTargetInterval	NONE				

Node=Impute
Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	10	clage clno debtinc delinq derog loan mortdue ninq value yoj
INPUT	NOMINAL	2	job reason

Node=Impute
Imputation Summary

Variable Name	Impute Method	Imputed Variable	Impute Value	Role	Measurement Level	Label	Number of Missing for TRAIN
clage	MEAN	IMP_clage	181.15309929	INPUT	INTERVAL	Age of oldest trade line in months	159
clno	MEAN	IMP_clno	21.277078966	INPUT	INTERVAL	Number of trade (credit) lines	117
debtinc	MEAN	IMP_debtinc	33.786953046	INPUT	INTERVAL	Debt to income ratio	615
delinq	MEAN	IMP_delinq	0.4622255303	INPUT	INTERVAL	Number of delinquent trade lines	292
derog	MEAN	IMP_derog	0.2409592691	INPUT	INTERVAL	Number of major derogatory reports	352
job	COUNT	IMP_job	Other	INPUT	NOMINAL	Prof/exec sales mngr office self other	141
mortdue	MEAN	IMP_mortdue	73574.90271	INPUT	INTERVAL	Amount due on existing mortgage	252
ninq	MEAN	IMP_ninq	1.1569852941	INPUT	INTERVAL	Number of recent credit inquiries	259
reason	COUNT	IMP_reason	DebtCon	INPUT	NOMINAL	Home improvement or debt consolidation	131
value	MEAN	IMP_value	102480.61861	INPUT	INTERVAL	Value of current property	54
yoj	MEAN	IMP_yoj	8.868358373	INPUT	INTERVAL	Years on current job	250

SAS Enterprise Miner Report

Node=Neural Network
Summary

Node id = Neural
Node label = Neural Network
Meta path = Ids => Part => Varsel => Neural
Notes =

Node=Neural Network
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	5	3	Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Neural Network
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	INTERVAL	4	clage delinq ninq yoj
INPUT	NOMINAL	1	G_job

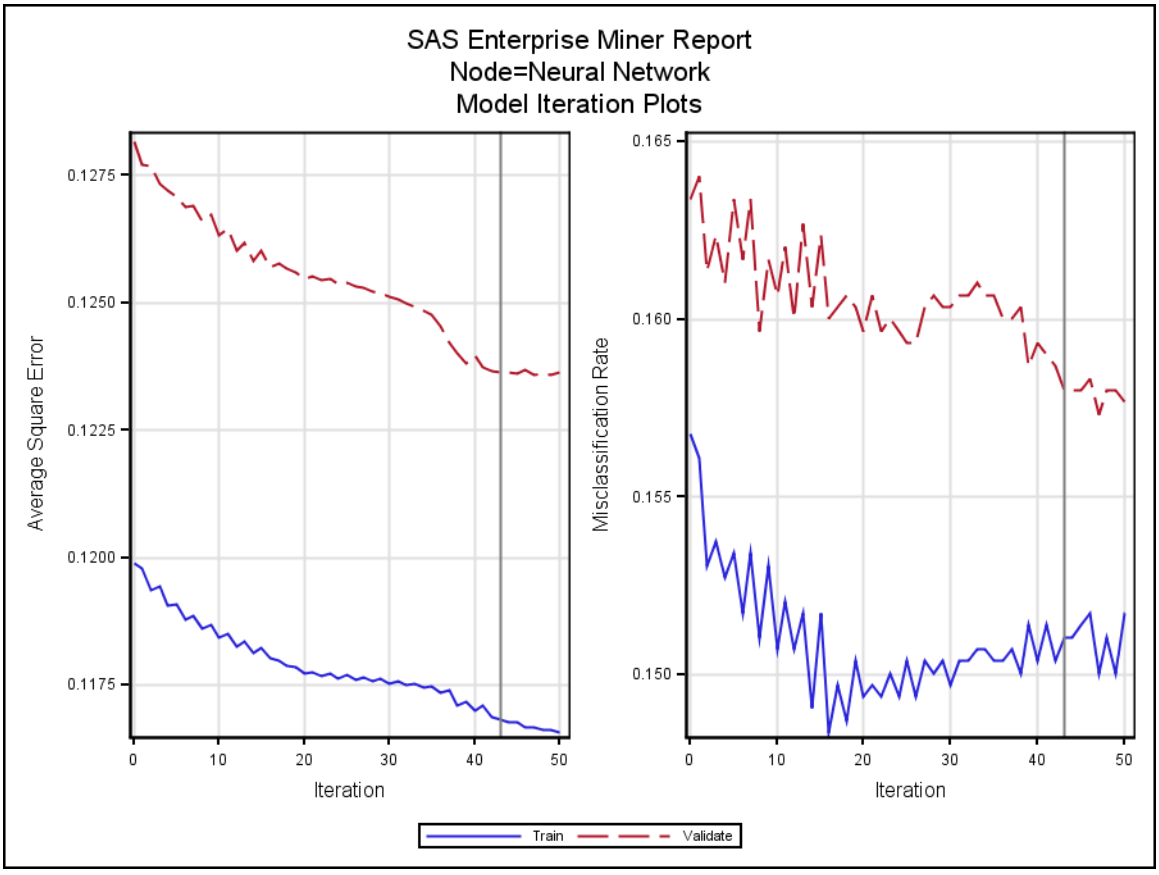
Node=Neural Network
Model Fit Statistics

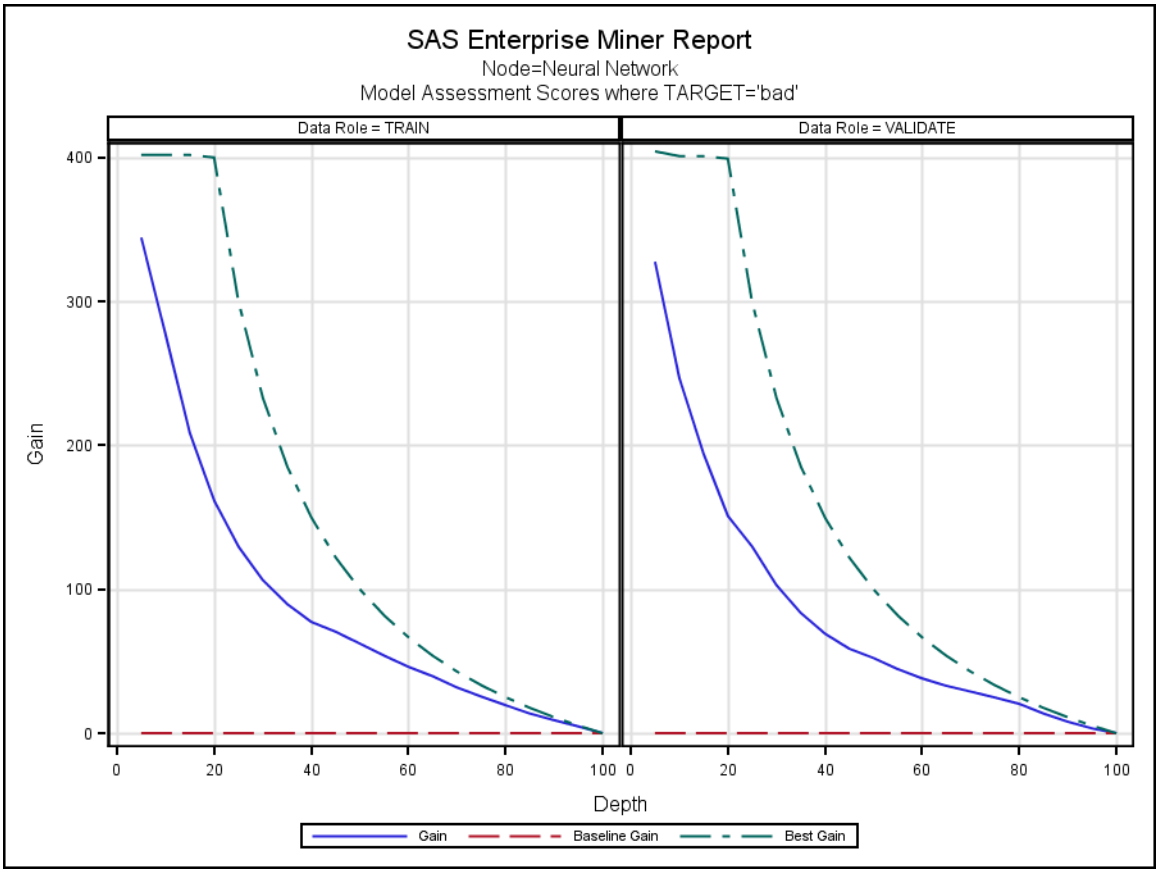
Target=bad Target Label=Default or seriously delinquent

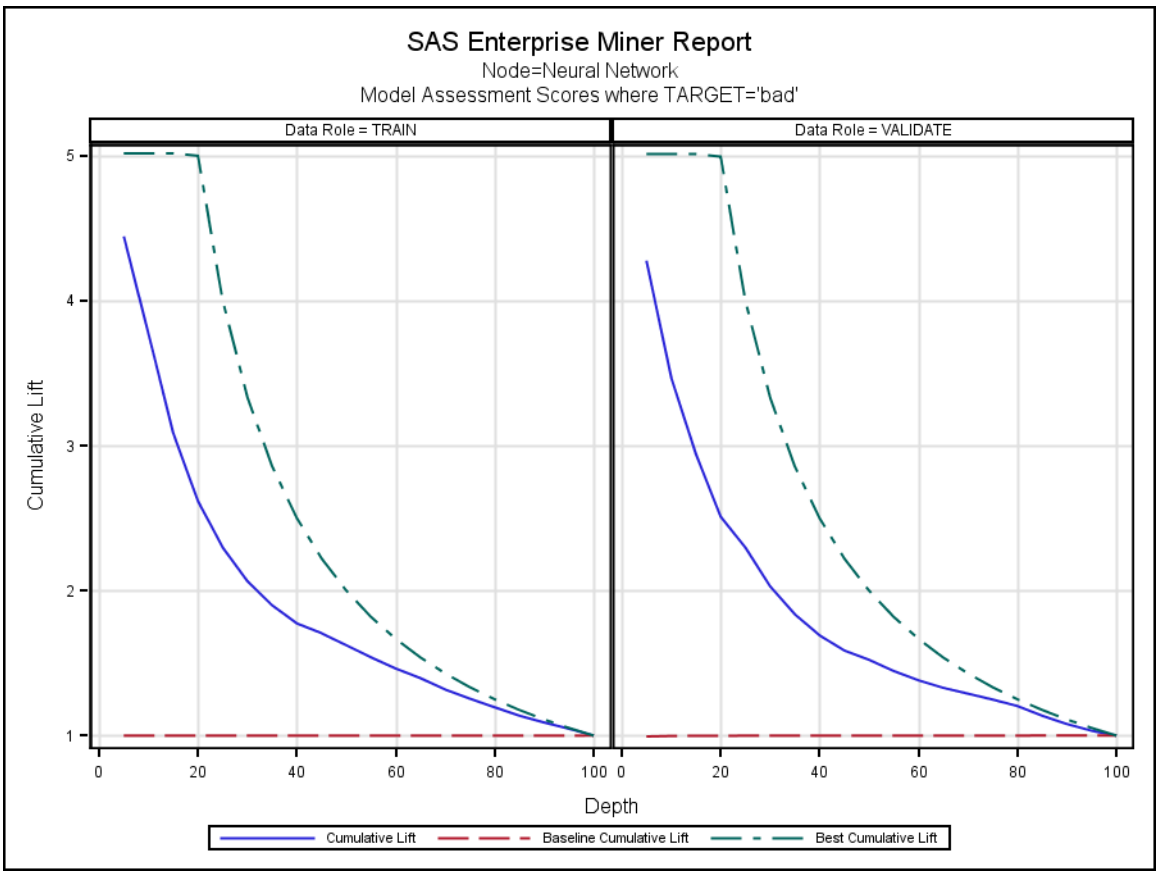
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2928.00	.	.
Model Degrees of Freedom	51.00	.	.
Number of Estimated Weights	51.00	.	.
Akaike's Information Criterion	2377.11	.	.
Schwarz's Bayesian Criterion	2683.08	.	.
Average Squared Error	0.12	0.12	.
Maximum Absolute Error	0.99	0.99	.
Divisor for ASE	5958.00	5962.00	.

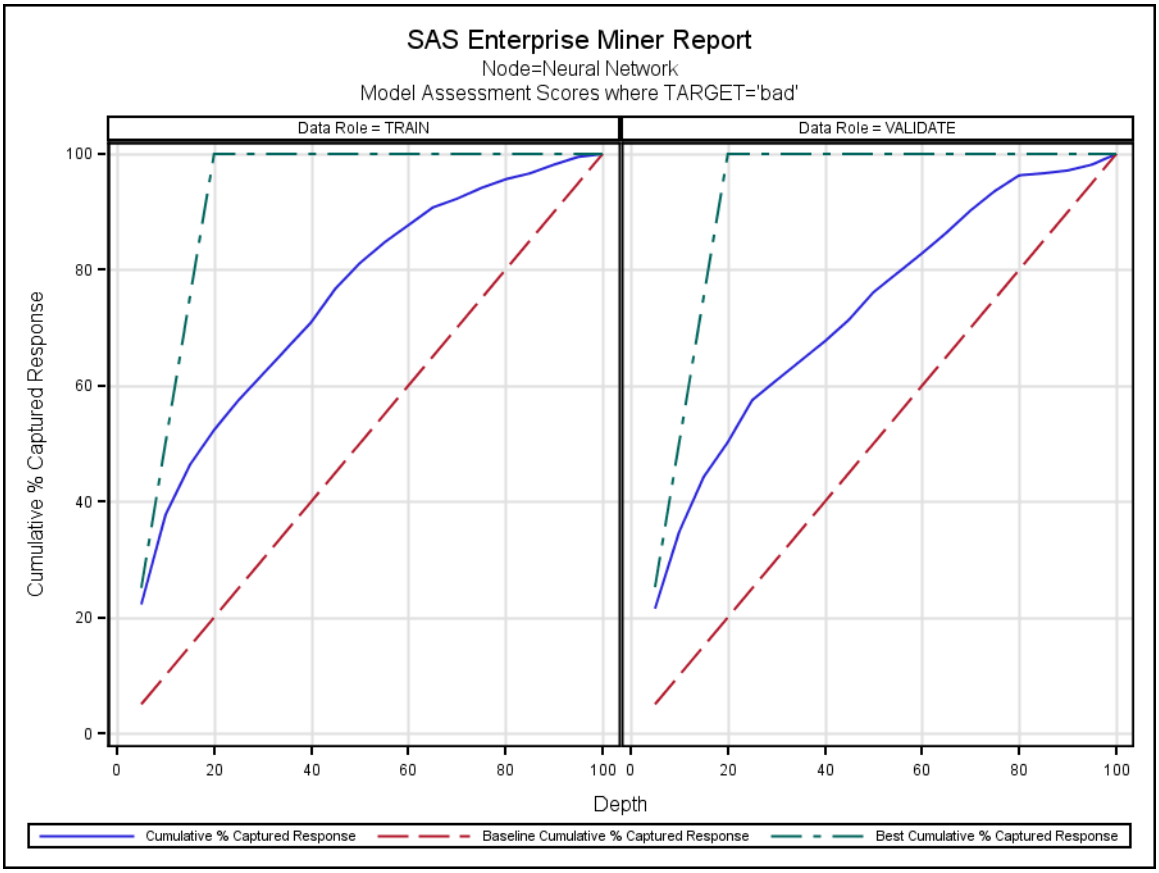
Target=bad Target Label=Default or seriously delinquent

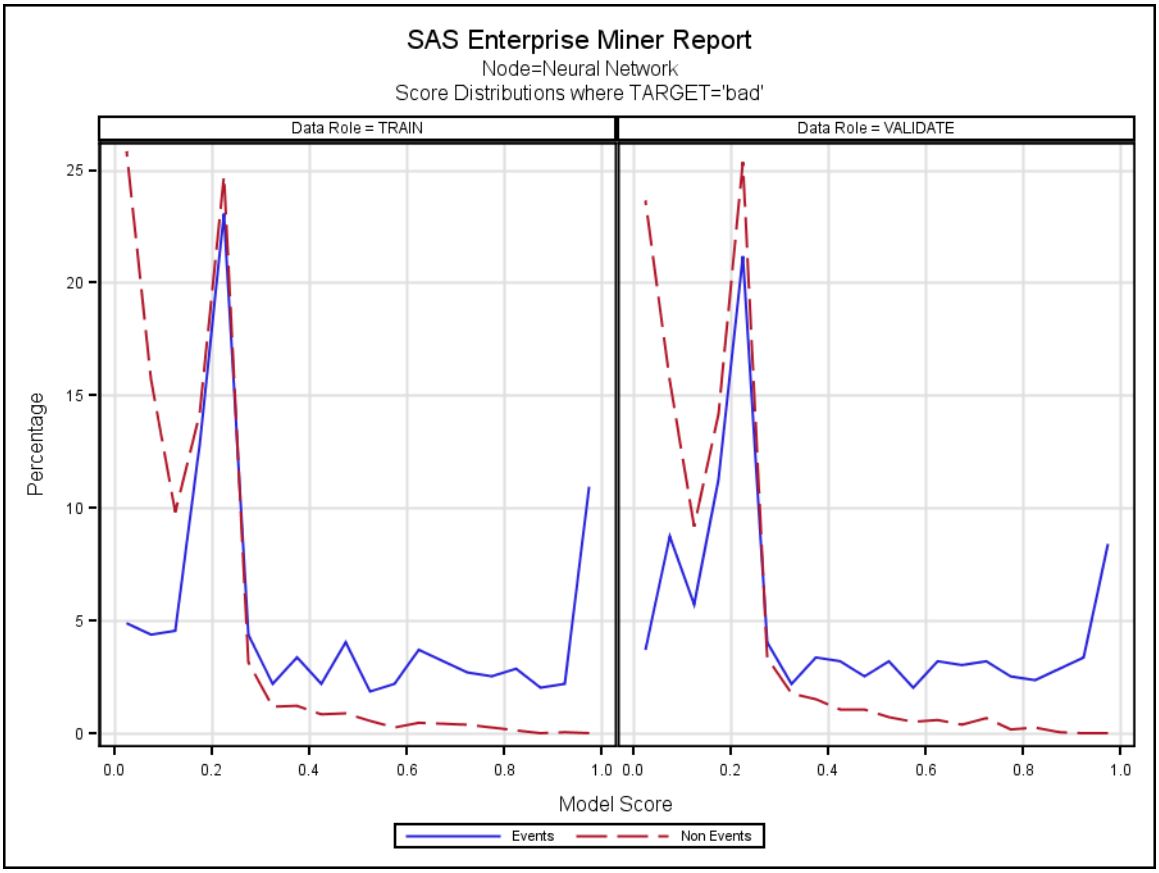
Label of Statistic	Train	Validation	Test
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.34	0.35	.
Sum of Squared Errors	696.04	737.10	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.12	.	.
Mean Squared Error	0.12	0.12	.
Root Final Prediction Error	0.35	.	.
Root Mean Squared Error	0.34	0.35	.
Average Error Function	0.38	0.40	.
Error Function	2275.11	2403.69	.
Misclassification Rate	0.15	0.16	.
Number of Wrong Classifications	450.00	471.00	.

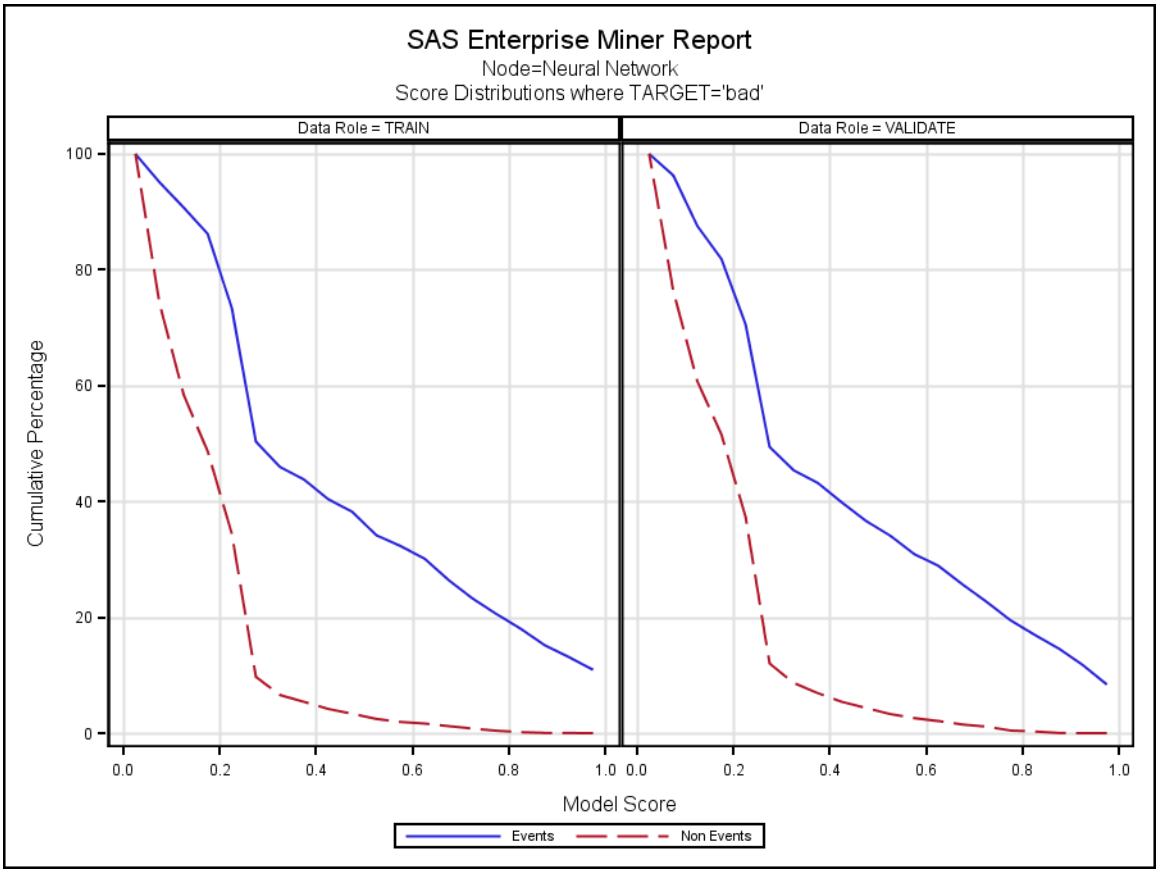



SAS Enterprise Miner Report
Node=Neural Network
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=Neural Network
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=Neural Network
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=Neural Network
Score Distributions where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events



Node=Neural Network
Score Distributions

Target Variable=bad Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	65	10.9428	0.0000	10.943	0.000
0.90-0.95	13	2.1886	0.0419	13.131	0.042
0.85-0.90	12	2.0202	0.0000	15.152	0.042
0.80-0.85	17	2.8620	0.1258	18.013	0.168
0.75-0.80	15	2.5253	0.2516	20.539	0.419
0.70-0.75	16	2.6936	0.3774	23.232	0.797
0.65-0.70	19	3.1987	0.4193	26.431	1.216
0.60-0.65	22	3.7037	0.4612	30.135	1.677
0.55-0.60	13	2.1886	0.2516	32.323	1.929
0.50-0.55	11	1.8519	0.5451	34.175	2.474
0.45-0.50	24	4.0404	0.8805	38.215	3.354
0.40-0.45	13	2.1886	0.8386	40.404	4.193
0.35-0.40	20	3.3670	1.2159	43.771	5.409
0.30-0.35	13	2.1886	1.1740	45.960	6.583
0.25-0.30	26	4.3771	3.1447	50.337	9.727
0.20-0.25	137	23.0640	24.7379	73.401	34.465
0.15-0.20	76	12.7946	14.1719	86.195	48.637
0.10-0.15	27	4.5455	9.8113	90.741	58.449
0.05-0.10	26	4.3771	15.7233	95.118	74.172
0.00-0.05	29	4.8822	25.8281	100.000	100.000

Target Variable=bad Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	50	8.4034	0.0000	8.403	0.000
0.90-0.95	20	3.3613	0.0000	11.765	0.000
0.85-0.90	17	2.8571	0.0419	14.622	0.042
0.80-0.85	14	2.3529	0.2515	16.975	0.293
0.75-0.80	15	2.5210	0.1676	19.496	0.461
0.70-0.75	19	3.1933	0.6706	22.689	1.132
0.65-0.70	18	3.0252	0.3772	25.714	1.509
0.60-0.65	19	3.1933	0.5868	28.908	2.096
0.55-0.60	12	2.0168	0.5029	30.924	2.598
0.50-0.55	19	3.1933	0.7125	34.118	3.311
0.45-0.50	15	2.5210	1.0478	36.639	4.359
0.40-0.45	19	3.1933	1.0478	39.832	5.407
0.35-0.40	20	3.3613	1.5088	43.193	6.915
0.30-0.35	13	2.1849	1.7603	45.378	8.676
0.25-0.30	24	4.0336	3.3529	49.412	12.028
0.20-0.25	126	21.1765	25.3562	70.588	37.385
0.15-0.20	67	11.2605	14.1660	81.849	51.551
0.10-0.15	34	5.7143	9.1785	87.563	60.729
0.05-0.10	52	8.7395	15.6329	96.303	76.362
0.00-0.05	22	3.6975	23.6379	100.000	100.000

SAS Enterprise Miner Report

Node=Neural Network (2)
Summary

Node id = Neural2
Node label = Neural Network (2)
Meta path = Ids => Part => Varsel => Neural2
Notes =

Node=Neural Network (2)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	1	3	Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Neural Network (2)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	INTERVAL	4	clage delinq ninq yoj
INPUT	NOMINAL	1	G_job

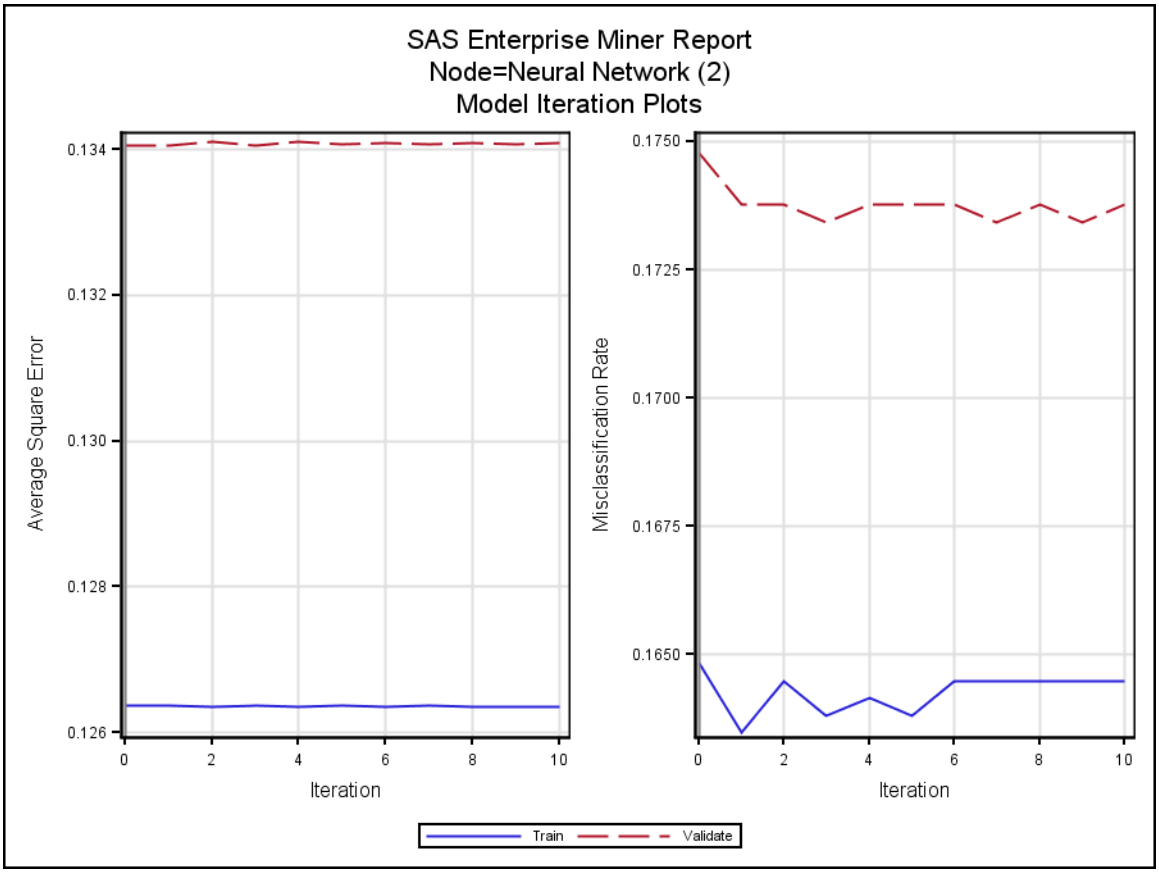
Node=Neural Network (2)
Model Fit Statistics

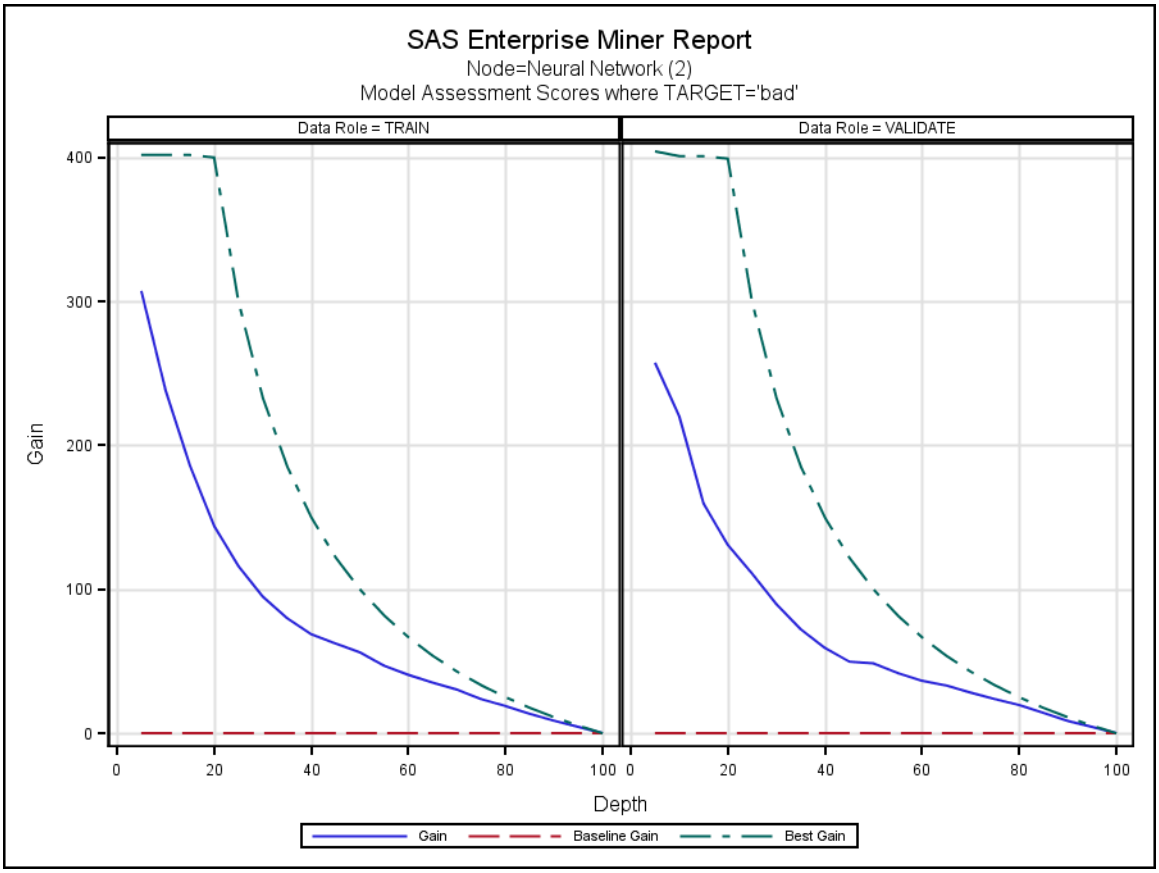
Target=bad Target Label=Default or seriously delinquent

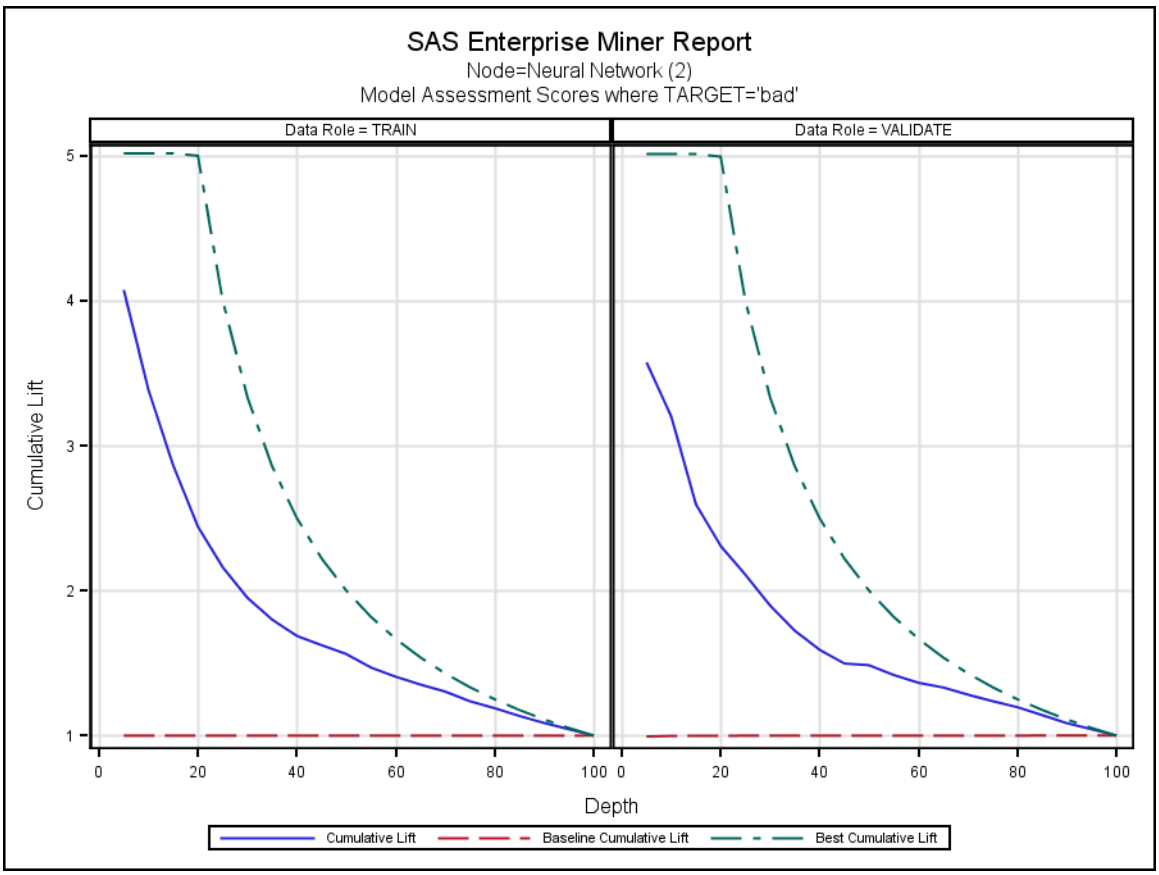
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2968.00	.	.
Model Degrees of Freedom	11.00	.	.
Number of Estimated Weights	11.00	.	.
Akaike's Information Criterion	2462.10	.	.
Schwarz's Bayesian Criterion	2528.09	.	.
Average Squared Error	0.13	0.13	.
Maximum Absolute Error	0.98	0.97	.
Divisor for ASE	5958.00	5962.00	.

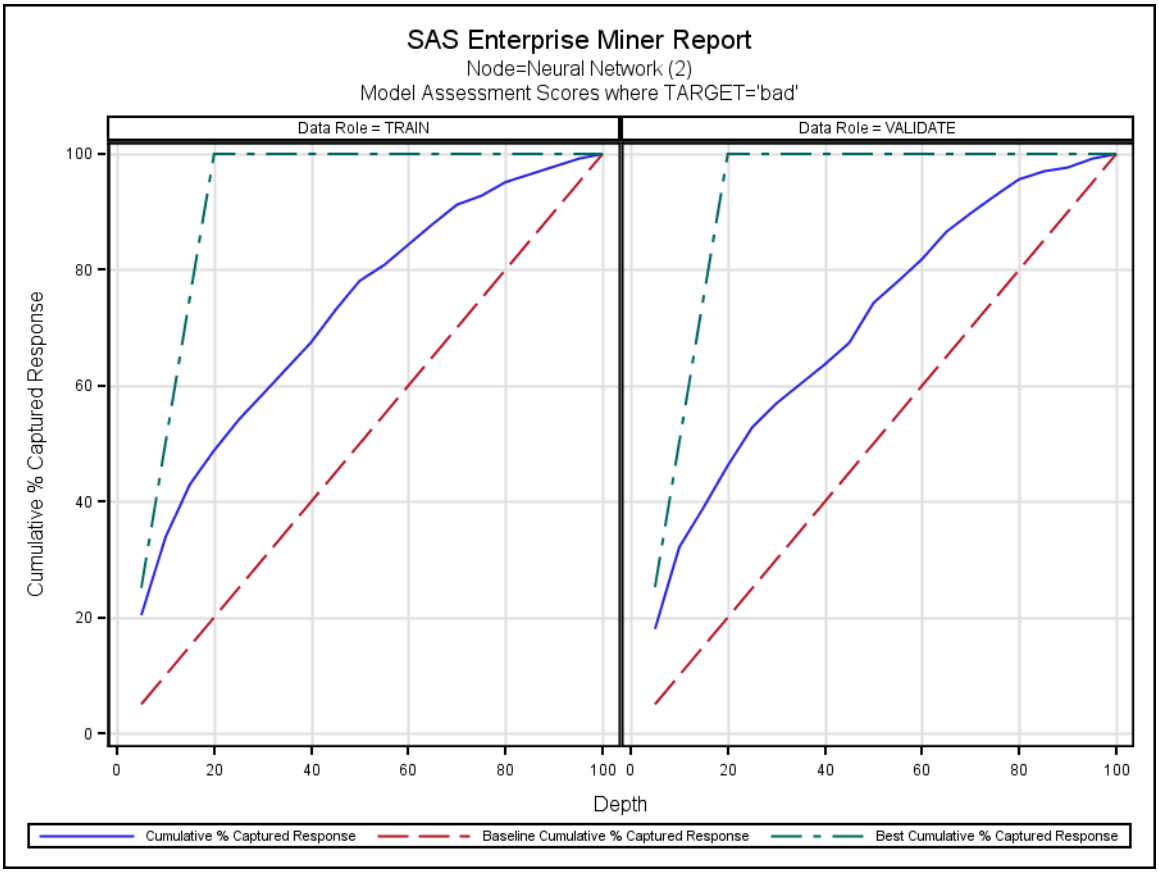
Target=bad Target Label=Default or seriously delinquent

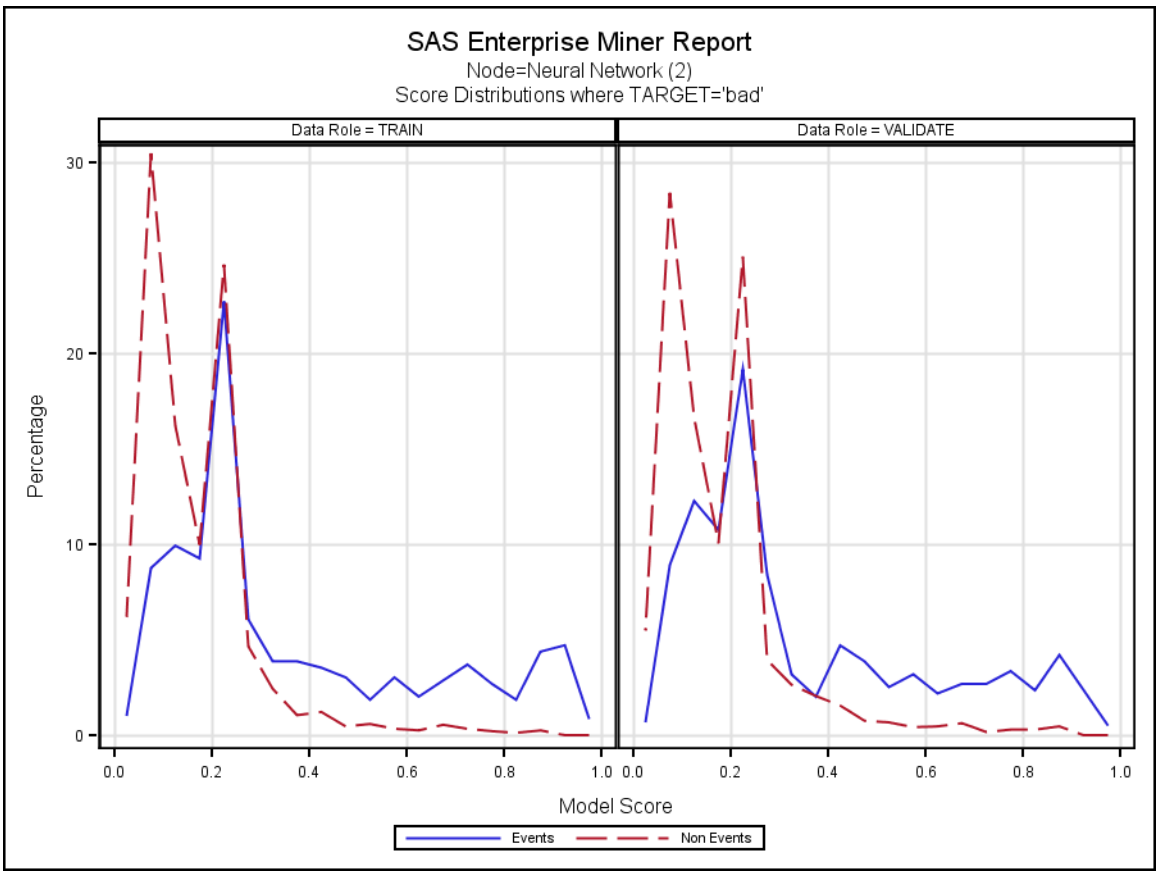
Label of Statistic	Train	Validation	Test
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.36	0.37	.
Sum of Squared Errors	752.87	799.24	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.13	.	.
Mean Squared Error	0.13	0.13	.
Root Final Prediction Error	0.36	.	.
Root Mean Squared Error	0.36	0.37	.
Average Error Function	0.41	0.43	.
Error Function	2440.10	2557.98	.
Misclassification Rate	0.16	0.17	.
Number of Wrong Classifications	491.00	521.00	.



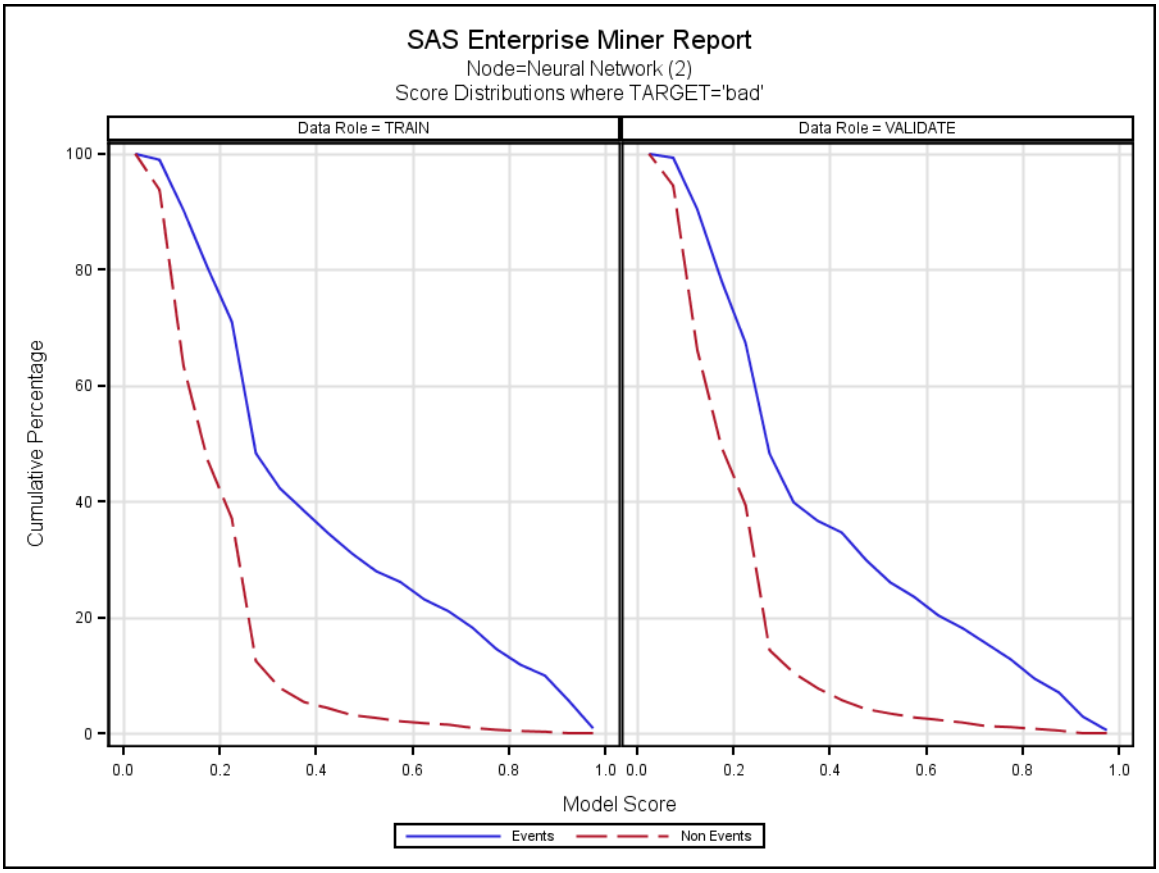

SAS Enterprise Miner Report
Node=Neural Network (2)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=Neural Network (2)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=Neural Network (2)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=Neural Network (2)
Score Distributions where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

SAS Enterprise Miner Report
Node=Neural Network (2)
Score Distributions where TARGET='bad'



Node=Neural Network (2)
Score Distributions

Target Variable=bad Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	5	0.8418	0.0000	0.842	0.000
0.90-0.95	28	4.7138	0.0000	5.556	0.000
0.85-0.90	26	4.3771	0.2516	9.933	0.252
0.80-0.85	11	1.8519	0.1258	11.785	0.377
0.75-0.80	16	2.6936	0.2096	14.478	0.587
0.70-0.75	22	3.7037	0.3354	18.182	0.922
0.65-0.70	17	2.8620	0.5451	21.044	1.468
0.60-0.65	12	2.0202	0.2516	23.064	1.719
0.55-0.60	18	3.0303	0.3354	26.094	2.055
0.50-0.55	11	1.8519	0.5870	27.946	2.642
0.45-0.50	18	3.0303	0.4612	30.976	3.103
0.40-0.45	21	3.5354	1.2159	34.512	4.319
0.35-0.40	23	3.8721	1.0482	38.384	5.367
0.30-0.35	23	3.8721	2.4319	42.256	7.799
0.25-0.30	36	6.0606	4.6541	48.316	12.453
0.20-0.25	135	22.7273	24.6541	71.044	37.107
0.15-0.20	55	9.2593	9.9790	80.303	47.086
0.10-0.15	59	9.9327	16.2264	90.236	63.312
0.05-0.10	52	8.7542	30.4822	98.990	93.795
0.00-0.05	6	1.0101	6.2055	100.000	100.000

Target Variable=bad Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	3	0.5042	0.0000	0.504	0.000
0.90-0.95	14	2.3529	0.0000	2.857	0.000
0.85-0.90	25	4.2017	0.4610	7.059	0.461
0.80-0.85	14	2.3529	0.2934	9.412	0.754
0.75-0.80	20	3.3613	0.2934	12.773	1.048
0.70-0.75	16	2.6891	0.1676	15.462	1.215
0.65-0.70	16	2.6891	0.6287	18.151	1.844
0.60-0.65	13	2.1849	0.4610	20.336	2.305
0.55-0.60	19	3.1933	0.4191	23.529	2.724
0.50-0.55	15	2.5210	0.6706	26.050	3.395
0.45-0.50	23	3.8655	0.7544	29.916	4.149
0.40-0.45	28	4.7059	1.5507	34.622	5.700
0.35-0.40	12	2.0168	2.0536	36.639	7.754
0.30-0.35	19	3.1933	2.6404	39.832	10.394
0.25-0.30	50	8.4034	3.9396	48.235	14.334
0.20-0.25	114	19.1597	25.0629	67.395	39.396
0.15-0.20	64	10.7563	10.0587	78.151	49.455
0.10-0.15	73	12.2689	16.6387	90.420	66.094
0.05-0.10	53	8.9076	28.4158	99.328	94.510
0.00-0.05	4	0.6723	5.4904	100.000	100.000

SAS Enterprise Miner Report

Node=Neural Network (3)
Summary

Node id = Neural3
Node label = Neural Network (3)
Meta path = Ids => Part => Varsel => Neural3
Notes =

Node=Neural Network (3)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	3		Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Neural Network (3)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	INTERVAL	4	clage delinq ninq yoj
INPUT	NOMINAL	1	G_job

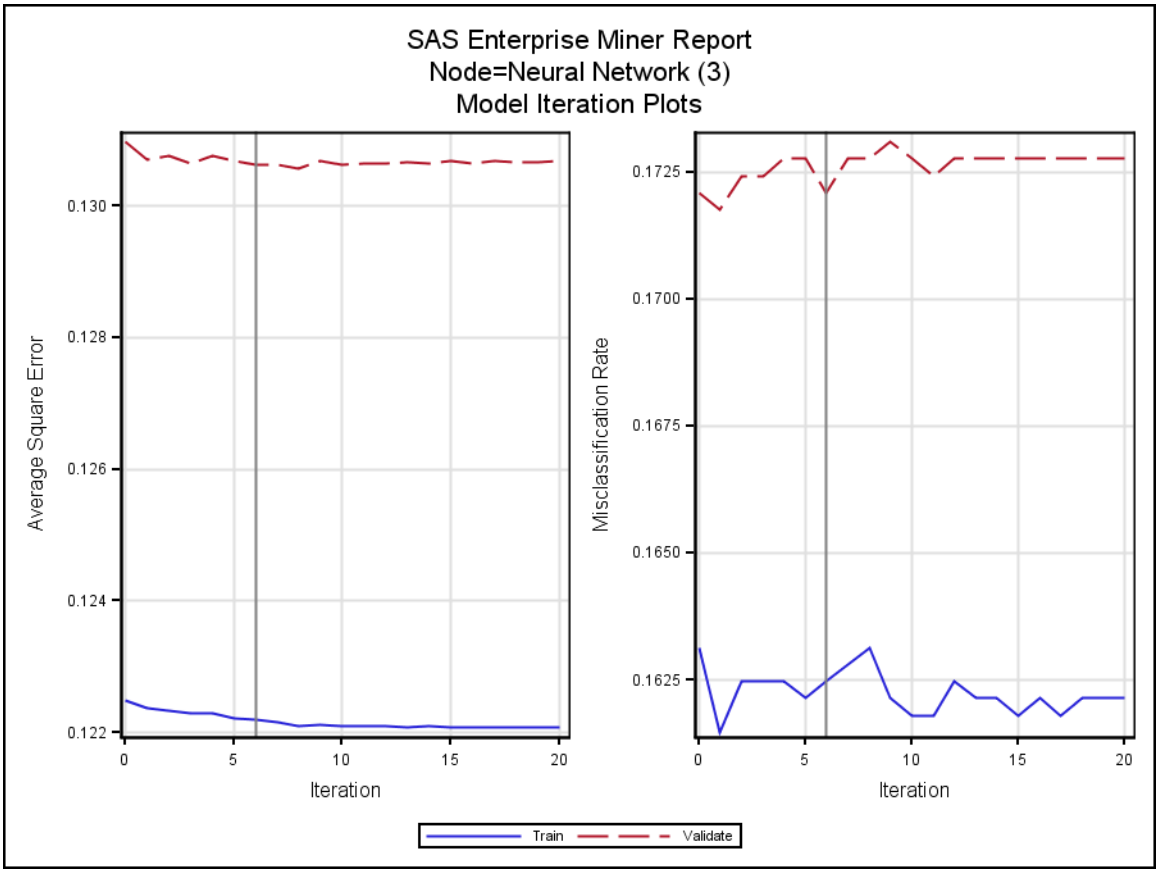
Node=Neural Network (3)
Model Fit Statistics

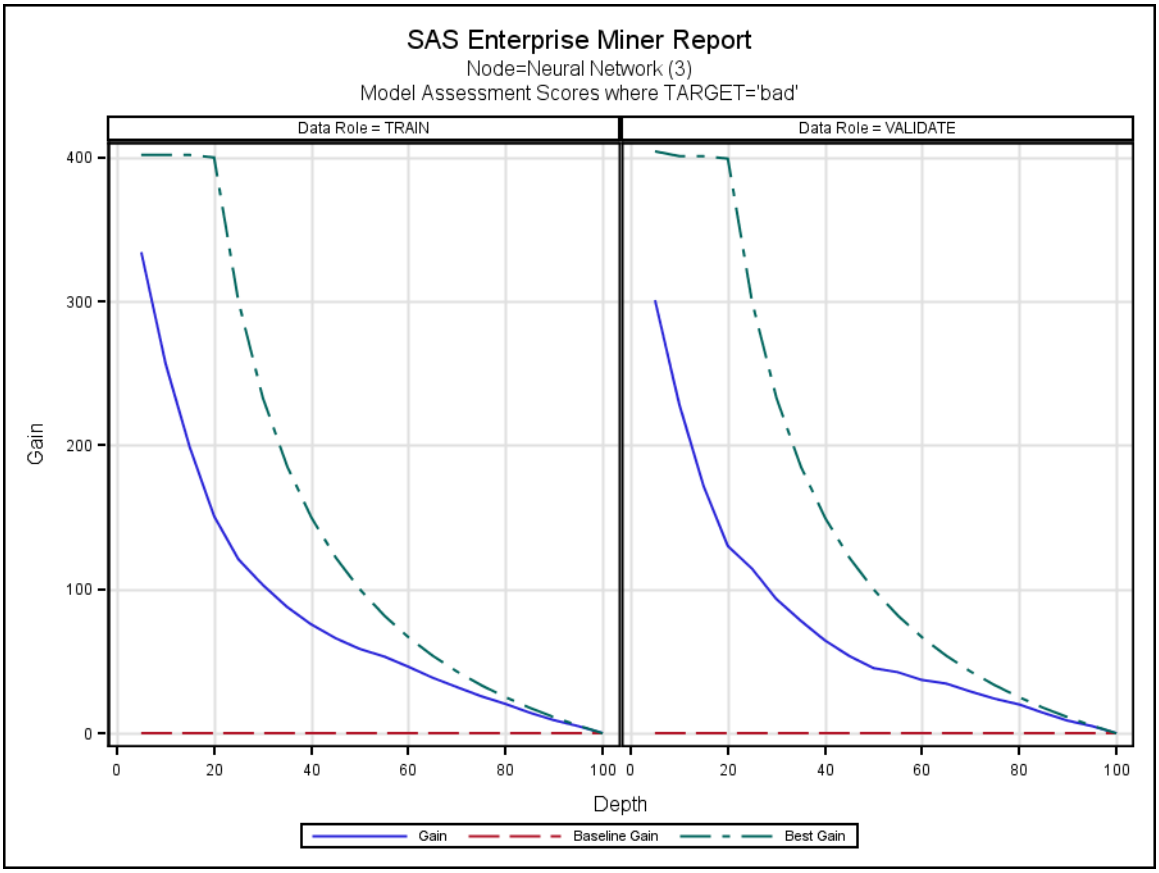
Target=bad Target Label=Default or seriously delinquent

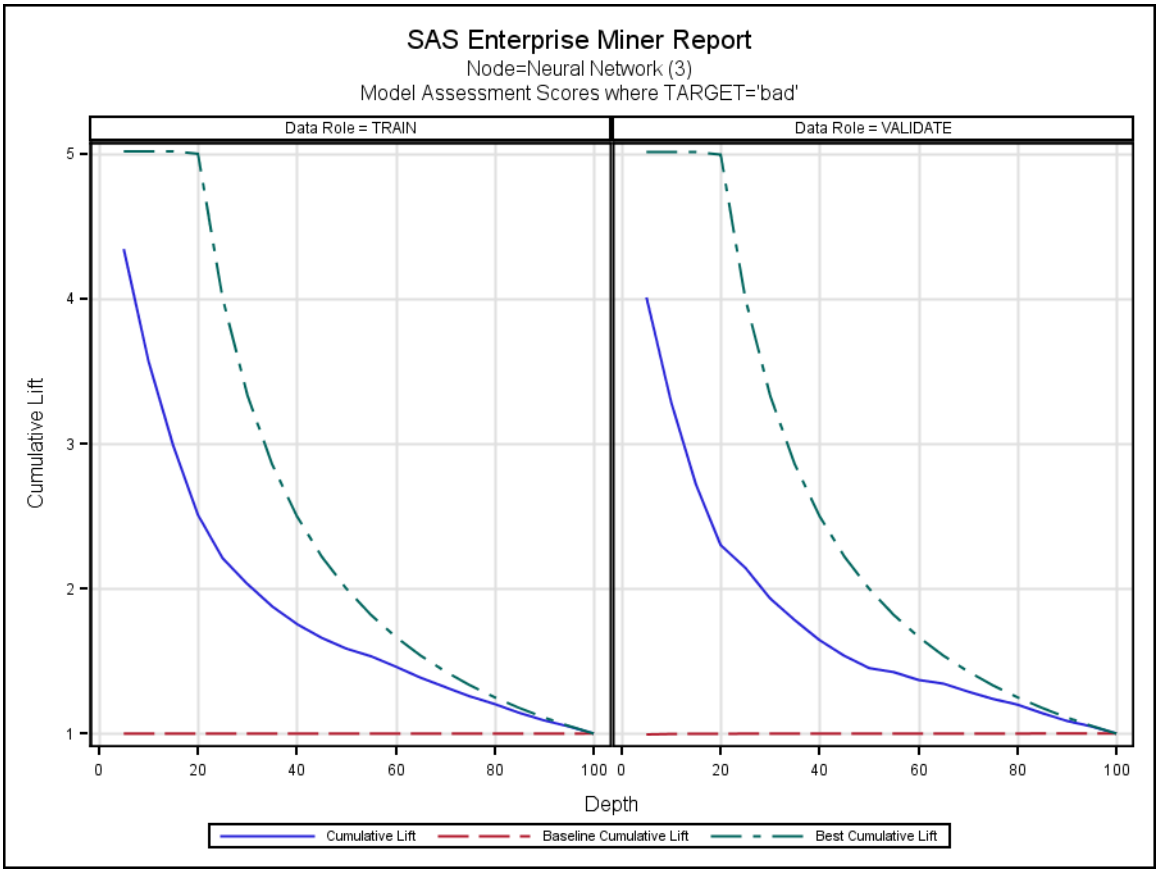
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2948.00	.	.
Model Degrees of Freedom	31.00	.	.
Number of Estimated Weights	31.00	.	.
Akaike's Information Criterion	2417.12	.	.
Schwarz's Bayesian Criterion	2603.10	.	.
Average Squared Error	0.12	0.13	.
Maximum Absolute Error	0.99	0.98	.
Divisor for ASE	5958.00	5962.00	.

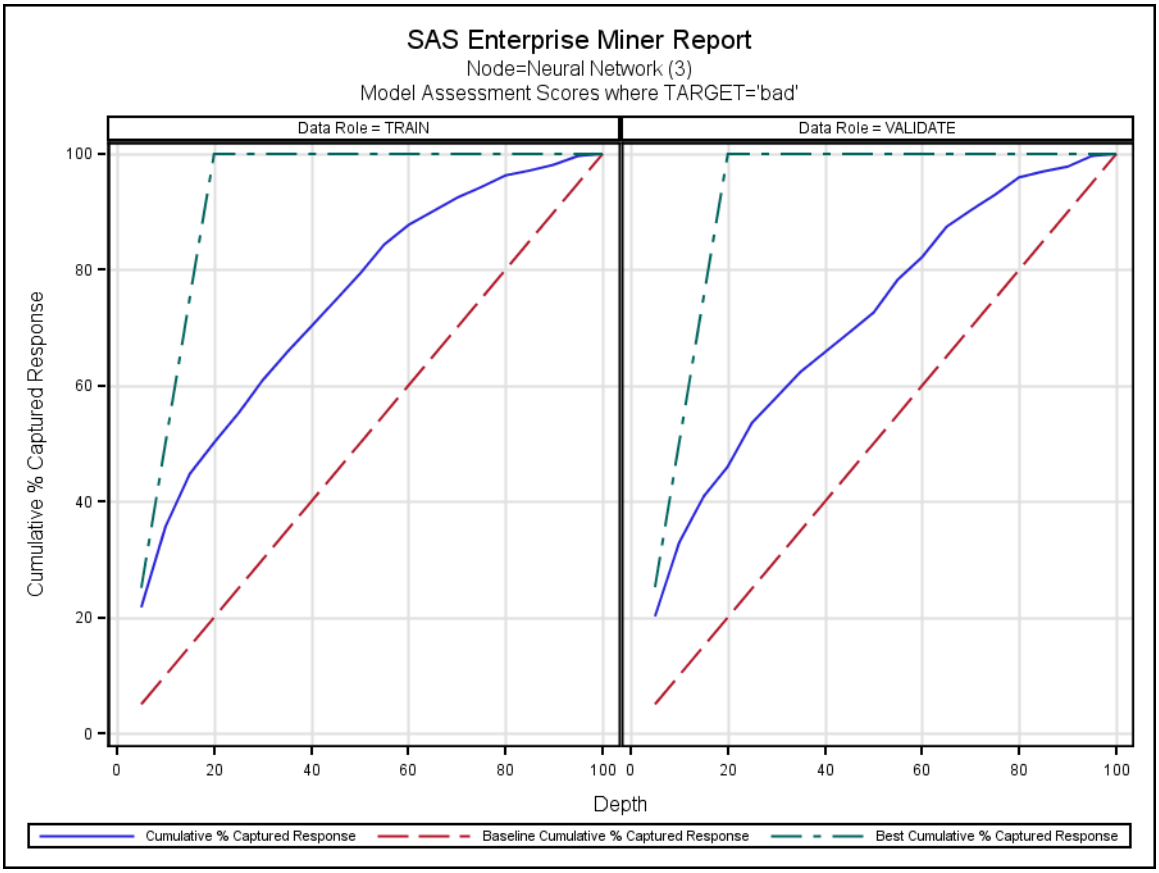
Target=bad Target Label=Default or seriously delinquent

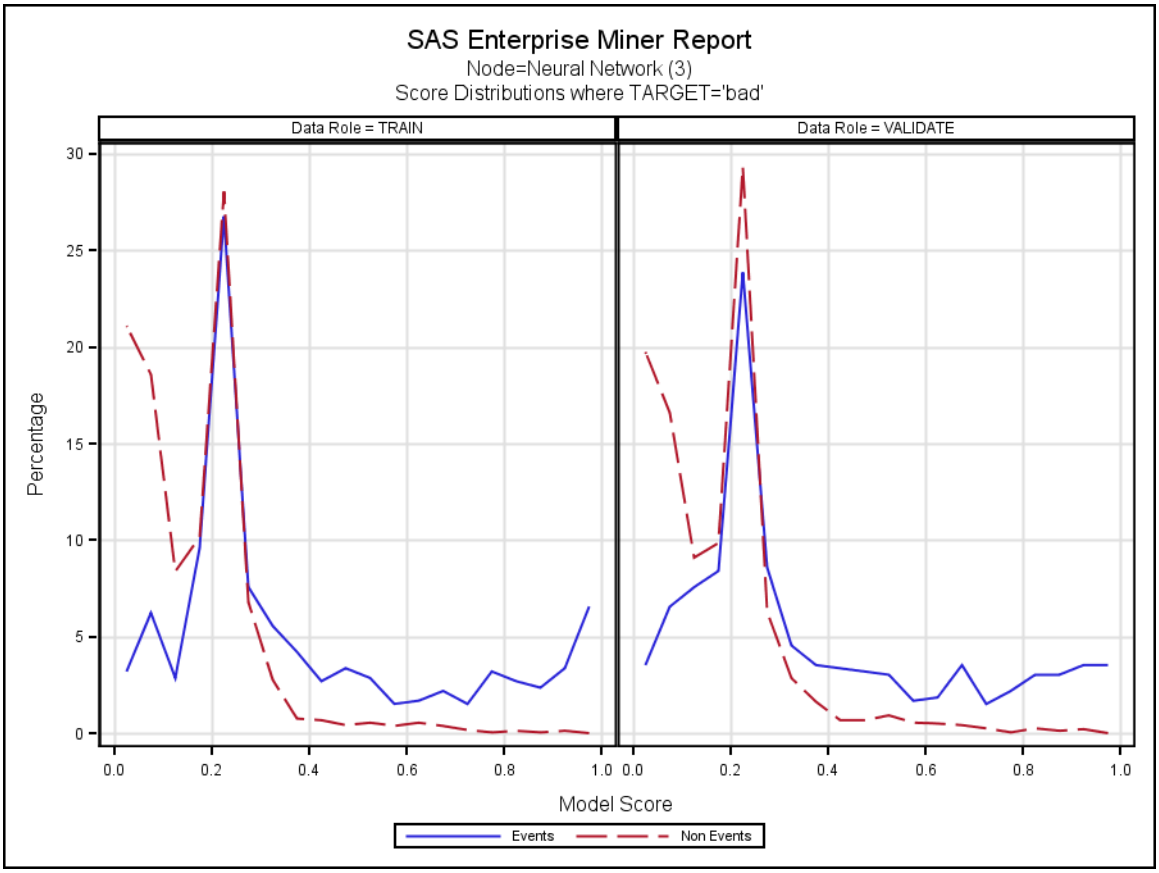
Label of Statistic	Train	Validation	Test
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.35	0.36	.
Sum of Squared Errors	728.03	778.79	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.12	.	.
Mean Squared Error	0.12	0.13	.
Root Final Prediction Error	0.35	.	.
Root Mean Squared Error	0.35	0.36	.
Average Error Function	0.40	0.42	.
Error Function	2355.12	2503.29	.
Misclassification Rate	0.16	0.17	.
Number of Wrong Classifications	484.00	513.00	.

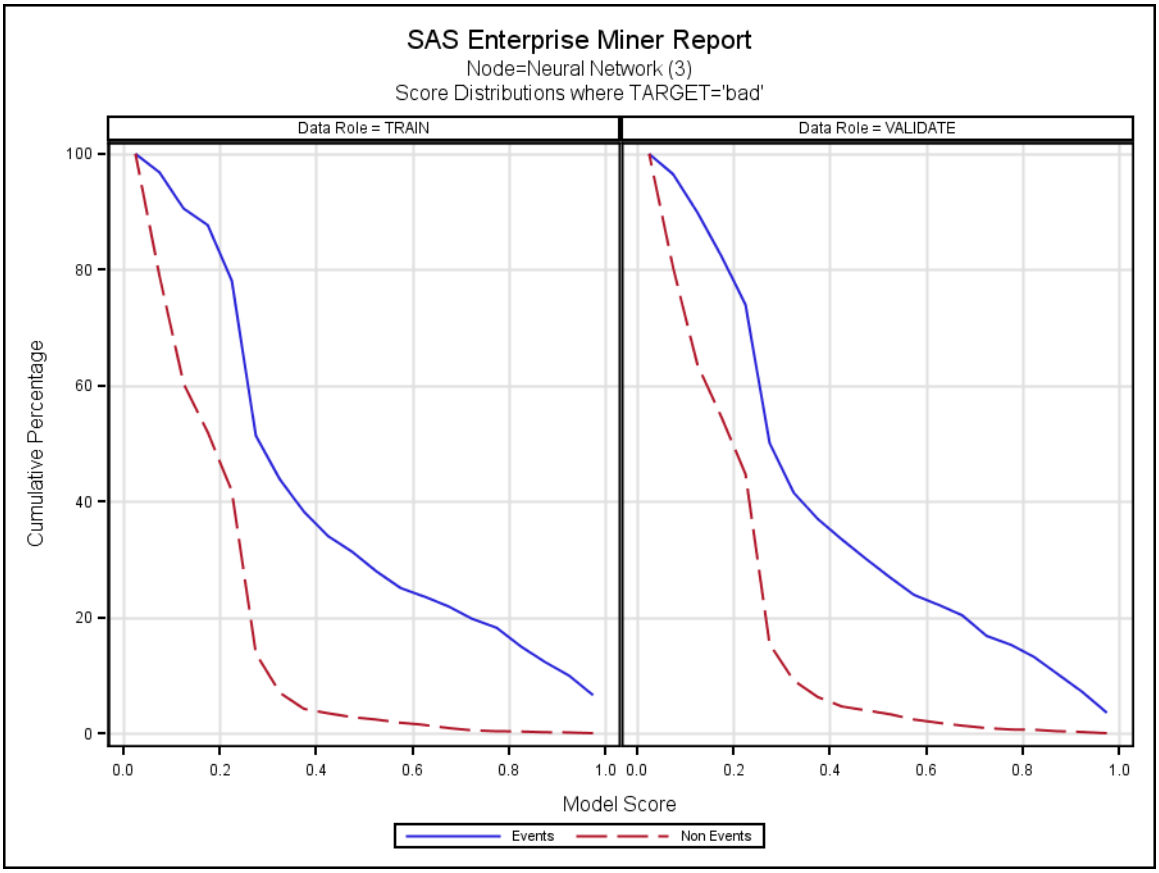



SAS Enterprise Miner Report
Node=Neural Network (3)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=Neural Network (3)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=Neural Network (3)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=Neural Network (3)
Score Distributions where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events



Node=Neural Network (3)
Score Distributions

Target Variable=bad Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	39	6.5657	0.0000	6.566	0.000
0.90-0.95	20	3.3670	0.1258	9.933	0.126
0.85-0.90	14	2.3569	0.0419	12.290	0.168
0.80-0.85	16	2.6936	0.1258	14.983	0.294
0.75-0.80	19	3.1987	0.0419	18.182	0.335
0.70-0.75	9	1.5152	0.1677	19.697	0.503
0.65-0.70	13	2.1886	0.3774	21.886	0.881
0.60-0.65	10	1.6835	0.5451	23.569	1.426
0.55-0.60	9	1.5152	0.3774	25.084	1.803
0.50-0.55	17	2.8620	0.5451	27.946	2.348
0.45-0.50	20	3.3670	0.4193	31.313	2.767
0.40-0.45	16	2.6936	0.6709	34.007	3.438
0.35-0.40	25	4.2088	0.7547	38.215	4.193
0.30-0.35	33	5.5556	2.7673	43.771	6.960
0.25-0.30	45	7.5758	6.7925	51.347	13.753
0.20-0.25	159	26.7677	28.0503	78.114	41.803
0.15-0.20	57	9.5960	10.1468	87.710	51.950
0.10-0.15	17	2.8620	8.3857	90.572	60.335
0.05-0.10	37	6.2290	18.5744	96.801	78.910
0.00-0.05	19	3.1987	21.0901	100.000	100.000

Target Variable=bad Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	21	3.5294	0.0000	3.529	0.000
0.90-0.95	21	3.5294	0.2096	7.059	0.210
0.85-0.90	18	3.0252	0.1257	10.084	0.335
0.80-0.85	18	3.0252	0.2515	13.109	0.587
0.75-0.80	13	2.1849	0.0419	15.294	0.629
0.70-0.75	9	1.5126	0.2515	16.807	0.880
0.65-0.70	21	3.5294	0.4191	20.336	1.299
0.60-0.65	11	1.8487	0.5029	22.185	1.802
0.55-0.60	10	1.6807	0.5448	23.866	2.347
0.50-0.55	18	3.0252	0.9220	26.891	3.269
0.45-0.50	19	3.1933	0.6706	30.084	3.940
0.40-0.45	20	3.3613	0.6706	33.445	4.610
0.35-0.40	21	3.5294	1.6345	36.975	6.245
0.30-0.35	27	4.5378	2.8500	41.513	9.095
0.25-0.30	51	8.5714	6.2867	50.084	15.381
0.20-0.25	142	23.8655	29.3378	73.950	44.719
0.15-0.20	50	8.4034	9.8491	82.353	54.568
0.10-0.15	45	7.5630	9.0947	89.916	63.663
0.05-0.10	39	6.5546	16.5968	96.471	80.260
0.00-0.05	21	3.5294	19.7402	100.000	100.000

SAS Enterprise Miner Report

Node=Neural Network (5)
Summary

Node id = Neural5
Node label = Neural Network (5)
Meta path = Ids => Part => Trans => BINNING => Neural5
Notes =

Node=Neural Network (5)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	5	3	Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Neural Network (5)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	ORDINAL	4	GRP_clage GRP_debtinc GRP_ninq GRP_value

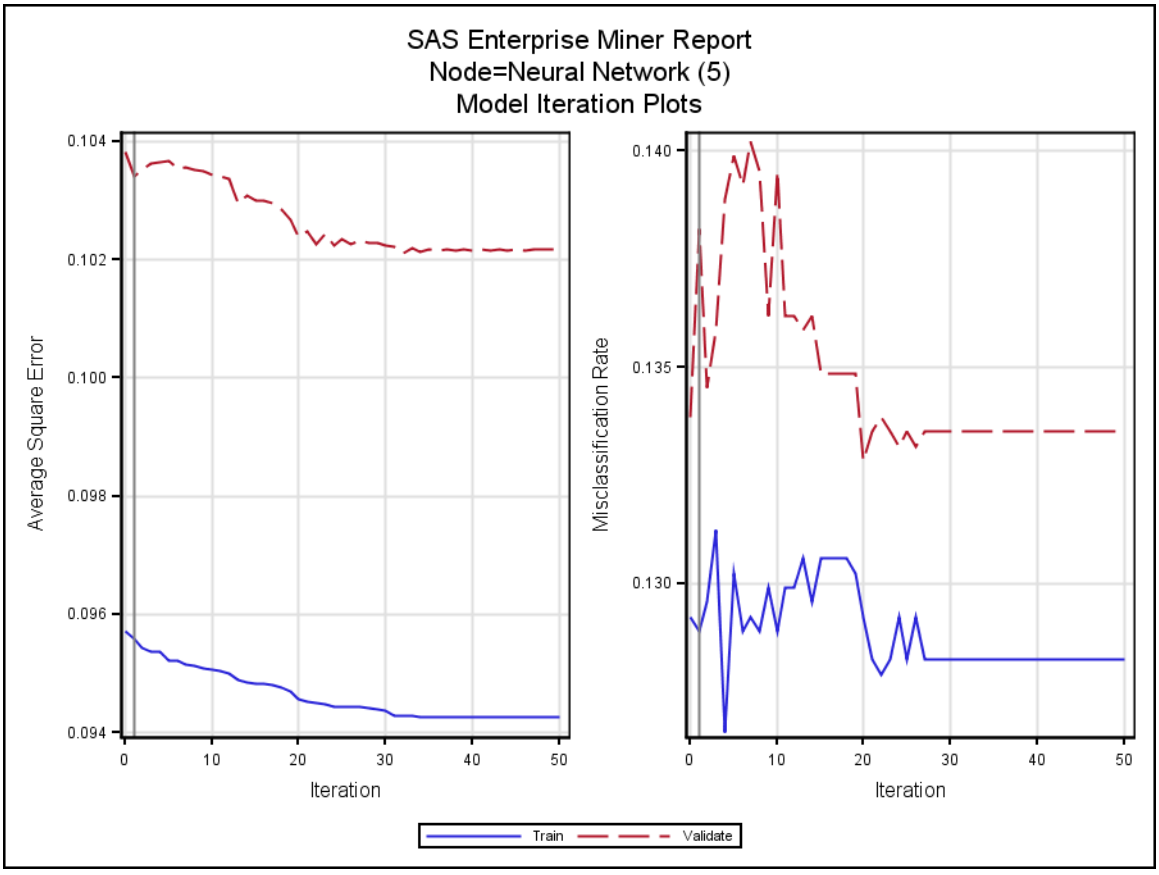
Node=Neural Network (5)
Model Fit Statistics

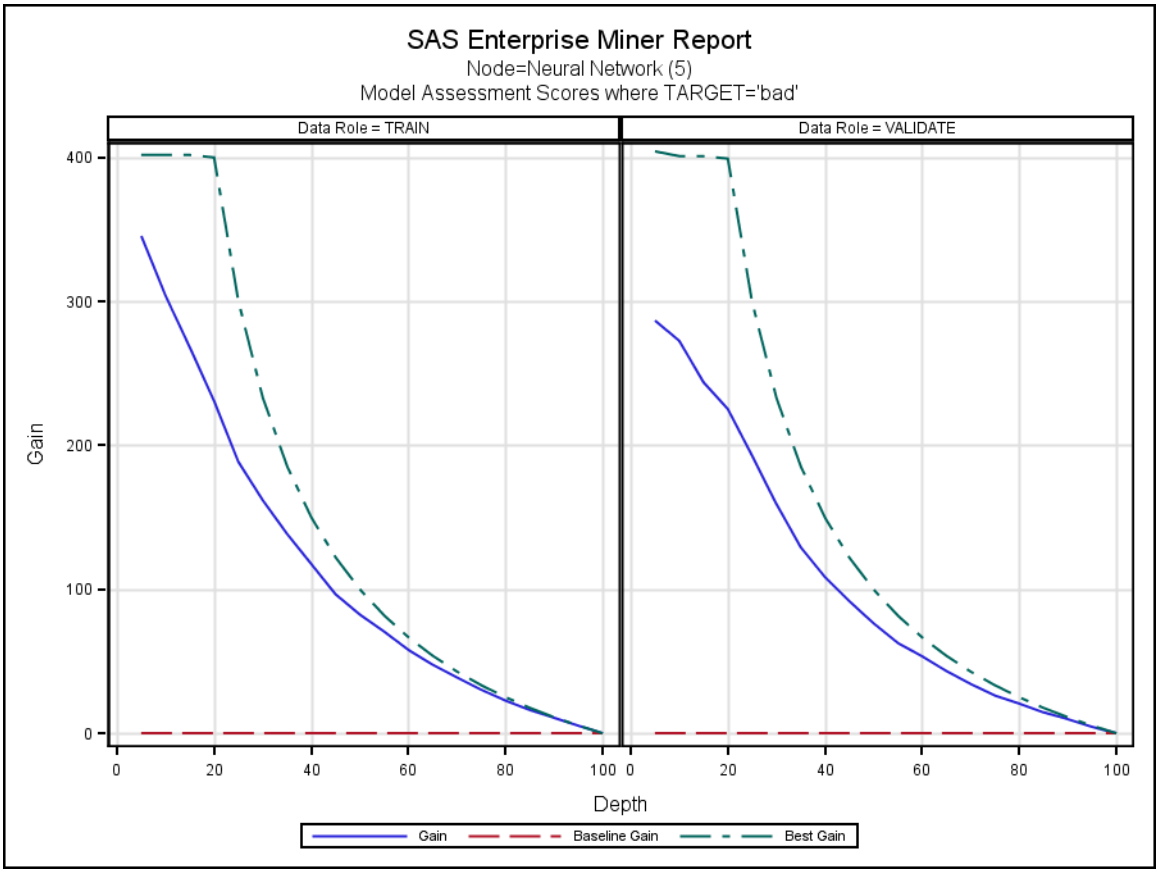
Target=bad Target Label=Default or seriously delinquent

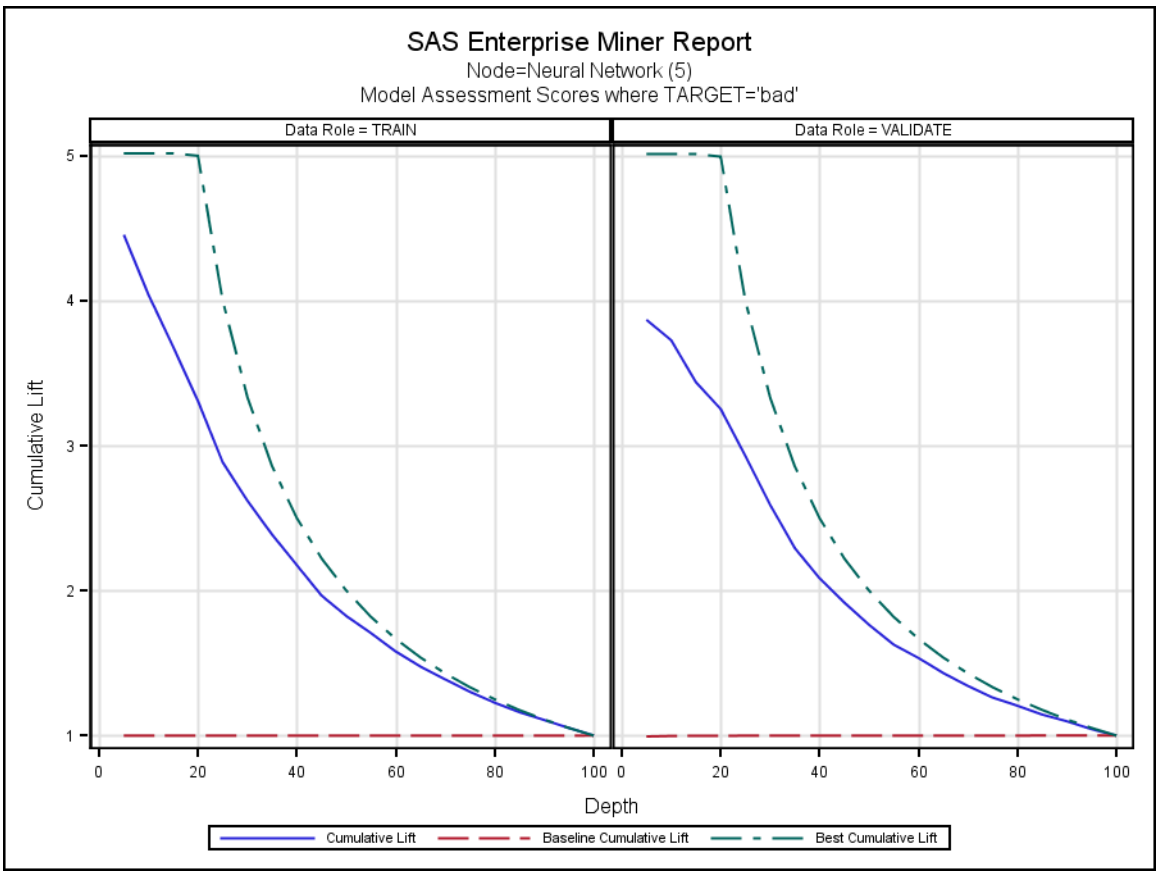
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2893.00	.	.
Model Degrees of Freedom	86.00	.	.
Number of Estimated Weights	86.00	.	.
Akaike's Information Criterion	2043.23	.	.
Schwarz's Bayesian Criterion	2559.17	.	.
Average Squared Error	0.10	0.10	.
Maximum Absolute Error	0.99	0.99	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.

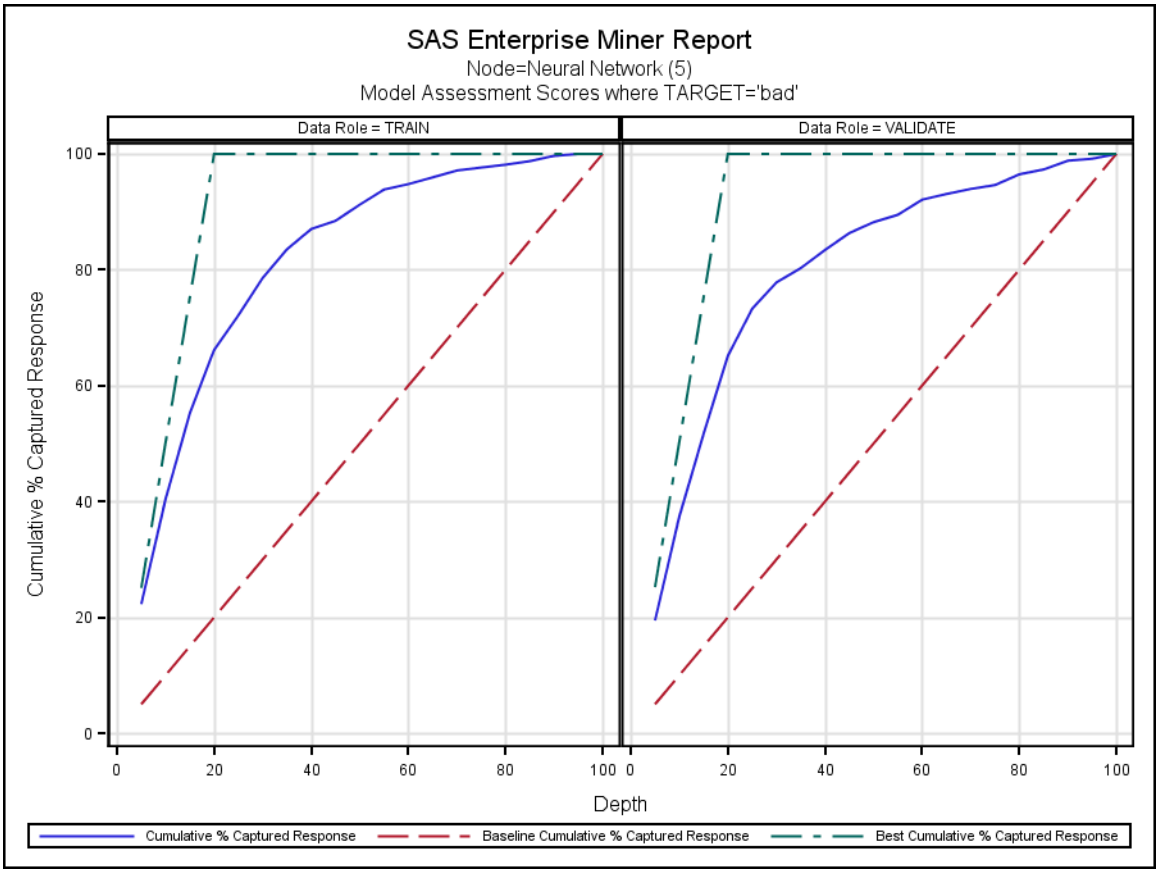
Target=bad Target Label=Default or seriously delinquent

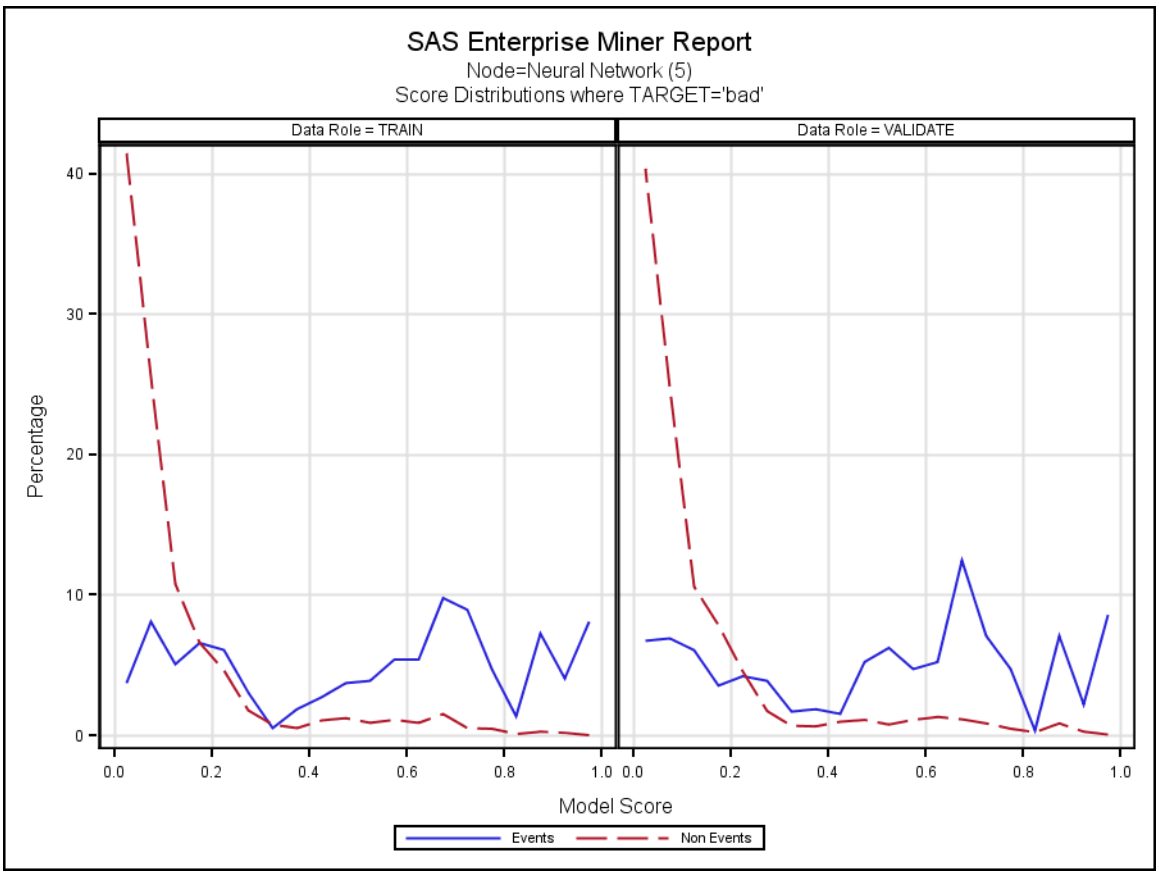
Label of Statistic	Train	Validation	Test
Root Average Squared Error	0.31	0.32	.
Sum of Squared Errors	569.53	616.52	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.10	.	.
Mean Squared Error	0.10	0.10	.
Root Final Prediction Error	0.32	.	.
Root Mean Squared Error	0.31	0.32	.
Average Error Function	0.31	0.34	.
Error Function	1871.23	2053.84	.
Misclassification Rate	0.13	0.14	.
Number of Wrong Classifications	384.00	412.00	.



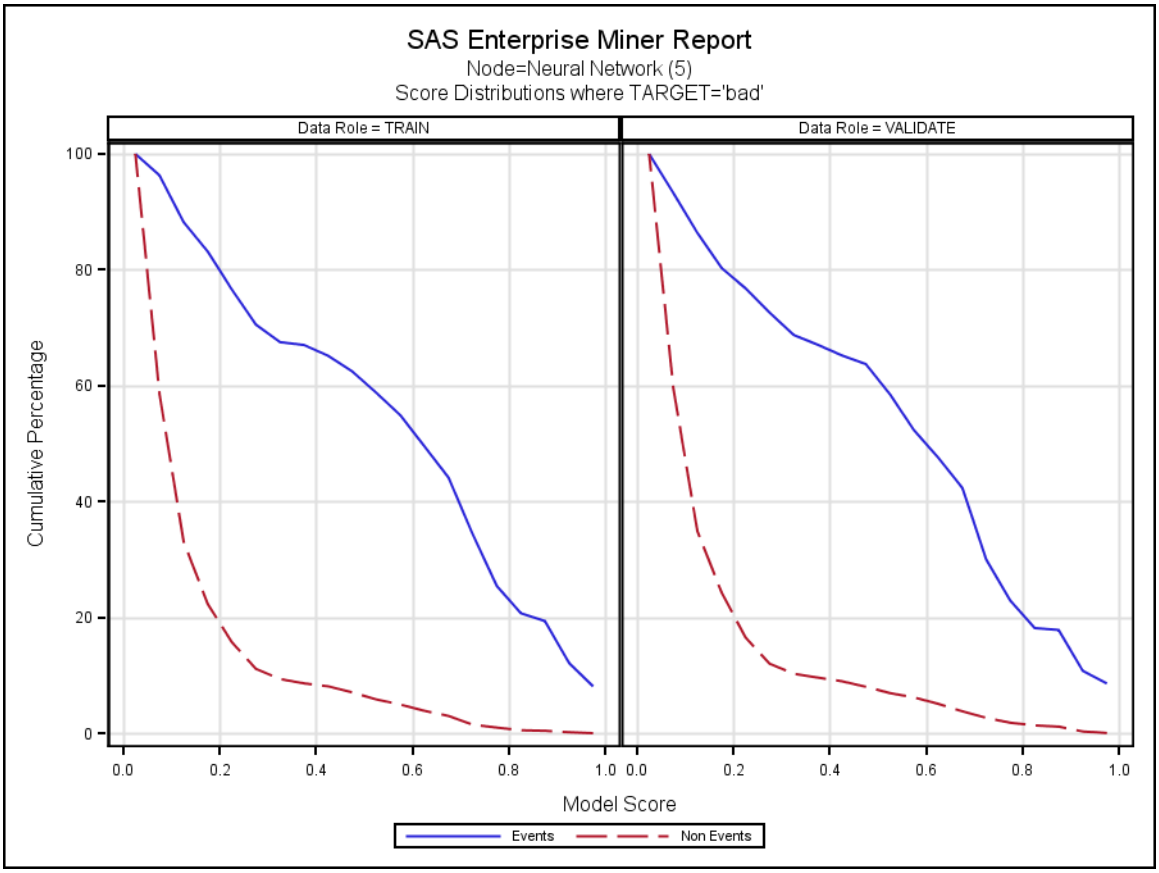

SAS Enterprise Miner Report
Node=Neural Network (5)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=Neural Network (5)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=Neural Network (5)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=Neural Network (5)
Score Distributions where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

SAS Enterprise Miner Report
Node=Neural Network (5)
Score Distributions where TARGET='bad'



Node=Neural Network (5)
Score Distributions

Target Variable=bad Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	48	8.08081	0.0000	8.081	0.000
0.90-0.95	24	4.04040	0.1677	12.121	0.168
0.85-0.90	43	7.23906	0.2516	19.360	0.419
0.80-0.85	8	1.34680	0.0839	20.707	0.503
0.75-0.80	28	4.71380	0.4612	25.421	0.964
0.70-0.75	53	8.92256	0.5031	34.343	1.468
0.65-0.70	58	9.76431	1.5094	44.108	2.977
0.60-0.65	32	5.38721	0.8805	49.495	3.857
0.55-0.60	32	5.38721	1.0901	54.882	4.948
0.50-0.55	23	3.87205	0.8805	58.754	5.828
0.45-0.50	22	3.70370	1.2159	62.458	7.044
0.40-0.45	16	2.69360	1.0482	65.152	8.092
0.35-0.40	11	1.85185	0.5031	67.003	8.595
0.30-0.35	3	0.50505	0.7547	67.508	9.350
0.25-0.30	18	3.03030	1.7610	70.539	11.111
0.20-0.25	36	6.06061	4.6122	76.599	15.723
0.15-0.20	39	6.56566	6.5828	83.165	22.306
0.10-0.15	30	5.05051	10.7757	88.215	33.082
0.05-0.10	48	8.08081	25.4927	96.296	58.574
0.00-0.05	22	3.70370	41.4256	100.000	100.000

Target Variable=bad Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	51	8.5714	0.0419	8.571	0.042
0.90-0.95	13	2.1849	0.2515	10.756	0.293
0.85-0.90	42	7.0588	0.8382	17.815	1.132
0.80-0.85	2	0.3361	0.2096	18.151	1.341
0.75-0.80	28	4.7059	0.4610	22.857	1.802
0.70-0.75	42	7.0588	0.8382	29.916	2.640
0.65-0.70	74	12.4370	1.1316	42.353	3.772
0.60-0.65	31	5.2101	1.2992	47.563	5.071
0.55-0.60	28	4.7059	1.0897	52.269	6.161
0.50-0.55	37	6.2185	0.7544	58.487	6.915
0.45-0.50	31	5.2101	1.0897	63.697	8.005
0.40-0.45	9	1.5126	0.9640	65.210	8.969
0.35-0.40	11	1.8487	0.6287	67.059	9.598
0.30-0.35	10	1.6807	0.6706	68.739	10.268
0.25-0.30	23	3.8655	1.7184	72.605	11.987
0.20-0.25	25	4.2017	4.5264	76.807	16.513
0.15-0.20	21	3.5294	7.8374	80.336	24.350
0.10-0.15	36	6.0504	10.5616	86.387	34.912
0.05-0.10	41	6.8908	24.7695	93.277	59.681
0.00-0.05	40	6.7227	40.3185	100.000	100.000

SAS Enterprise Miner Report

Node=Neural Network (6)
Summary

Node id = Neural6
Node label = Neural Network (6)
Meta path = Ids => Part => Trans => BINNING => Neural6
Notes =

Node=Neural Network (6)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	1	3	Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Neural Network (6)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	ORDINAL	4	GRP_clage GRP_debtinc GRP_ninq GRP_value

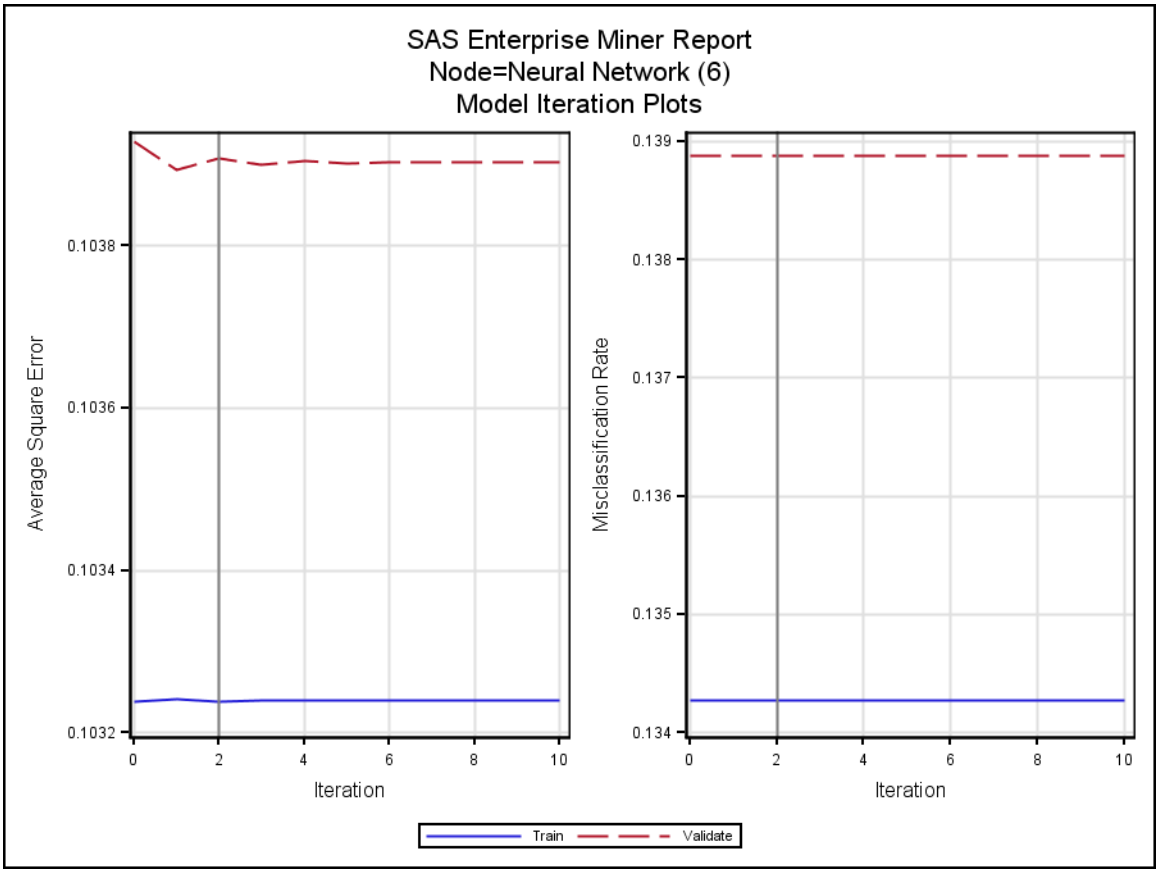
Node=Neural Network (6)
Model Fit Statistics

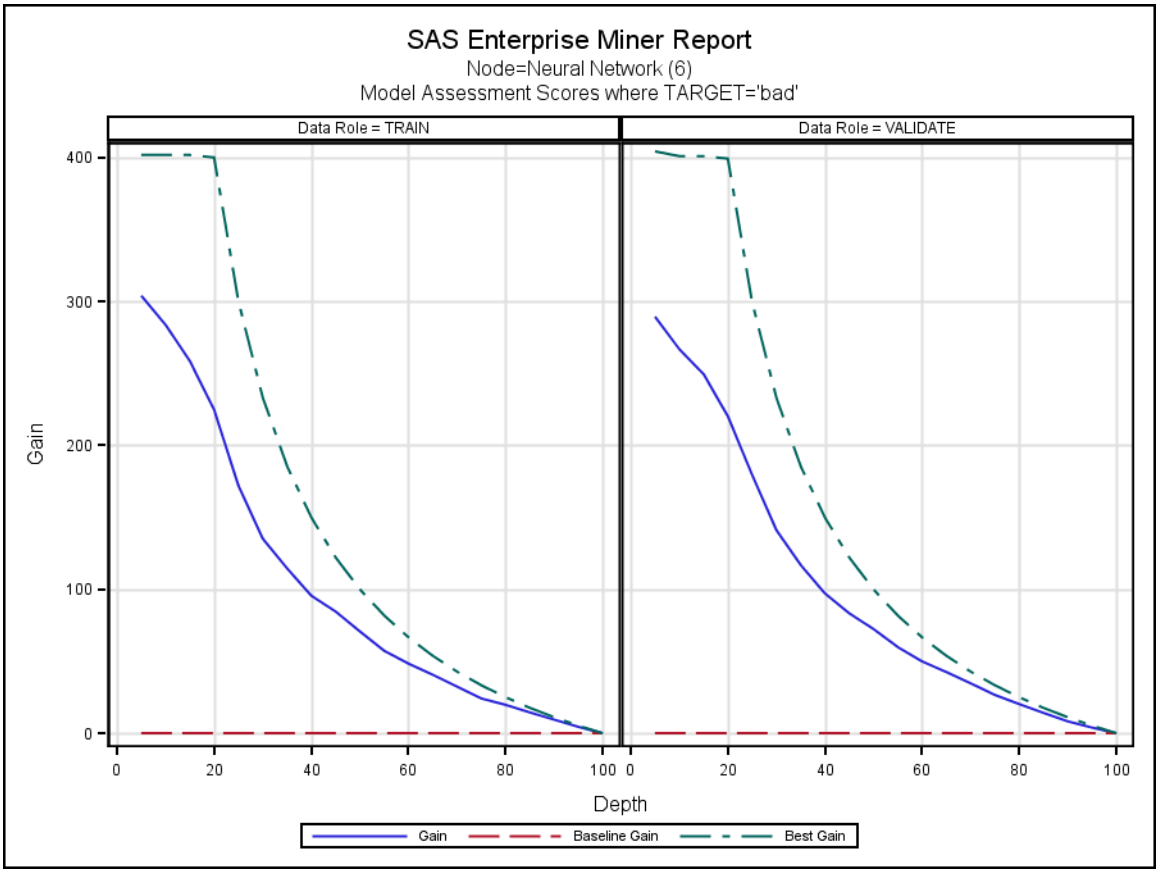
Target=bad Target Label=Default or seriously delinquent

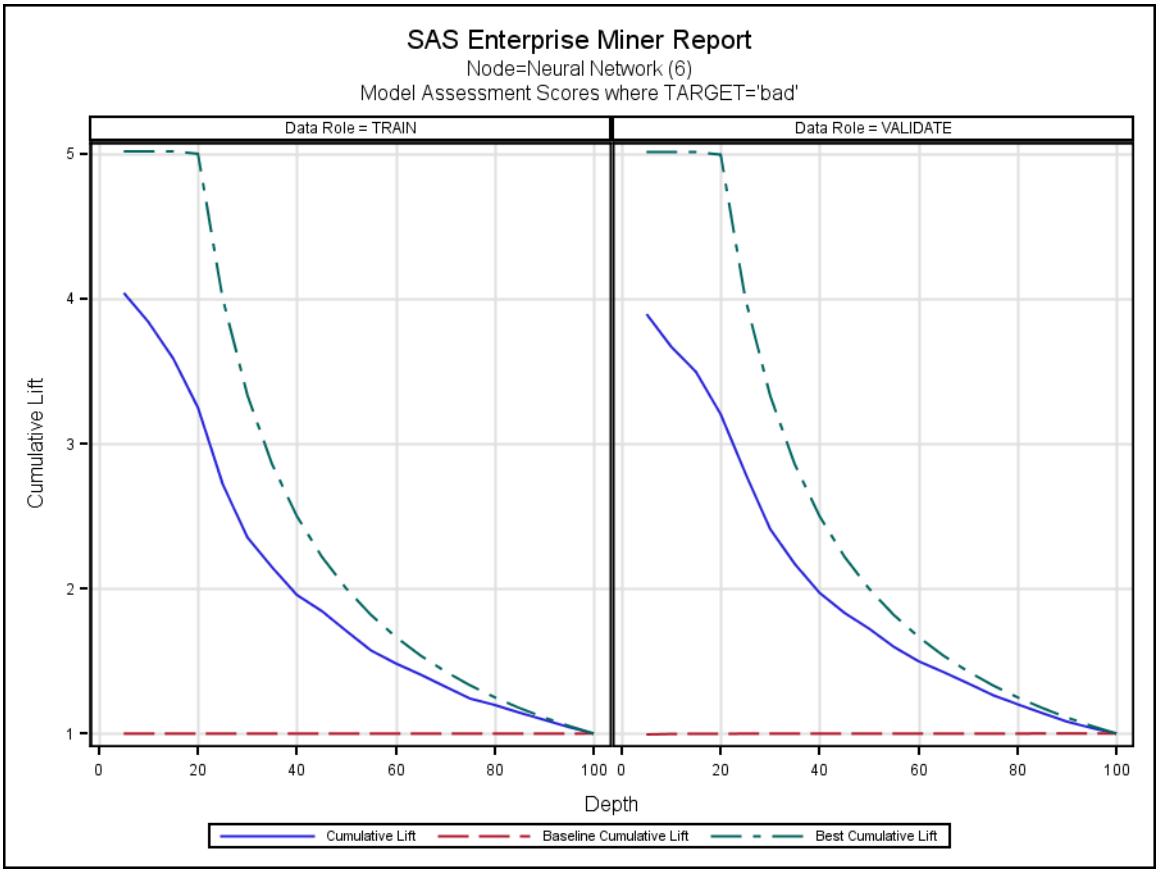
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2961.00	.	.
Model Degrees of Freedom	18.00	.	.
Number of Estimated Weights	18.00	.	.
Akaike's Information Criterion	2100.35	.	.
Schwarz's Bayesian Criterion	2208.34	.	.
Average Squared Error	0.10	0.10	.
Maximum Absolute Error	0.97	0.96	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.

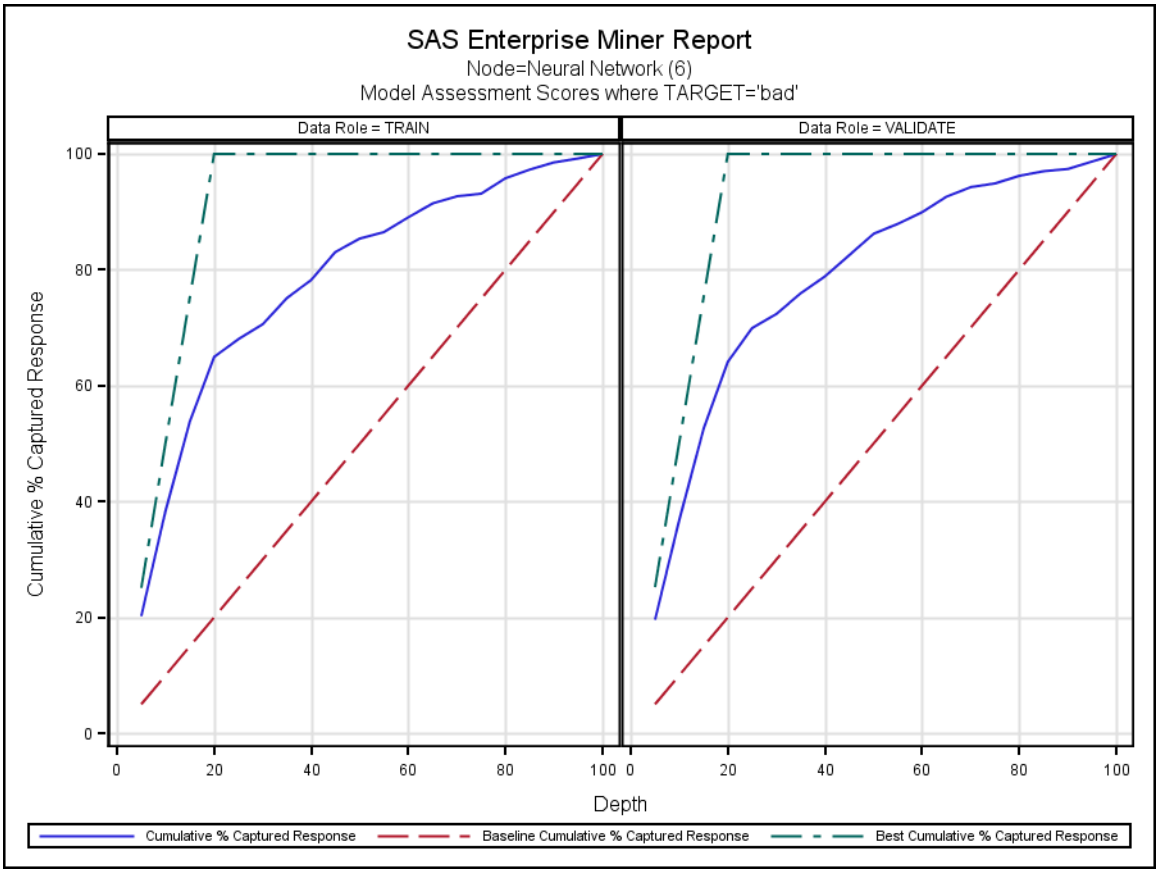
Target=bad Target Label=Default or seriously delinquent

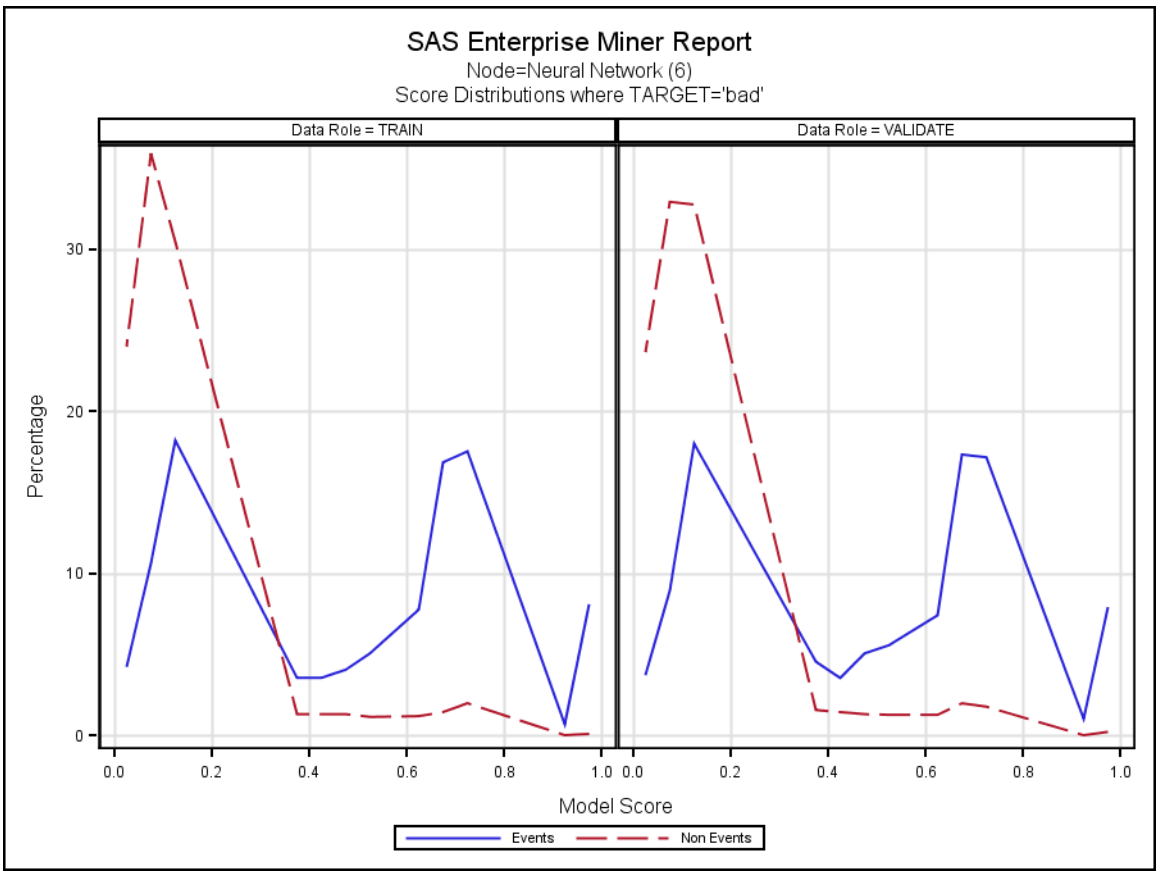
Label of Statistic	Train	Validation	Test
Root Average Squared Error	0.32	0.32	.
Sum of Squared Errors	615.10	619.50	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.10	.	.
Mean Squared Error	0.10	0.10	.
Root Final Prediction Error	0.32	.	.
Root Mean Squared Error	0.32	0.32	.
Average Error Function	0.35	0.35	.
Error Function	2064.35	2066.89	.
Misclassification Rate	0.13	0.14	.
Number of Wrong Classifications	400.00	414.00	.



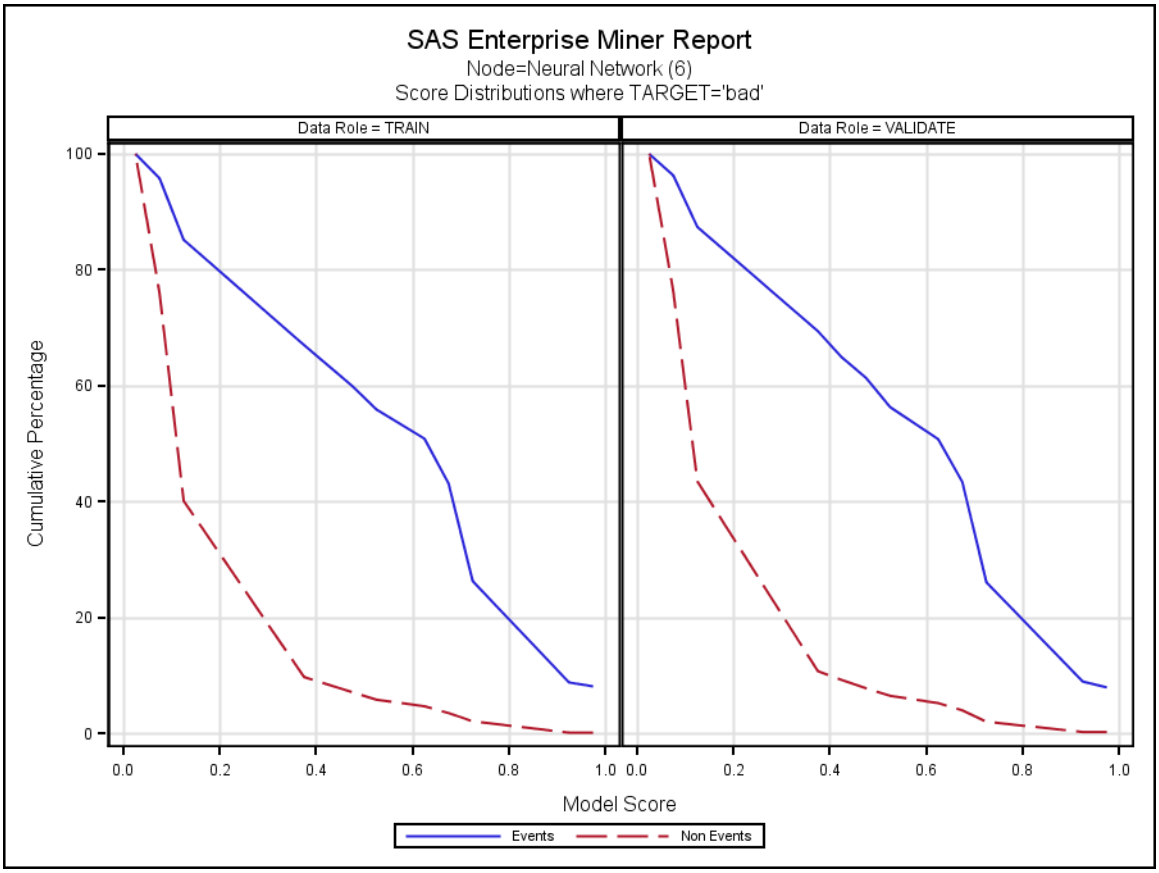

SAS Enterprise Miner Report
Node=Neural Network (6)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=Neural Network (6)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=Neural Network (6)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=Neural Network (6)
Score Distributions where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

SAS Enterprise Miner Report
Node=Neural Network (6)
Score Distributions where TARGET='bad'



Node=Neural Network (6)
Score Distributions

Target Variable=bad Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	48	8.0808	0.0839	8.081	0.084
0.90-0.95	4	0.6734	0.0000	8.754	0.084
0.70-0.75	104	17.5084	1.9706	26.263	2.055
0.65-0.70	100	16.8350	1.4256	43.098	3.480
0.60-0.65	46	7.7441	1.1740	50.842	4.654
0.50-0.55	30	5.0505	1.1321	55.892	5.786
0.45-0.50	24	4.0404	1.2998	59.933	7.086
0.40-0.45	21	3.5354	1.2998	63.468	8.386
0.35-0.40	21	3.5354	1.2998	67.003	9.686
0.10-0.15	108	18.1818	30.4403	85.185	40.126
0.05-0.10	63	10.6061	35.8910	95.791	76.017
0.00-0.05	25	4.2088	23.9832	100.000	100.000

Target Variable=bad Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	47	7.8992	0.2096	7.899	0.210
0.90-0.95	6	1.0084	0.0000	8.908	0.210
0.70-0.75	102	17.1429	1.7603	26.050	1.970
0.65-0.70	103	17.3109	1.9698	43.361	3.940
0.60-0.65	44	7.3950	1.2573	50.756	5.197
0.50-0.55	33	5.5462	1.2573	56.303	6.454
0.45-0.50	30	5.0420	1.2992	61.345	7.754
0.40-0.45	21	3.5294	1.4250	64.874	9.179
0.35-0.40	27	4.5378	1.5507	69.412	10.729
0.10-0.15	107	17.9832	32.7326	87.395	43.462
0.05-0.10	53	8.9076	32.9003	96.303	76.362
0.00-0.05	22	3.6975	23.6379	100.000	100.000

SAS Enterprise Miner Report

Node=Neural Network (4)
Summary

Node id = Neural4
Node label = Neural Network (4)
Meta path = Ids => Part => Trans => BINNING => Neural4
Notes =

Node=Neural Network (4)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	3		Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Neural Network (4)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad
INPUT	ORDINAL	4	GRP_clage GRP_debtinc GRP_ninq GRP_value

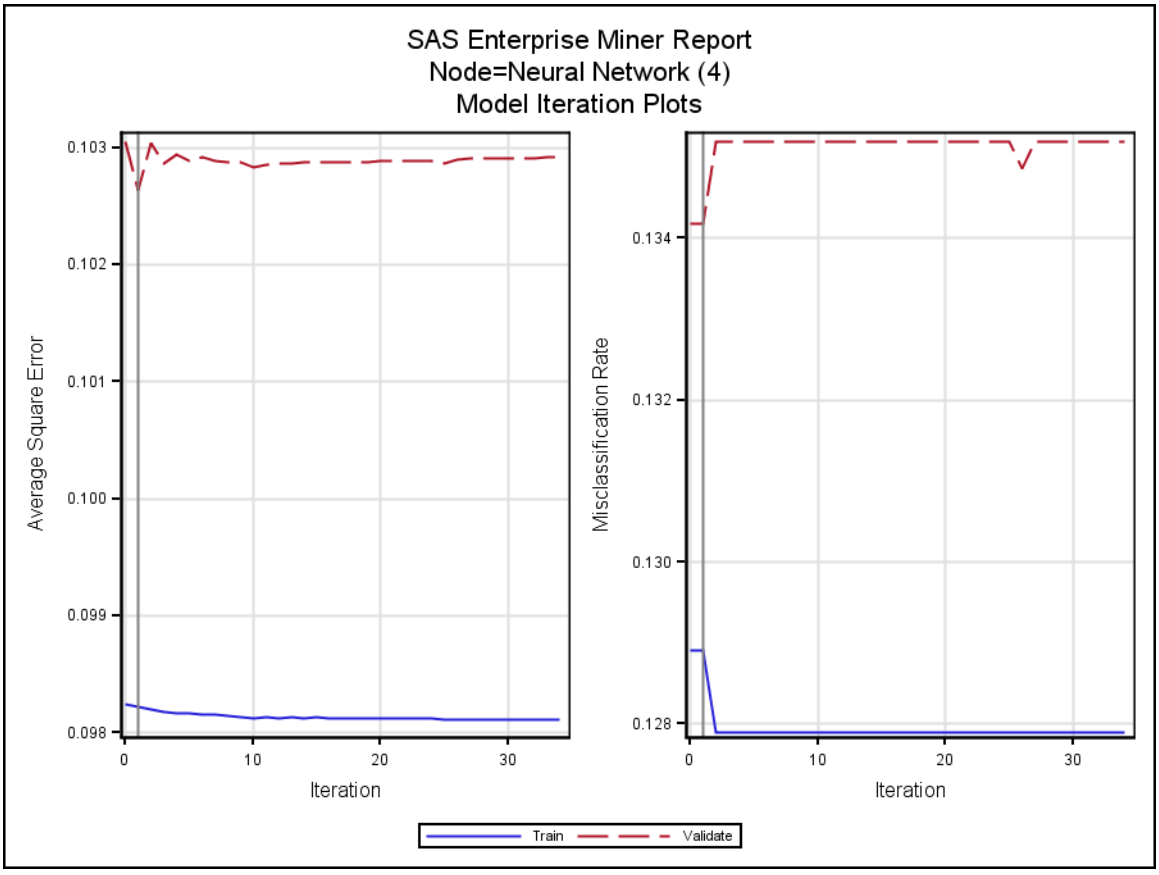
Node=Neural Network (4)
Model Fit Statistics

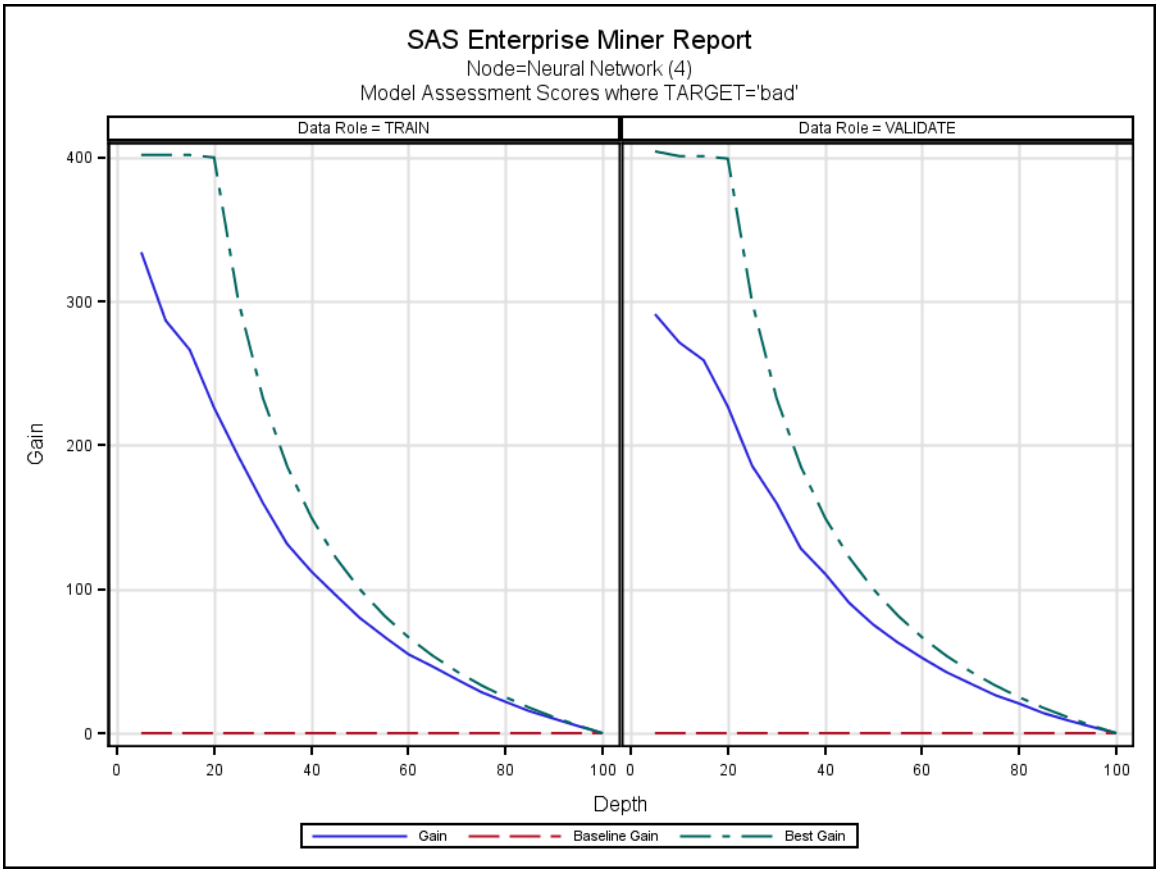
Target=bad Target Label=Default or seriously delinquent

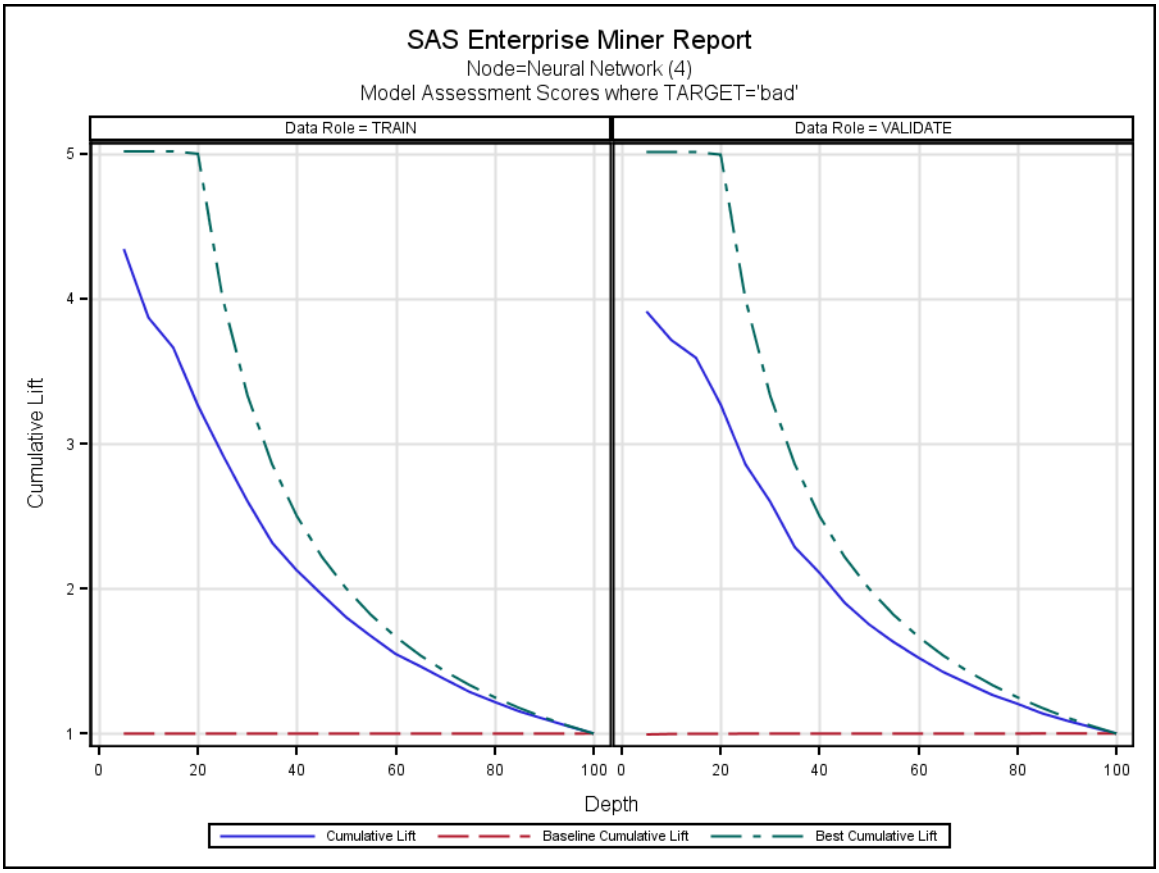
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2927.00	.	.
Model Degrees of Freedom	52.00	.	.
Number of Estimated Weights	52.00	.	.
Akaike's Information Criterion	2040.05	.	.
Schwarz's Bayesian Criterion	2352.02	.	.
Average Squared Error	0.10	0.10	.
Maximum Absolute Error	0.99	0.99	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.

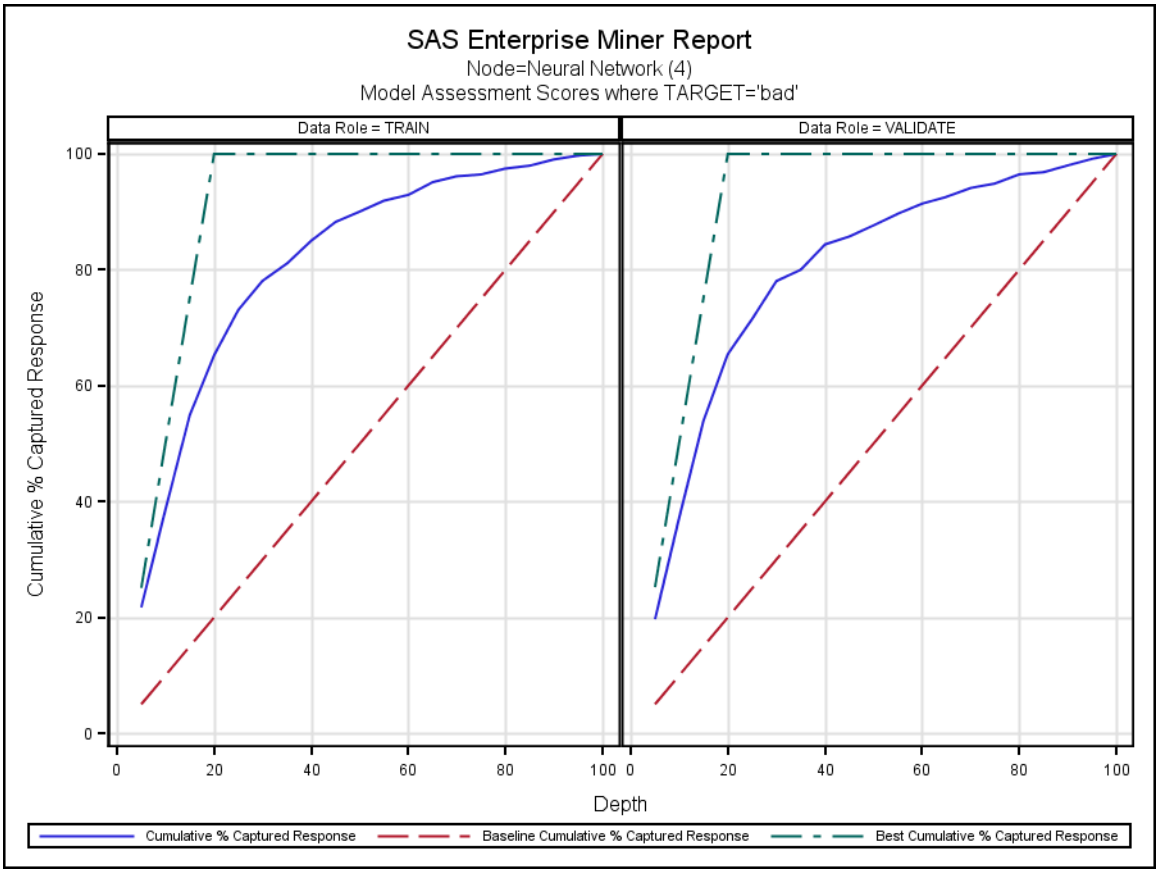
Target=bad Target Label=Default or seriously delinquent

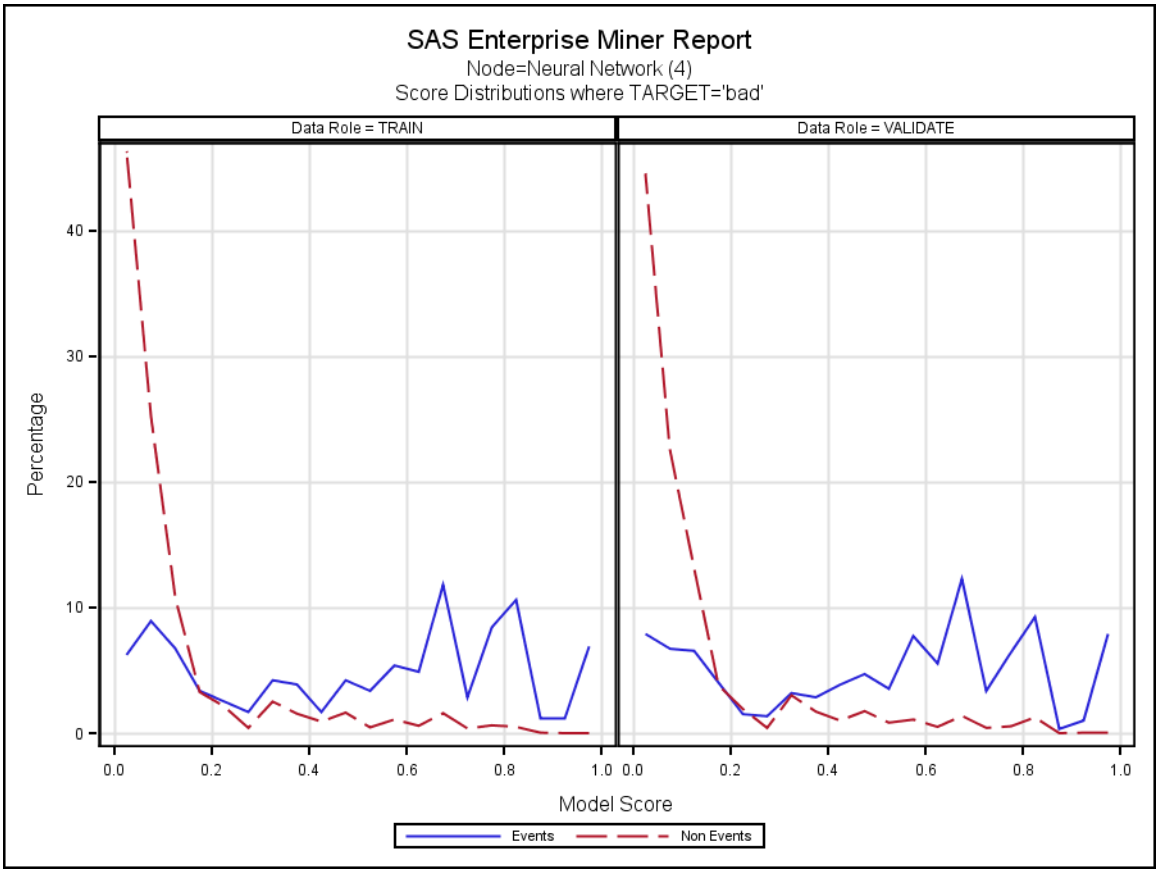
Label of Statistic	Train	Validation	Test
Root Average Squared Error	0.31	0.32	.
Sum of Squared Errors	585.19	611.90	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.10	.	.
Mean Squared Error	0.10	0.10	.
Root Final Prediction Error	0.32	.	.
Root Mean Squared Error	0.32	0.32	.
Average Error Function	0.32	0.34	.
Error Function	1936.05	2030.28	.
Misclassification Rate	0.13	0.13	.
Number of Wrong Classifications	384.00	400.00	.

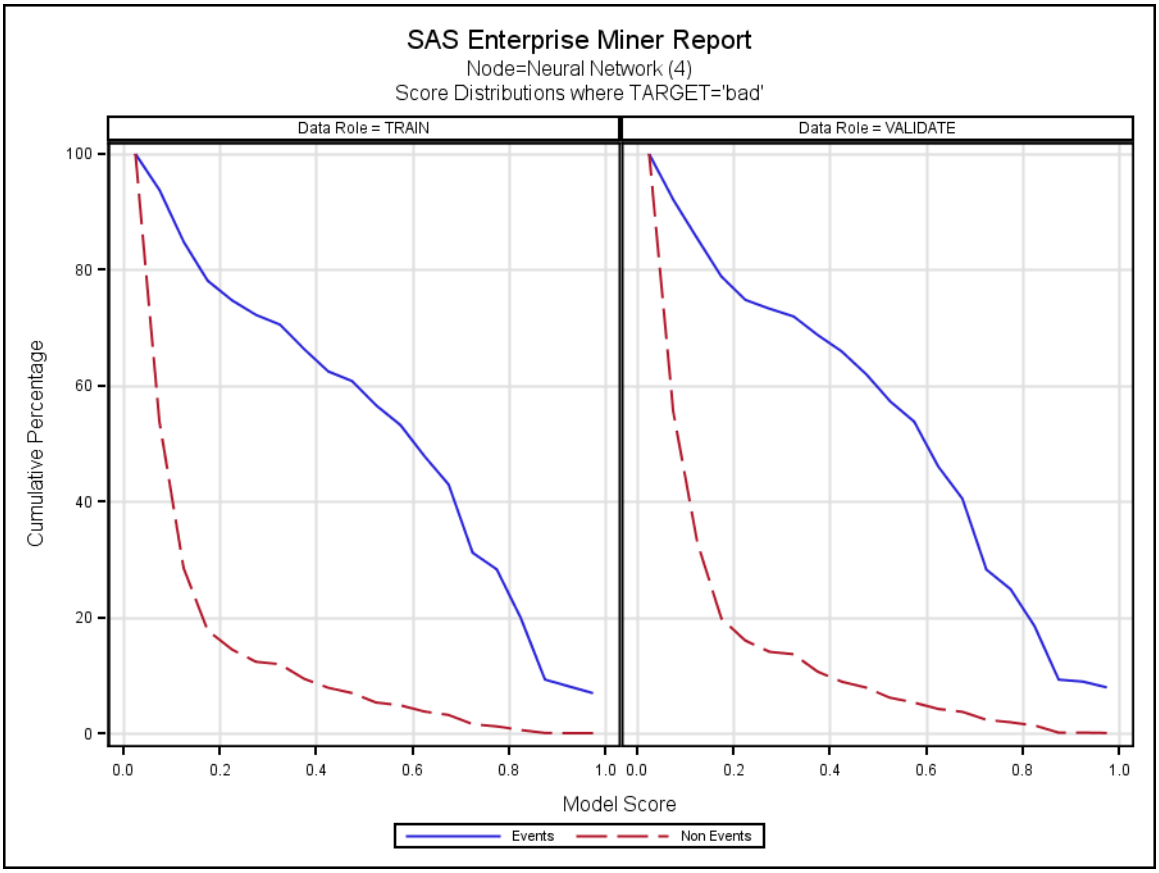



SAS Enterprise Miner Report
Node=Neural Network (4)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=Neural Network (4)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=Neural Network (4)
Model Assessment Scores where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=Neural Network (4)
Score Distributions where TARGET='bad'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events



Node=Neural Network (4)
Score Distributions

Target Variable=bad Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	41	6.9024	0.0000	6.902	0.000
0.90-0.95	7	1.1785	0.0000	8.081	0.000
0.85-0.90	7	1.1785	0.0419	9.259	0.042
0.80-0.85	63	10.6061	0.5031	19.865	0.545
0.75-0.80	50	8.4175	0.6289	28.283	1.174
0.70-0.75	17	2.8620	0.3774	31.145	1.551
0.65-0.70	70	11.7845	1.5933	42.929	3.145
0.60-0.65	29	4.8822	0.5870	47.811	3.732
0.55-0.60	32	5.3872	1.0901	53.199	4.822
0.50-0.55	20	3.3670	0.4612	56.566	5.283
0.45-0.50	25	4.2088	1.6352	60.774	6.918
0.40-0.45	10	1.6835	0.9224	62.458	7.841
0.35-0.40	23	3.8721	1.5514	66.330	9.392
0.30-0.35	25	4.2088	2.5157	70.539	11.908
0.25-0.30	10	1.6835	0.4193	72.222	12.327
0.20-0.25	15	2.5253	2.1384	74.747	14.465
0.15-0.20	20	3.3670	3.2704	78.114	17.736
0.10-0.15	40	6.7340	10.7757	84.848	28.512
0.05-0.10	53	8.9226	25.1992	93.771	53.711
0.00-0.05	37	6.2290	46.2893	100.000	100.000

Target Variable=bad Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	47	7.8992	0.0419	7.899	0.042
0.90-0.95	6	1.0084	0.0419	8.908	0.084
0.85-0.90	2	0.3361	0.0000	9.244	0.084
0.80-0.85	55	9.2437	1.2573	18.487	1.341
0.75-0.80	38	6.3866	0.5448	24.874	1.886
0.70-0.75	20	3.3613	0.4191	28.235	2.305
0.65-0.70	73	12.2689	1.3831	40.504	3.688
0.60-0.65	33	5.5462	0.5029	46.050	4.191
0.55-0.60	46	7.7311	1.0897	53.782	5.281
0.50-0.55	21	3.5294	0.8382	57.311	6.119
0.45-0.50	28	4.7059	1.7603	62.017	7.879
0.40-0.45	23	3.8655	1.0059	65.882	8.885
0.35-0.40	17	2.8571	1.7184	68.739	10.604
0.30-0.35	19	3.1933	3.0176	71.933	13.621
0.25-0.30	8	1.3445	0.4191	73.277	14.040
0.20-0.25	9	1.5126	1.9279	74.790	15.968
0.15-0.20	24	4.0336	3.8139	78.824	19.782
0.10-0.15	39	6.5546	13.1182	85.378	32.900
0.05-0.10	40	6.7227	22.5901	92.101	55.490
0.00-0.05	47	7.8992	44.5096	100.000	100.000

SAS Enterprise Miner Report

Node=Model Comparison
Summary

Node id = MdlComp
Node label = Model Comparison
Meta path = Ids => Part => Trans => BINNING => Neural4 => MdlComp
Notes =

Node=Model Comparison
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	ModelCompare		NormalizeReportingVariables	Y		ScoreDistBin	20	
AssessAllTargetLevels	N		NumberOfReportedLevels	1E-6		SelectionCriteria	DEFAULT	
DecileBin	20		NumberofBins	20		SelectionData	DEFAULT	
HPCriteria	DEFAULT		ProfitEpsilon	1E-6		SelectionDepth	10	
LiftEpsilon	1E-6		RecomputeAssess	N		SelectionTable	TRAIN	TABLE
ModelCriteria	Valid: Misclassification Rate		RocChart	Y		StatisticUsed	_VMISC_	
ModelDescription	Neural Network (4)		RocEpsilon	0.01		TargetLabel	Default or seriously delinquent	
ModelId	Neural4		RoiEpsilon	1E-6		TargetName	bad	

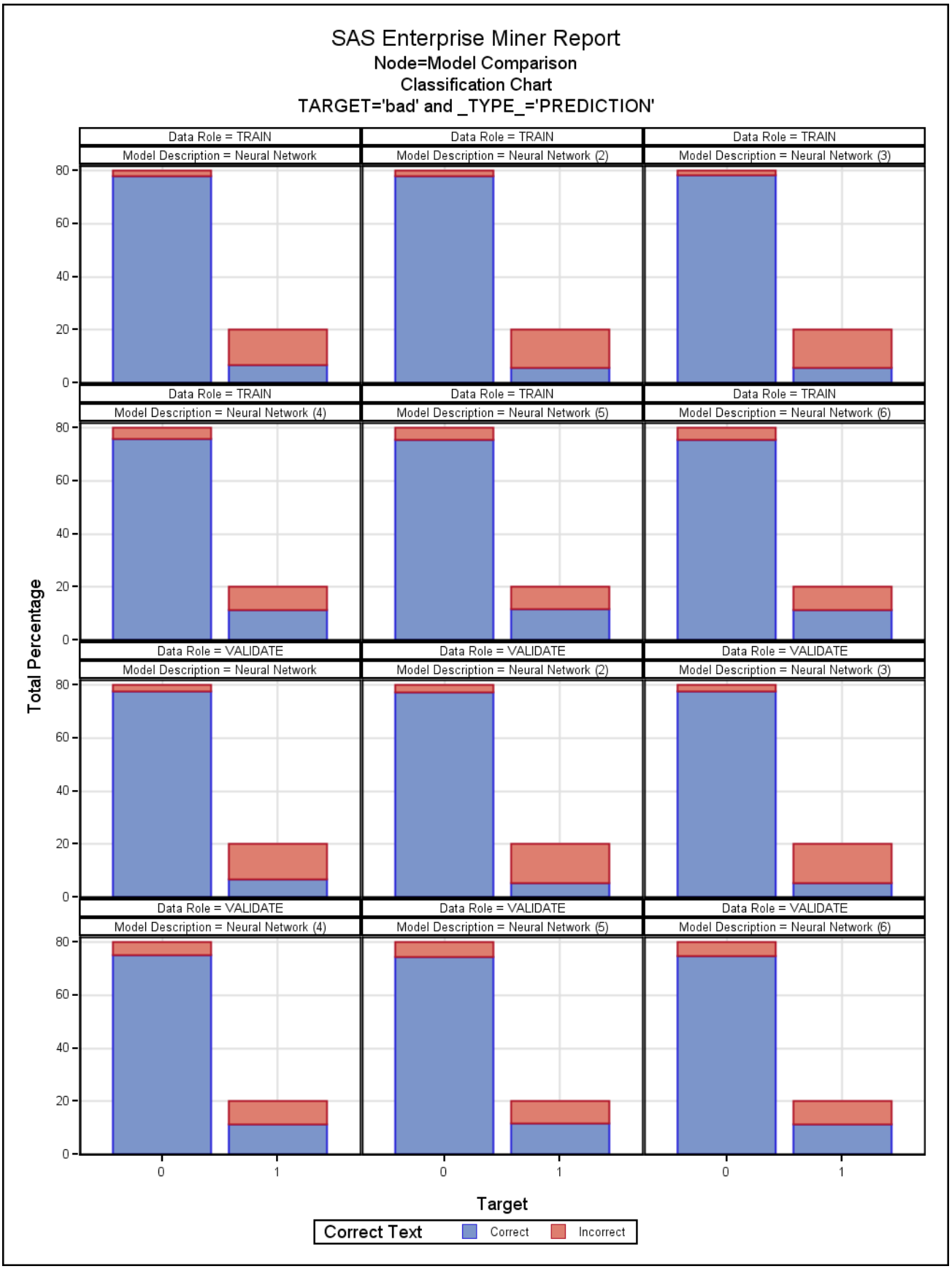
Node=Model Comparison
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	bad

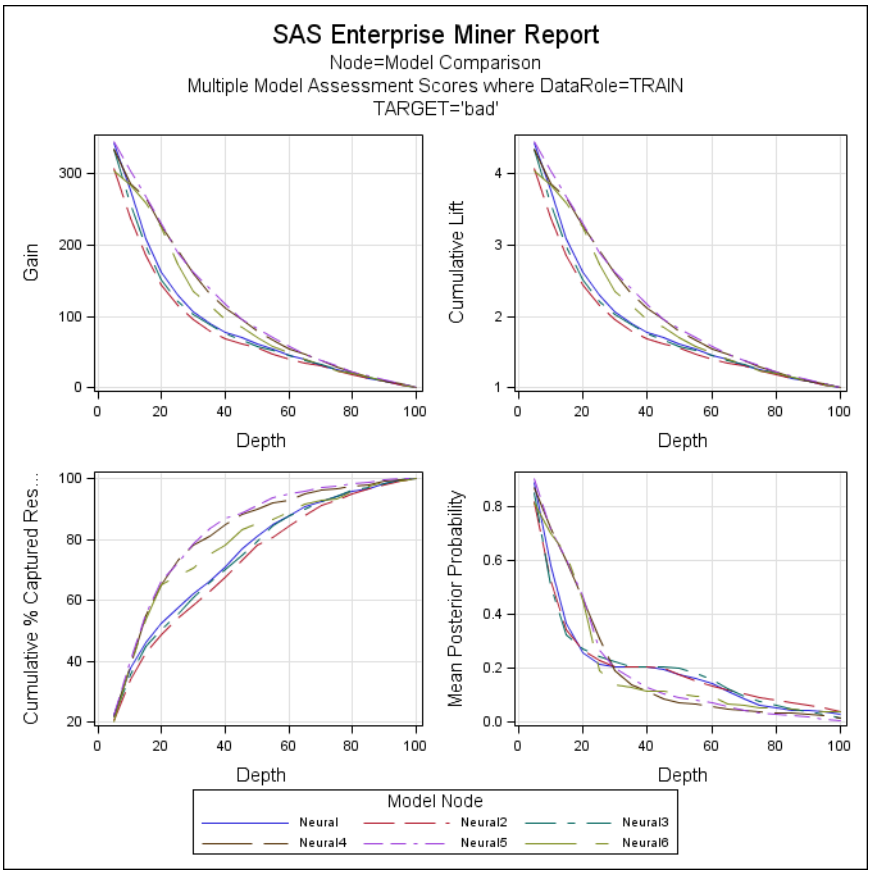
Node=Model Comparison
Fit Statistics Table

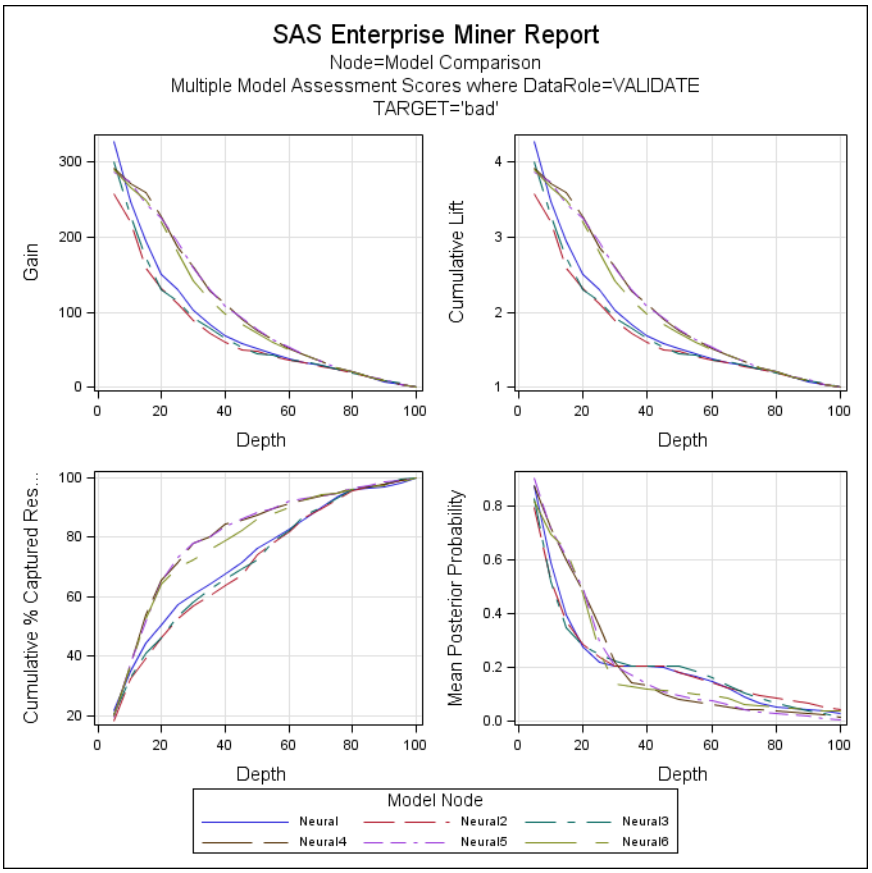
Selected Model	Predecessor Node	Model Node	Model Description	Target Variable	Target Label	Selection Criterion: Valid: Misclassification Rate	Train: Average Squared Error	Train: Misclassification Rate	Train: Kolmogorov-Smirnov Statistic
Y	Neural4	Neural4	Neural Network (4)	bad	Default or seriously delinquent	0.13418	0.09822	0.12890	0.612
	Neural5	Neural5	Neural Network (5)	bad	Default or seriously delinquent	0.13821	0.09559	0.12890	0.616
	Neural6	Neural6	Neural Network (6)	bad	Default or seriously delinquent	0.13888	0.10324	0.13427	0.573
	Neural	Neural	Neural Network	bad	Default or seriously delinquent	0.15800	0.11682	0.15106	0.414
	Neural3	Neural3	Neural Network (3)	bad	Default or seriously delinquent	0.17209	0.12219	0.16247	0.389
	Neural2	Neural2	Neural Network (2)	bad	Default or seriously delinquent	0.17477	0.12636	0.16482	0.365

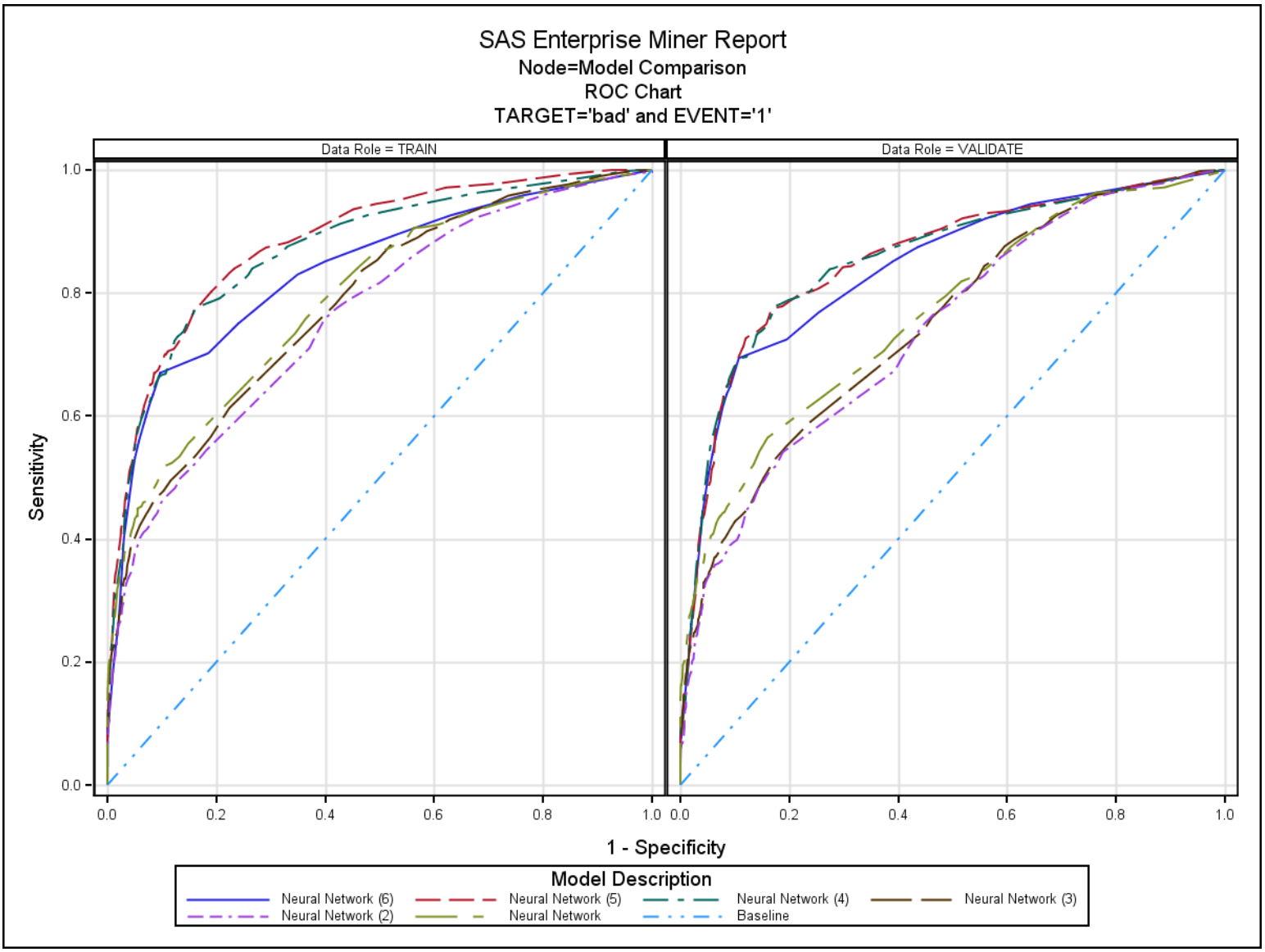
Selected Model	Predecessor Node	Model Node	Model Description	Target Variable	Target Label	Selection Criterion: Valid: Misclassification Rate	Valid: Average Squared Error	Valid: Misclassification Rate	Valid: Kolmogorov-Smirnov Statistic
Y	Neural4	Neural4	Neural Network (4)	bad	Default or seriously delinquent	0.13418	0.10263	0.13418	0.605
	Neural5	Neural5	Neural Network (5)	bad	Default or seriously delinquent	0.13821	0.10341	0.13821	0.606
	Neural6	Neural6	Neural Network (6)	bad	Default or seriously delinquent	0.13888	0.10391	0.13888	0.587
	Neural	Neural	Neural Network	bad	Default or seriously delinquent	0.15800	0.12363	0.15800	0.405
	Neural3	Neural3	Neural Network (3)	bad	Default or seriously delinquent	0.17209	0.13063	0.17209	0.356
	Neural2	Neural2	Neural Network (2)	bad	Default or seriously delinquent	0.17477	0.13406	0.17477	0.353


SAS Enterprise Miner Report
Node=Model Comparison
Classification Chart
TARGET='bad' and _TYPE_='PREDICTION'
Data Role = TRAIN
Model Description = Neural Network
Data Role = TRAIN
Model Description = Neural Network (2)
Data Role = TRAIN
Model Description = Neural Network (3)
Data Role = TRAIN
Model Description = Neural Network (4)
Data Role = TRAIN
Model Description = Neural Network (5)
Data Role = TRAIN
Model Description = Neural Network (6)
Data Role = VALIDATE
Model Description = Neural Network
Data Role = VALIDATE
Model Description = Neural Network (2)
Data Role = VALIDATE
Model Description = Neural Network (3)
Data Role = VALIDATE
Model Description = Neural Network (4)
Data Role = VALIDATE
Model Description = Neural Network (5)
Data Role = VALIDATE
Model Description = Neural Network (6)
Total Percentage
0
20
40
60
80
0
1
Target
Correct Text
Correct
Incorrect

SAS Enterprise Miner Report
Node=Model Comparison
Multiple Model Assessment Scores where DataRole=TRAIN
TARGET='bad'







End of Report