SAS Enterprise Miner Report

User = aling5
Date = 14:28:28 March 07
Project = AL.BankMarketing_ExploratoryAnalysis
Diagram = AL.BankMarket_Analysis

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

Format = PDF
Style = LISTING

SAS Enterprise Miner Report
Process Flow Diagram

SAS Enterprise Miner Report

Node=BANKMARKETINGTRAIN_TRAIN Summary

Node id = Ids2
Node label = BANKMARKETINGTRAIN_TRAIN
Meta path = Ids2
Notes =

Node=BANKMARKETINGTRAIN_TRAIN Properties

Property	Value	Default	Property	Value	Default
Component	DataSource		DsCreatedBy	aling5	
ApplyIntervalLevelLowerLimit	Y		DsId	bankmarketingtraintrain	
ApplyMaxClassLevels	Y		DsModifiedBy	aling5	
ApplyMaxPercentMissing	Y		DsModifyDate	1961967501.4	
CMeta	WORK.M1E718VO		DsSampleName		
ComputeStatistics	N		DsSampleSize		
DBPassThrough	Y		DsSampleSizeType		
Data	ALDATA.BANKMARKETINGTRAIN_TRAIN		DsScope	LOCAL	
DataSelection	DATASOURCE		IdentifyEmptyColumns	Y	
DataSource	bankmarketingtraintrain		IntervalLowerLimit	20	
DataSourceRole	RAW		Library	ALDATA	
Description			MaxClassLevels	20	
DropMapVariables	Y		MaxPercentMissing	50	
DsCreateDate	1961967501.3		MetaAdvisor	BASIC	

Property	Value	Default
NBytes	590848	.
NCols	17	.
NObs	4465	.
NewTable		
NewVariableRole	REJECT	
OutputType	VIEW	
Role	RAW	TRAIN
Sample	D	
SampleSizeObs	10000	
SampleSizePercent	20	
SampleSizeType	PERCENT	
Scope	LOCAL	
Segment		
Table	BANKMARKETINGTRAIN_TRAIN	

Node=BANKMARKETINGTRAIN_TRAIN Data Attributes

Attribute	Value	Attribute	Value	Attribute	Value
Data Name	BANKMARKETINGTRAIN_TRAIN	Date Created	03Mar2022:22:55:56	Data Size	590848
Data Type	DATA	Date Modified	03Mar2022:22:55:56	Role	RAW
Data Label		Number Rows	4465	Segment	
Engine	BASE	Number Columns	17	Data Library	ALDATA

Node=BANKMARKETINGTRAIN_TRAIN
Variables List

Name	Label	Role	Level	Type	Length	Format	Creator
age	age	INPUT	INTERVAL	N	8	BEST.	
balance	balance	INPUT	INTERVAL	N	8	BEST.	
campaign	campaign	INPUT	INTERVAL	N	8	BEST.	
contact	contact	INPUT	NOMINAL	C	9	$9.	
day	day	INPUT	INTERVAL	N	8	BEST.	
default	default	INPUT	NOMINAL	C	3	$3.	
deposit	deposit	TARGET	NOMINAL	C	3	$3.	
duration	duration	INPUT	INTERVAL	N	8	BEST.	
education	education	INPUT	NOMINAL	C	9	$9.	
housing	housing	INPUT	NOMINAL	C	3	$3.	
job	job	INPUT	NOMINAL	C	13	$13.	
loan	loan	INPUT	NOMINAL	C	3	$3.	
marital	marital	INPUT	NOMINAL	C	8	$8.	
month	month	INPUT	NOMINAL	C	3	$3.	
pdays	pdays	INPUT	INTERVAL	N	8	BEST.	
poutcome	poutcome	REJECTED	NOMINAL	C	7	$7.	
previous	previous	INPUT	INTERVAL	N	8	BEST.	

SAS Enterprise Miner Report

Node=Data Partition
Summary

Node id = Part
Node label = Data Partition
Meta path = Ids2 => Part
Notes =

Node=Data Partition
Properties

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

Node=Data Partition
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
REJECTED	NOMINAL	1	poutcome
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

SAS Enterprise Miner Report

Node=Neural Network 3HUDB
Summary

Node id = Neural3
Node label = Neural Network 3HUDB
Meta path = Ids2 => Part => Neural3
Notes =

Node=Neural Network 3HUDB
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	1E-5	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	1E-5	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	DBLDOG	DEFAULT
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Neural Network 3HUDB
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

Node=Neural Network 3HUDB
Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	1785.00	.	.
Degrees of Freedom for Error	1661.00	.	.
Model Degrees of Freedom	124.00	.	.
Number of Estimated Weights	124.00	.	.
Akaike's Information Criterion	1629.96	.	.

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2310.37	.	.
Average Squared Error	0.12	0.13	0.13
Maximum Absolute Error	0.96	0.99	0.99
Divisor for ASE	3570.00	2680.00	2680.00
Sum of Frequencies	1785.00	1340.00	1340.00
Root Average Squared Error	0.35	0.36	0.37
Sum of Squared Errors	438.53	350.19	357.33
Sum of Case Weights Times Freq	3570.00	2680.00	2680.00
Final Prediction Error	0.14	.	.
Mean Squared Error	0.13	0.13	0.13
Root Final Prediction Error	0.38	.	.
Root Mean Squared Error	0.36	0.36	0.37
Average Error Function	0.39	0.41	0.42
Error Function	1381.96	1105.46	1113.54
Misclassification Rate	0.17	0.18	0.19
Number of Wrong Classifications	301.00	245.00	249.00

SAS Enterprise Miner Report
Node=Neural Network 3HUDB
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=Neural Network 3HUDB
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=Neural Network 3HUDB
Model Assessment Scores where TARGET='deposit'
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 3HUDB
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=Neural Network 3HUDB
Score Distributions

Target Variable=deposit 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	66	7.8107	0.3191	7.811	0.319
0.90-0.95	185	21.8935	2.2340	29.704	2.553
0.85-0.90	113	13.3728	2.3404	43.077	4.894
0.80-0.85	93	11.0059	1.8085	54.083	6.702
0.75-0.80	64	7.5740	0.9574	61.657	7.660
0.70-0.75	38	4.4970	2.2340	66.154	9.894
0.65-0.70	42	4.9704	1.4894	71.124	11.383
0.60-0.65	32	3.7870	1.7021	74.911	13.085
0.55-0.60	36	4.2604	2.1277	79.172	15.213
0.50-0.55	33	3.9053	1.5957	83.077	16.809
0.45-0.50	27	3.1953	2.6596	86.272	19.468
0.40-0.45	22	2.6036	2.7660	88.876	22.234
0.35-0.40	18	2.1302	2.7660	91.006	25.000
0.30-0.35	19	2.2485	4.1489	93.254	29.149
0.25-0.30	15	1.7751	4.4681	95.030	33.617
0.20-0.25	12	1.4201	3.6170	96.450	37.234
0.15-0.20	10	1.1834	5.0000	97.633	42.234
0.10-0.15	10	1.1834	8.7234	98.817	50.957
0.05-0.10	7	0.8284	15.9574	99.645	66.915
0.00-0.05	3	0.3550	33.0851	100.000	100.000

Target Variable=deposit 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	67	10.5678	0.5666	10.568	0.567
0.90-0.95	112	17.6656	2.4079	28.233	2.975
0.85-0.90	99	15.6151	1.2748	43.849	4.249
0.80-0.85	64	10.0946	1.9830	53.943	6.232
0.75-0.80	49	7.7287	2.2663	61.672	8.499
0.70-0.75	37	5.8360	1.9830	67.508	10.482
0.65-0.70	26	4.1009	2.2663	71.609	12.748
0.60-0.65	26	4.1009	1.9830	75.710	14.731
0.55-0.60	20	3.1546	1.6997	78.864	16.431
0.50-0.55	18	2.8391	1.8414	81.703	18.272
0.45-0.50	13	2.0505	2.6912	83.754	20.963
0.40-0.45	14	2.2082	2.9745	85.962	23.938
0.35-0.40	17	2.6814	1.8414	88.644	25.779
0.30-0.35	17	2.6814	3.2578	91.325	29.037
0.25-0.30	15	2.3659	4.2493	93.691	33.286
0.20-0.25	8	1.2618	4.8159	94.953	38.102
0.15-0.20	6	0.9464	4.6742	95.899	42.776
0.10-0.15	12	1.8927	10.3399	97.792	53.116
0.05-0.10	7	1.1041	12.7479	98.896	65.864
0.00-0.05	7	1.1041	34.1360	100.000	100.000

SAS Enterprise Miner Report

Node=Neural Network 3HUBP
Summary

Node id = Neural2
Node label = Neural Network 3HUBP
Meta path = Ids2 => Part => Neural2
Notes =

Node=Neural Network 3HUBP
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	1E-5	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	1E-5	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	BPROP	DEFAULT
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Neural Network 3HUBP
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

Node=Neural Network 3HUBP
Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	1785.00	.	.
Degrees of Freedom for Error	1661.00	.	.
Model Degrees of Freedom	124.00	.	.
Number of Estimated Weights	124.00	.	.
Akaike's Information Criterion	1641.34	.	.

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2321.75	.	.
Average Squared Error	0.12	0.13	0.13
Maximum Absolute Error	0.96	0.99	0.99
Divisor for ASE	3570.00	2680.00	2680.00
Sum of Frequencies	1785.00	1340.00	1340.00
Root Average Squared Error	0.35	0.36	0.37
Sum of Squared Errors	441.22	349.75	359.24
Sum of Case Weights Times Freq	3570.00	2680.00	2680.00
Final Prediction Error	0.14	.	.
Mean Squared Error	0.13	0.13	0.13
Root Final Prediction Error	0.38	.	.
Root Mean Squared Error	0.36	0.36	0.37
Average Error Function	0.39	0.41	0.42
Error Function	1393.34	1105.49	1120.29
Misclassification Rate	0.17	0.18	0.19
Number of Wrong Classifications	304.00	244.00	259.00

SAS Enterprise Miner Report
Node=Neural Network 3HUBP
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=Neural Network 3HUBP
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=Neural Network 3HUBP
Model Assessment Scores where TARGET='deposit'
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 3HUBP
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=Neural Network 3HUBP
Score Distributions

Target Variable=deposit 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	60	7.1006	0.2128	7.101	0.213
0.90-0.95	183	21.6568	2.4468	28.757	2.660
0.85-0.90	109	12.8994	1.7021	41.657	4.362
0.80-0.85	88	10.4142	2.2340	52.071	6.596
0.75-0.80	69	8.1657	1.1702	60.237	7.766
0.70-0.75	47	5.5621	2.4468	65.799	10.213
0.65-0.70	47	5.5621	1.4894	71.361	11.702
0.60-0.65	30	3.5503	1.8085	74.911	13.511
0.55-0.60	38	4.4970	1.9149	79.408	15.426
0.50-0.55	35	4.1420	2.1277	83.550	17.553
0.45-0.50	24	2.8402	2.6596	86.391	20.213
0.40-0.45	27	3.1953	3.2979	89.586	23.511
0.35-0.40	23	2.7219	2.9787	92.308	26.489
0.30-0.35	14	1.6568	4.2553	93.964	30.745
0.25-0.30	15	1.7751	4.0426	95.740	34.787
0.20-0.25	11	1.3018	4.4681	97.041	39.255
0.15-0.20	6	0.7101	5.5319	97.751	44.787
0.10-0.15	9	1.0651	10.1064	98.817	54.894
0.05-0.10	9	1.0651	15.8511	99.882	70.745
0.00-0.05	1	0.1183	29.2553	100.000	100.000

Target Variable=deposit 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	62	9.7792	0.4249	9.779	0.425
0.90-0.95	116	18.2965	2.4079	28.076	2.833
0.85-0.90	90	14.1956	1.5581	42.271	4.391
0.80-0.85	70	11.0410	1.6997	53.312	6.091
0.75-0.80	45	7.0978	1.9830	60.410	8.074
0.70-0.75	37	5.8360	2.4079	66.246	10.482
0.65-0.70	36	5.6782	1.6997	71.924	12.181
0.60-0.65	27	4.2587	2.2663	76.183	14.448
0.55-0.60	19	2.9968	1.8414	79.180	16.289
0.50-0.55	19	2.9968	2.2663	82.177	18.555
0.45-0.50	15	2.3659	2.6912	84.543	21.246
0.40-0.45	17	2.6814	3.3994	87.224	24.646
0.35-0.40	12	1.8927	2.2663	89.117	26.912
0.30-0.35	17	2.6814	4.1076	91.798	31.020
0.25-0.30	13	2.0505	4.6742	93.849	35.694
0.20-0.25	11	1.7350	4.5326	95.584	40.227
0.15-0.20	6	0.9464	5.6657	96.530	45.892
0.10-0.15	11	1.7350	8.9235	98.265	54.816
0.05-0.10	5	0.7886	14.5892	99.054	69.405
0.00-0.05	6	0.9464	30.5949	100.000	100.000

SAS Enterprise Miner Report

Node=Neural Network 3HU
Summary

Node id = Neural
Node label = Neural Network 3HU
Meta path = Ids2 => Part => Neural
Notes =

Node=Neural Network 3HU
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	Y	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 3HU
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

Node=Neural Network 3HU
Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	1785.00	.	.
Degrees of Freedom for Error	1661.00	.	.
Model Degrees of Freedom	124.00	.	.
Number of Estimated Weights	124.00	.	.
Akaike's Information Criterion	1639.81	.	.

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2320.22	.	.
Average Squared Error	0.12	0.13	0.13
Maximum Absolute Error	0.96	0.99	0.99
Divisor for ASE	3570.00	2680.00	2680.00
Sum of Frequencies	1785.00	1340.00	1340.00
Root Average Squared Error	0.35	0.36	0.37
Sum of Squared Errors	441.00	347.16	358.32
Sum of Case Weights Times Freq	3570.00	2680.00	2680.00
Final Prediction Error	0.14	.	.
Mean Squared Error	0.13	0.13	0.13
Root Final Prediction Error	0.38	.	.
Root Mean Squared Error	0.36	0.36	0.37
Average Error Function	0.39	0.41	0.42
Error Function	1391.81	1100.03	1117.07
Misclassification Rate	0.17	0.18	0.19
Number of Wrong Classifications	310.00	242.00	254.00

SAS Enterprise Miner Report
Node=Neural Network 3HU
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=Neural Network 3HU
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=Neural Network 3HU
Model Assessment Scores where TARGET='deposit'
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 3HU
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=Neural Network 3HU
Score Distributions

Target Variable=deposit 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	72	8.5207	0.6383	8.521	0.638
0.90-0.95	189	22.3669	2.2340	30.888	2.872
0.85-0.90	102	12.0710	2.1277	42.959	5.000
0.80-0.85	98	11.5976	1.8085	54.556	6.809
0.75-0.80	66	7.8107	1.5957	62.367	8.404
0.70-0.75	44	5.2071	1.9149	67.574	10.319
0.65-0.70	35	4.1420	1.4894	71.716	11.809
0.60-0.65	34	4.0237	1.9149	75.740	13.723
0.55-0.60	33	3.9053	2.1277	79.645	15.851
0.50-0.55	31	3.6686	2.1277	83.314	17.979
0.45-0.50	34	4.0237	1.9149	87.337	19.894
0.40-0.45	21	2.4852	3.2979	89.822	23.191
0.35-0.40	17	2.0118	3.5106	91.834	26.702
0.30-0.35	17	2.0118	3.6170	93.846	30.319
0.25-0.30	13	1.5385	4.3617	95.385	34.681
0.20-0.25	13	1.5385	4.1489	96.923	38.830
0.15-0.20	10	1.1834	5.3191	98.107	44.149
0.10-0.15	5	0.5917	8.9362	98.698	53.085
0.05-0.10	9	1.0651	17.1277	99.763	70.213
0.00-0.05	2	0.2367	29.7872	100.000	100.000

Target Variable=deposit 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	69	10.8833	0.7082	10.883	0.708
0.90-0.95	122	19.2429	2.2663	30.126	2.975
0.85-0.90	98	15.4574	1.8414	45.584	4.816
0.80-0.85	59	9.3060	1.5581	54.890	6.374
0.75-0.80	48	7.5710	1.8414	62.461	8.215
0.70-0.75	35	5.5205	2.5496	67.981	10.765
0.65-0.70	27	4.2587	1.6997	72.240	12.465
0.60-0.65	27	4.2587	2.2663	76.498	14.731
0.55-0.60	21	3.3123	2.2663	79.811	16.997
0.50-0.55	20	3.1546	1.9830	82.965	18.980
0.45-0.50	12	1.8927	2.8329	84.858	21.813
0.40-0.45	17	2.6814	2.4079	87.539	24.221
0.35-0.40	20	3.1546	3.1161	90.694	27.337
0.30-0.35	9	1.4196	3.2578	92.114	30.595
0.25-0.30	10	1.5773	4.1076	93.691	34.703
0.20-0.25	11	1.7350	3.9660	95.426	38.669
0.15-0.20	8	1.2618	6.7989	96.688	45.467
0.10-0.15	11	1.7350	8.4986	98.423	53.966
0.05-0.10	3	0.4732	14.0227	98.896	67.989
0.00-0.05	7	1.1041	32.0113	100.000	100.000

SAS Enterprise Miner Report

Node=Exhaustive Regression Summary

Node id = Reg
Node label = Exhaustive Regression
Meta path = Ids2 => Part => Reg
Notes =

Node=Exhaustive Regression Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Regression		Force	0		PolynomialDegree	2	
AbsConvValue	-1.34078E154	-7.237006E75	GConvTimes	1		PrintDesignMatrix	N	
AbsFTime	1		GConvValue	1E-6		Rule	NONE	
AbsFValue	0		Hierarchy	CLASS		SASSPDS	N	
AbsGTime	1		InputCoding	DEVIATION		SelectionCriterion	DEFAULT	
AbsGValue	0.00001		Interactions			SelectionDefault	Y	
AbsXTime	1		LinkFunction	LOGIT		Sequential	N	
AbsXValue	1E-8		MainEffect	Y		Simple	N	
ClParm	N		MaxCPUTime	1 HOUR		SlEntry	0.05	
ConvDefaults	Y		MaxFunctionCalls	.		SlStay	0.05	
CorB	N		MaxIterations	.		Start	0	
CovB	N		MaxStep	.		StepOutput	N	
Covout	N		MinResourceUse	N		Stop	0	
Details	N		ModelDefaults	Y		SuppressIntercept	N	
Error	LOGISTIC		ModelSelection	NONE		SuppressOutput	N	
ExcludedVariable	REJECT		OptimizationTechnique	DEFAULT		Terms	N	
FConvTimes	1		Performance	N		TwoFactor	N	
FConvValue	0		Polynomial	N				

Node=Exhaustive Regression Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

Node=Exhaustive Regression Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Akaike's Information Criterion	1584.94	.	.
Average Squared Error	0.13	0.14	0.14
Average Error Function	0.42	0.44	0.46
Degrees of Freedom for Error	1745.00	.	.
Model Degrees of Freedom	40.00	.	.
Total Degrees of Freedom	1785.00	.	.

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Divisor for ASE	3570.00	2680.00	2680.00
Error Function	1504.94	1179.34	1243.11
Final Prediction Error	0.14	.	.
Maximum Absolute Error	1.00	1.00	1.00
Mean Square Error	0.14	0.14	0.14
Sum of Frequencies	1785.00	1340.00	1340.00
Number of Estimate Weights	40.00	.	.
Root Average Sum of Squares	0.36	0.37	0.37
Root Final Prediction Error	0.37	.	.
Root Mean Squared Error	0.37	0.37	0.37
Schwarz's Bayesian Criterion	1804.43	.	.
Sum of Squared Errors	472.08	368.14	373.35
Sum of Case Weights Times Freq	3570.00	2680.00	2680.00
Misclassification Rate	0.19	0.19	0.20

SAS Enterprise Miner Report
Node=Exhaustive Regression
Regression Model Effects
Target Level = YES
Absolute Coefficient
2.5
2.0
1.5
1.0
0.5
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Effect Number
Sign - +

SAS Enterprise Miner Report
Node=Exhaustive Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=Exhaustive Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=Exhaustive Regression
Model Assessment Scores where TARGET='deposit'
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=Exhaustive Regression
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=Exhaustive Regression
Score Distributions

Target Variable=deposit 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	178	21.0651	1.7021	21.065	1.702
0.90-0.95	91	10.7692	1.0638	31.834	2.766
0.85-0.90	77	9.1124	1.4894	40.947	4.255
0.80-0.85	62	7.3373	1.4894	48.284	5.745
0.75-0.80	55	6.5089	1.5957	54.793	7.340
0.70-0.75	39	4.6154	1.1702	59.408	8.511
0.65-0.70	40	4.7337	1.4894	64.142	10.000
0.60-0.65	50	5.9172	1.8085	70.059	11.809
0.55-0.60	32	3.7870	1.3830	73.846	13.191
0.50-0.55	37	4.3787	3.0851	78.225	16.277
0.45-0.50	35	4.1420	2.3404	82.367	18.617
0.40-0.45	24	2.8402	3.4043	85.207	22.021
0.35-0.40	39	4.6154	4.0426	89.822	26.064
0.30-0.35	21	2.4852	4.2553	92.308	30.319
0.25-0.30	22	2.6036	6.3830	94.911	36.702
0.20-0.25	21	2.4852	7.8723	97.396	44.574
0.15-0.20	9	1.0651	9.0426	98.462	53.617
0.10-0.15	6	0.7101	11.8085	99.172	65.426
0.05-0.10	5	0.5917	17.6596	99.763	83.085
0.00-0.05	2	0.2367	16.9149	100.000	100.000

Target Variable=deposit 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	134	21.1356	2.2663	21.136	2.266
0.90-0.95	77	12.1451	0.5666	33.281	2.833
0.85-0.90	48	7.5710	1.1331	40.852	3.966
0.80-0.85	46	7.2555	1.5581	48.107	5.524
0.75-0.80	35	5.5205	1.4164	53.628	6.941
0.70-0.75	40	6.3091	1.8414	59.937	8.782
0.65-0.70	33	5.2050	1.8414	65.142	10.623
0.60-0.65	35	5.5205	1.5581	70.662	12.181
0.55-0.60	23	3.6278	2.6912	74.290	14.873
0.50-0.55	21	3.3123	1.8414	77.603	16.714
0.45-0.50	25	3.9432	2.6912	81.546	19.405
0.40-0.45	15	2.3659	3.1161	83.912	22.521
0.35-0.40	21	3.3123	3.3994	87.224	25.921
0.30-0.35	20	3.1546	4.3909	90.379	30.312
0.25-0.30	20	3.1546	5.0992	93.533	35.411
0.20-0.25	14	2.2082	8.3569	95.741	43.768
0.15-0.20	12	1.8927	10.4816	97.634	54.249
0.10-0.15	6	0.9464	13.3144	98.580	67.564
0.05-0.10	4	0.6309	14.4476	99.211	82.011
0.00-0.05	5	0.7886	17.9887	100.000	100.000

SAS Enterprise Miner Report

Node=Forward Regression Summary

Node id = Reg2
Node label = Forward Regression
Meta path = Ids2 => Part => Reg2
Notes =

Node=Forward Regression Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Regression		Force	0		PolynomialDegree	2	
AbsConvValue	-1.34078E154	-7.237006E75	GConvTimes	1		PrintDesignMatrix	N	
AbsFTime	1		GConvValue	1E-6		Rule	NONE	
AbsFValue	0		Hierarchy	CLASS		SASSPDS	N	
AbsGTime	1		InputCoding	DEVIATION		SelectionCriterion	DEFAULT	
AbsGValue	0.00001		Interactions			SelectionDefault	Y	
AbsXTime	1		LinkFunction	LOGIT		Sequential	N	
AbsXValue	1E-8		MainEffect	Y		Simple	N	
ClParm	N		MaxCPUTime	1 HOUR		SlEntry	0.05	
ConvDefaults	Y		MaxFunctionCalls	.		SlStay	0.05	
CorB	N		MaxIterations	.		Start	0	
CovB	N		MaxStep	.		StepOutput	N	
Covout	N		MinResourceUse	N		Stop	0	
Details	N		ModelDefaults	Y		SuppressIntercept	N	
Error	LOGISTIC		ModelSelection	FORWARD	NONE	SuppressOutput	N	
ExcludedVariable	REJECT		OptimizationTechnique	DEFAULT		Terms	N	
FConvTimes	1		Performance	N		TwoFactor	N	
FConvValue	0		Polynomial	N				

Node=Forward Regression Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

Node=Forward Regression Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Akaike's Information Criterion	1579.02	.	.
Average Squared Error	0.13	0.14	0.14
Average Error Function	0.43	0.44	0.47
Degrees of Freedom for Error	1755.00	.	.
Model Degrees of Freedom	30.00	.	.
Total Degrees of Freedom	1785.00	.	.

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Divisor for ASE	3570.00	2680.00	2680.00
Error Function	1519.02	1188.26	1248.58
Final Prediction Error	0.14	.	.
Maximum Absolute Error	1.00	1.00	1.00
Mean Square Error	0.14	0.14	0.14
Sum of Frequencies	1785.00	1340.00	1340.00
Number of Estimate Weights	30.00	.	.
Root Average Sum of Squares	0.37	0.37	0.37
Root Final Prediction Error	0.37	.	.
Root Mean Squared Error	0.37	0.37	0.37
Schwarz's Bayesian Criterion	1743.63	.	.
Sum of Squared Errors	476.92	370.52	374.45
Sum of Case Weights Times Freq	3570.00	2680.00	2680.00
Misclassification Rate	0.19	0.19	0.20

SAS Enterprise Miner Report
Node=Forward Regression
Regression Model Effects
Target Level = YES
Absolute Coefficient
2.0
1.5
1.0
0.5
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Effect Number
Sign - +

SAS Enterprise Miner Report
Node=Forward Regression
Model Iteration Plots

SAS Enterprise Miner Report
Node=Forward Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
2.0
1.8
1.6
1.4
1.2
1.0
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=Forward Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
100
80
60
40
20
0
0
20
40
60
80
100
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response

Node=Forward Regression
Score Distributions

Target Variable=deposit 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	166	19.6450	1.9149	19.645	1.915
0.90-0.95	99	11.7160	0.9574	31.361	2.872
0.85-0.90	78	9.2308	1.5957	40.592	4.468
0.80-0.85	67	7.9290	1.2766	48.521	5.745
0.75-0.80	47	5.5621	0.9574	54.083	6.702
0.70-0.75	37	4.3787	1.3830	58.462	8.085
0.65-0.70	49	5.7988	1.7021	64.260	9.787
0.60-0.65	40	4.7337	1.2766	68.994	11.064
0.55-0.60	35	4.1420	2.1277	73.136	13.191
0.50-0.55	42	4.9704	2.4468	78.107	15.638
0.45-0.50	33	3.9053	2.9787	82.012	18.617
0.40-0.45	25	2.9586	3.2979	84.970	21.915
0.35-0.40	28	3.3136	5.1064	88.284	27.021
0.30-0.35	31	3.6686	4.4681	91.953	31.489
0.25-0.30	25	2.9586	5.8511	94.911	37.340
0.20-0.25	16	1.8935	7.6596	96.805	45.000
0.15-0.20	14	1.6568	9.5745	98.462	54.574
0.10-0.15	9	1.0651	12.6596	99.527	67.234
0.05-0.10	2	0.2367	17.2340	99.763	84.468
0.00-0.05	2	0.2367	15.5319	100.000	100.000

Target Variable=deposit 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	133	20.9779	2.2663	20.978	2.266
0.90-0.95	74	11.6719	0.4249	32.650	2.691
0.85-0.90	52	8.2019	0.9915	40.852	3.683
0.80-0.85	43	6.7823	1.1331	47.634	4.816
0.75-0.80	38	5.9937	1.9830	53.628	6.799
0.70-0.75	42	6.6246	1.6997	60.252	8.499
0.65-0.70	28	4.4164	1.2748	64.669	9.773
0.60-0.65	26	4.1009	2.6912	68.770	12.465
0.55-0.60	26	4.1009	1.4164	72.871	13.881
0.50-0.55	33	5.2050	3.1161	78.076	16.997
0.45-0.50	18	2.8391	2.6912	80.915	19.688
0.40-0.45	26	4.1009	2.2663	85.016	21.955
0.35-0.40	15	2.3659	3.8244	87.382	25.779
0.30-0.35	13	2.0505	5.3824	89.432	31.161
0.25-0.30	25	3.9432	5.8074	93.375	36.969
0.20-0.25	16	2.5237	8.7819	95.899	45.751
0.15-0.20	8	1.2618	12.3229	97.161	58.074
0.10-0.15	8	1.2618	11.6147	98.423	69.688
0.05-0.10	5	0.7886	15.0142	99.211	84.703
0.00-0.05	5	0.7886	15.2975	100.000	100.000

SAS Enterprise Miner Report

Node=Backward Regression Summary

Node id = Reg3
Node label = Backward Regression
Meta path = Ids2 => Part => Reg3
Notes =

Node=Backward Regression Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Regression		Force	0		PolynomialDegree	2	
AbsConvValue	-1.34078E154	-7.237006E75	GConvTimes	1		PrintDesignMatrix	N	
AbsFTime	1		GConvValue	1E-6		Rule	NONE	
AbsFValue	0		Hierarchy	CLASS		SASSPDS	N	
AbsGTime	1		InputCoding	DEVIATION		SelectionCriterion	DEFAULT	
AbsGValue	0.00001		Interactions			SelectionDefault	Y	
AbsXTime	1		LinkFunction	LOGIT		Sequential	N	
AbsXValue	1E-8		MainEffect	Y		Simple	N	
ClParm	N		MaxCPUTime	1 HOUR		SlEntry	0.05	
ConvDefaults	Y		MaxFunctionCalls	.		SlStay	0.05	
CorB	N		MaxIterations	.		Start	0	
CovB	N		MaxStep	.		StepOutput	N	
Covout	N		MinResourceUse	N		Stop	0	
Details	N		ModelDefaults	Y		SuppressIntercept	N	
Error	LOGISTIC		ModelSelection	BACKWARD	NONE	SuppressOutput	N	
ExcludedVariable	REJECT		OptimizationTechnique	DEFAULT		Terms	N	
FConvTimes	1		Performance	N		TwoFactor	N	
FConvValue	0		Polynomial	N				

Node=Backward Regression Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

Node=Backward Regression Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Akaike's Information Criterion	1579.02	.	.
Average Squared Error	0.13	0.14	0.14
Average Error Function	0.43	0.44	0.47
Degrees of Freedom for Error	1755.00	.	.
Model Degrees of Freedom	30.00	.	.
Total Degrees of Freedom	1785.00	.	.

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Divisor for ASE	3570.00	2680.00	2680.00
Error Function	1519.02	1188.26	1248.58
Final Prediction Error	0.14	.	.
Maximum Absolute Error	1.00	1.00	1.00
Mean Square Error	0.14	0.14	0.14
Sum of Frequencies	1785.00	1340.00	1340.00
Number of Estimate Weights	30.00	.	.
Root Average Sum of Squares	0.37	0.37	0.37
Root Final Prediction Error	0.37	.	.
Root Mean Squared Error	0.37	0.37	0.37
Schwarz's Bayesian Criterion	1743.63	.	.
Sum of Squared Errors	476.92	370.52	374.45
Sum of Case Weights Times Freq	3570.00	2680.00	2680.00
Misclassification Rate	0.19	0.19	0.20

SAS Enterprise Miner Report
Node=Backward Regression
Regression Model Effects
Target Level = YES
Absolute Coefficient
2.0
1.5
1.0
0.5
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Effect Number
Sign - +

SAS Enterprise Miner Report
Node=Backward Regression
Model Iteration Plots

SAS Enterprise Miner Report
Node=Backward Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
2.0
1.8
1.6
1.4
1.2
1.0
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=Backward Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
100
80
60
40
20
0
0
20
40
60
80
100
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response

Node=Backward Regression
Score Distributions

Target Variable=deposit 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	166	19.6450	1.9149	19.645	1.915
0.90-0.95	99	11.7160	0.9574	31.361	2.872
0.85-0.90	78	9.2308	1.5957	40.592	4.468
0.80-0.85	67	7.9290	1.2766	48.521	5.745
0.75-0.80	47	5.5621	0.9574	54.083	6.702
0.70-0.75	37	4.3787	1.3830	58.462	8.085
0.65-0.70	49	5.7988	1.7021	64.260	9.787
0.60-0.65	40	4.7337	1.2766	68.994	11.064
0.55-0.60	35	4.1420	2.1277	73.136	13.191
0.50-0.55	42	4.9704	2.4468	78.107	15.638
0.45-0.50	33	3.9053	2.9787	82.012	18.617
0.40-0.45	25	2.9586	3.2979	84.970	21.915
0.35-0.40	28	3.3136	5.1064	88.284	27.021
0.30-0.35	31	3.6686	4.4681	91.953	31.489
0.25-0.30	25	2.9586	5.8511	94.911	37.340
0.20-0.25	16	1.8935	7.6596	96.805	45.000
0.15-0.20	14	1.6568	9.5745	98.462	54.574
0.10-0.15	9	1.0651	12.6596	99.527	67.234
0.05-0.10	2	0.2367	17.2340	99.763	84.468
0.00-0.05	2	0.2367	15.5319	100.000	100.000

Target Variable=deposit 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	133	20.9779	2.2663	20.978	2.266
0.90-0.95	74	11.6719	0.4249	32.650	2.691
0.85-0.90	52	8.2019	0.9915	40.852	3.683
0.80-0.85	43	6.7823	1.1331	47.634	4.816
0.75-0.80	38	5.9937	1.9830	53.628	6.799
0.70-0.75	42	6.6246	1.6997	60.252	8.499
0.65-0.70	28	4.4164	1.2748	64.669	9.773
0.60-0.65	26	4.1009	2.6912	68.770	12.465
0.55-0.60	26	4.1009	1.4164	72.871	13.881
0.50-0.55	33	5.2050	3.1161	78.076	16.997
0.45-0.50	18	2.8391	2.6912	80.915	19.688
0.40-0.45	26	4.1009	2.2663	85.016	21.955
0.35-0.40	15	2.3659	3.8244	87.382	25.779
0.30-0.35	13	2.0505	5.3824	89.432	31.161
0.25-0.30	25	3.9432	5.8074	93.375	36.969
0.20-0.25	16	2.5237	8.7819	95.899	45.751
0.15-0.20	8	1.2618	12.3229	97.161	58.074
0.10-0.15	8	1.2618	11.6147	98.423	69.688
0.05-0.10	5	0.7886	15.0142	99.211	84.703
0.00-0.05	5	0.7886	15.2975	100.000	100.000

SAS Enterprise Miner Report

Node=Stepwise Regression Summary

Node id = Reg4
Node label = Stepwise Regression
Meta path = Ids2 => Part => Reg4
Notes =

Node=Stepwise Regression Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Regression		Force	0		PolynomialDegree	2	
AbsConvValue	-1.34078E154	-7.237006E75	GConvTimes	1		PrintDesignMatrix	N	
AbsFTime	1		GConvValue	1E-6		Rule	NONE	
AbsFValue	0		Hierarchy	CLASS		SASSPDS	N	
AbsGTime	1		InputCoding	DEVIATION		SelectionCriterion	DEFAULT	
AbsGValue	0.00001		Interactions			SelectionDefault	Y	
AbsXTime	1		LinkFunction	LOGIT		Sequential	N	
AbsXValue	1E-8		MainEffect	Y		Simple	N	
ClParm	N		MaxCPUTime	1 HOUR		SlEntry	0.05	
ConvDefaults	Y		MaxFunctionCalls	.		SlStay	0.05	
CorB	N		MaxIterations	.		Start	0	
CovB	N		MaxStep	.		StepOutput	N	
Covout	N		MinResourceUse	N		Stop	0	
Details	N		ModelDefaults	Y		SuppressIntercept	N	
Error	LOGISTIC		ModelSelection	STEPWISE	NONE	SuppressOutput	N	
ExcludedVariable	REJECT		OptimizationTechnique	DEFAULT		Terms	N	
FConvTimes	1		Performance	N		TwoFactor	N	
FConvValue	0		Polynomial	N				

Node=Stepwise Regression Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

Node=Stepwise Regression Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Akaike's Information Criterion	1579.02	.	.
Average Squared Error	0.13	0.14	0.14
Average Error Function	0.43	0.44	0.47
Degrees of Freedom for Error	1755.00	.	.
Model Degrees of Freedom	30.00	.	.
Total Degrees of Freedom	1785.00	.	.

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Divisor for ASE	3570.00	2680.00	2680.00
Error Function	1519.02	1188.26	1248.58
Final Prediction Error	0.14	.	.
Maximum Absolute Error	1.00	1.00	1.00
Mean Square Error	0.14	0.14	0.14
Sum of Frequencies	1785.00	1340.00	1340.00
Number of Estimate Weights	30.00	.	.
Root Average Sum of Squares	0.37	0.37	0.37
Root Final Prediction Error	0.37	.	.
Root Mean Squared Error	0.37	0.37	0.37
Schwarz's Bayesian Criterion	1743.63	.	.
Sum of Squared Errors	476.92	370.52	374.45
Sum of Case Weights Times Freq	3570.00	2680.00	2680.00
Misclassification Rate	0.19	0.19	0.20

SAS Enterprise Miner Report
Node=Stepwise Regression
Regression Model Effects
Target Level = YES
Absolute Coefficient
2.0
1.5
1.0
0.5
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Effect Number
Sign - +

SAS Enterprise Miner Report
Node=Stepwise Regression
Model Iteration Plots

SAS Enterprise Miner Report
Node=Stepwise Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
2.0
1.8
1.6
1.4
1.2
1.0
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=Stepwise Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
100
80
60
40
20
0
0
20
40
60
80
100
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response

Node=Stepwise Regression
Score Distributions

Target Variable=deposit 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	166	19.6450	1.9149	19.645	1.915
0.90-0.95	99	11.7160	0.9574	31.361	2.872
0.85-0.90	78	9.2308	1.5957	40.592	4.468
0.80-0.85	67	7.9290	1.2766	48.521	5.745
0.75-0.80	47	5.5621	0.9574	54.083	6.702
0.70-0.75	37	4.3787	1.3830	58.462	8.085
0.65-0.70	49	5.7988	1.7021	64.260	9.787
0.60-0.65	40	4.7337	1.2766	68.994	11.064
0.55-0.60	35	4.1420	2.1277	73.136	13.191
0.50-0.55	42	4.9704	2.4468	78.107	15.638
0.45-0.50	33	3.9053	2.9787	82.012	18.617
0.40-0.45	25	2.9586	3.2979	84.970	21.915
0.35-0.40	28	3.3136	5.1064	88.284	27.021
0.30-0.35	31	3.6686	4.4681	91.953	31.489
0.25-0.30	25	2.9586	5.8511	94.911	37.340
0.20-0.25	16	1.8935	7.6596	96.805	45.000
0.15-0.20	14	1.6568	9.5745	98.462	54.574
0.10-0.15	9	1.0651	12.6596	99.527	67.234
0.05-0.10	2	0.2367	17.2340	99.763	84.468
0.00-0.05	2	0.2367	15.5319	100.000	100.000

Target Variable=deposit 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	133	20.9779	2.2663	20.978	2.266
0.90-0.95	74	11.6719	0.4249	32.650	2.691
0.85-0.90	52	8.2019	0.9915	40.852	3.683
0.80-0.85	43	6.7823	1.1331	47.634	4.816
0.75-0.80	38	5.9937	1.9830	53.628	6.799
0.70-0.75	42	6.6246	1.6997	60.252	8.499
0.65-0.70	28	4.4164	1.2748	64.669	9.773
0.60-0.65	26	4.1009	2.6912	68.770	12.465
0.55-0.60	26	4.1009	1.4164	72.871	13.881
0.50-0.55	33	5.2050	3.1161	78.076	16.997
0.45-0.50	18	2.8391	2.6912	80.915	19.688
0.40-0.45	26	4.1009	2.2663	85.016	21.955
0.35-0.40	15	2.3659	3.8244	87.382	25.779
0.30-0.35	13	2.0505	5.3824	89.432	31.161
0.25-0.30	25	3.9432	5.8074	93.375	36.969
0.20-0.25	16	2.5237	8.7819	95.899	45.751
0.15-0.20	8	1.2618	12.3229	97.161	58.074
0.10-0.15	8	1.2618	11.6147	98.423	69.688
0.05-0.10	5	0.7886	15.0142	99.211	84.703
0.00-0.05	5	0.7886	15.2975	100.000	100.000

SAS Enterprise Miner Report

Node=Interactive Regression Summary

Node id = Reg5
Node label = Interactive Regression
Meta path = Ids2 => Part => Reg5
Notes =

Node=Interactive Regression Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Regression		Force	0		PolynomialDegree	2	
AbsConvValue	-1.34078E154	-7.237006E75	GConvTimes	1		PrintDesignMatrix	N	
AbsFTime	1		GConvValue	1E-6		Rule	NONE	
AbsFValue	0		Hierarchy	CLASS		SASSPDS	N	
AbsGTime	1		InputCoding	DEVIATION		SelectionCriterion	DEFAULT	
AbsGValue	0.00001		Interactions			SelectionDefault	Y	
AbsXTime	1		LinkFunction	LOGIT		Sequential	N	
AbsXValue	1E-8		MainEffect	Y		Simple	N	
ClParm	N		MaxCPUTime	1 HOUR		SIEntry	0.05	
ConvDefaults	Y		MaxFunctionCalls	.		SIStay	0.05	
CorB	N		MaxIterations	.		Start	0	
CovB	N		MaxStep	.		StepOutput	N	
Covout	N		MinResourceUse	N		Stop	0	
Details	N		ModelDefaults	Y		SuppressIntercept	N	
Error	LOGISTIC		ModelSelection	STEPWISE	NONE	SuppressOutput	N	
ExcludedVariable	REJECT		OptimizationTechnique	DEFAULT		Terms	N	
FConvTimes	1		Performance	N		TwoFactor	Y	N
FConvValue	0		Polynomial	N				

Node=Interactive Regression Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month

Node=Interactive Regression Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Akaike's Information Criterion	1529.63	.	.
Average Squared Error	0.11	0.15	0.14
Average Error Function	0.36	0.51	0.48
Degrees of Freedom for Error	1670.00	.	.
Model Degrees of Freedom	115.00	.	.
Total Degrees of Freedom	1785.00	.	.

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Divisor for ASE	3570.00	2680.00	2680.00
Error Function	1299.63	1376.76	1295.80
Final Prediction Error	0.13	.	.
Maximum Absolute Error	1.00	1.00	1.00
Mean Square Error	0.12	0.15	0.14
Sum of Frequencies	1785.00	1340.00	1340.00
Number of Estimate Weights	115.00	.	.
Root Average Sum of Squares	0.33	0.39	0.38
Root Final Prediction Error	0.36	.	.
Root Mean Squared Error	0.35	0.39	0.38
Schwarz's Bayesian Criterion	2160.65	.	.
Sum of Squared Errors	398.60	404.78	379.68
Sum of Case Weights Times Freq	3570.00	2680.00	2680.00
Misclassification Rate	0.15	0.21	0.21

SAS Enterprise Miner Report
Node=Interactive Regression
Regression Model Effects
Target Level = YES
Absolute Coefficient
0
2
4
6
8
10
Effect Number
Sign
-
+

SAS Enterprise Miner Report
Node=Interactive Regression
Model Iteration Plots

SAS Enterprise Miner Report
Node=Interactive Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
2.0
1.8
1.6
1.4
1.2
1.0
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=Interactive Regression
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
100
80
60
40
20
0
0
20
40
60
80
100
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response

Node=Interactive Regression
Score Distributions

Target Variable=deposit 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	251	29.7041	1.2766	29.704	1.277
0.90-0.95	100	11.8343	1.2766	41.538	2.553
0.85-0.90	79	9.3491	0.8511	50.888	3.404
0.80-0.85	46	5.4438	1.1702	56.331	4.574
0.75-0.80	49	5.7988	1.2766	62.130	5.851
0.70-0.75	43	5.0888	1.0638	67.219	6.915
0.65-0.70	45	5.3254	1.4894	72.544	8.404
0.60-0.65	34	4.0237	1.4894	76.568	9.894
0.55-0.60	28	3.3136	1.9149	79.882	11.809
0.50-0.55	26	3.0769	2.1277	82.959	13.936
0.45-0.50	20	2.3669	2.3404	85.325	16.277
0.40-0.45	18	2.1302	2.4468	87.456	18.723
0.35-0.40	23	2.7219	1.7021	90.178	20.426
0.30-0.35	22	2.6036	4.0426	92.781	24.468
0.25-0.30	13	1.5385	5.0000	94.320	29.468
0.20-0.25	18	2.1302	6.7021	96.450	36.170
0.15-0.20	10	1.1834	8.8298	97.633	45.000
0.10-0.15	9	1.0651	10.7447	98.698	55.745
0.05-0.10	8	0.9467	14.7872	99.645	70.532
0.00-0.05	3	0.3550	29.4681	100.000	100.000

Target Variable=deposit 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	191	30.1262	3.2578	30.126	3.258
0.90-0.95	67	10.5678	0.9915	40.694	4.249
0.85-0.90	50	7.8864	2.6912	48.580	6.941
0.80-0.85	44	6.9401	1.8414	55.521	8.782
0.75-0.80	28	4.4164	1.5581	59.937	10.340
0.70-0.75	32	5.0473	2.1246	64.984	12.465
0.65-0.70	20	3.1546	1.4164	68.139	13.881
0.60-0.65	21	3.3123	1.6997	71.451	15.581
0.55-0.60	15	2.3659	1.2748	73.817	16.856
0.50-0.55	17	2.6814	2.1246	76.498	18.980
0.45-0.50	20	3.1546	1.9830	79.653	20.963
0.40-0.45	15	2.3659	1.5581	82.019	22.521
0.35-0.40	17	2.6814	2.8329	84.700	25.354
0.30-0.35	12	1.8927	4.3909	86.593	29.745
0.25-0.30	20	3.1546	5.6657	89.748	35.411
0.20-0.25	14	2.2082	5.8074	91.956	41.218
0.15-0.20	11	1.7350	8.3569	93.691	49.575
0.10-0.15	15	2.3659	10.4816	96.057	60.057
0.05-0.10	18	2.8391	13.5977	98.896	73.654
0.00-0.05	7	1.1041	26.3456	100.000	100.000

SAS Enterprise Miner Report

Node=ClassDecTree (B2D6)
Summary

Node id = Tree
Node label = ClassDecTree (B2D6)
Meta path = Ids2 => Part => Tree
Notes =

Node=ClassDecTree (B2D6)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	DecisionTree		Kass	Y		Pred	N	
AVG	Y		KassApply	BEFORE		Predict	Y	
AssessMeasure	PROFIT/LOSS		LeafSize	5		ProfitLoss	NONE	
AssessPercentage	0.25		Leafid	Y		RASE	N	
CV	N		Maxbranch	2		SampleMethod	RANDOM	
CVNIter	10		Maxdepth	6		SampleSeed	12345	
CVRepeat	1		MinCatSize	5		SampleSize	10000	
CVSeed	12345		MissingValue	USEINSEARCH		ShowNodeId	Y	
ClassColorBy	PERCENTCORRECT		NSubtree	1		ShowValid	Y	
Count	Y		NodeRole	SEGMENT		SigLevel	0.2	
CreateSample	DEFAULT		NodeSample	20000		SplitPrecision	4	
Criterion	DEFAULT		NominalCriterion	PROBCHISQ		Splitsize	.	
Depth	Y		Nrules	5		Subtree	ASSESSMENT	
Dummy	N		Nsurrs	0		Target	ALL	
Exhaustive	5000		NumInputs	1		ToolType	MODEL	
Freeze	N		NumSingleImp	5		TrainMode	BATCH	
ImportModel	N		ObsImportance	N		UseDecision	N	
ImportedTreeData			OrdinalCriterion	ENTROPY		UseMultipleTarget	N	
Inputs	N		PercentCorrect	N		UsePriors	N	
IntColorBy	AVG		Performance	DISK		UseVarOnce	N	
IntervalCriterion	PROBF		Precision	4		VarSelection	Y	

Node=ClassDecTree (B2D6)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month
ID	INTERVAL	1	_dataobs_

Node=ClassDecTree (B2D6)
Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Sum of Frequencies	1785.00	1340.00	1340.00
Misclassification Rate	0.18	0.19	0.20
Maximum Absolute Error	0.95	1.00	1.00
Sum of Squared Errors	476.31	396.15	412.56
Average Squared Error	0.13	0.15	0.15
Root Average Squared Error	0.37	0.38	0.39
Divisor for ASE	3570.00	2680.00	2680.00
Total Degrees of Freedom	1785.00	.	.

SAS Enterprise Miner Report
Node=ClassDecTree (B2D6)
Treemap

SAS Enterprise Miner Report
Node=ClassDecTree (B2D6)
Model Iteration Plots
Average Square Error
0.250
0.225
0.200
0.175
0.150
0.125
0
5
10
15
20
25
Iteration
Misclassification Rate
0.5
0.4
0.3
0.2
0
5
10
15
20
25
Iteration
Train
Validate

SAS Enterprise Miner Report
Node=ClassDecTree (B2D6)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=ClassDecTree (B2D6)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=ClassDecTree (B2D6)
Model Assessment Scores where TARGET='deposit'
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=ClassDecTree (B2D6)
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=ClassDecTree (B2D6)
Score Distributions

Target Variable=deposit 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	68	8.0473	0.0000	8.047	0.000
0.80-0.85	521	61.6568	13.1915	69.704	13.191
0.65-0.70	104	12.3077	5.4255	82.012	18.617
0.55-0.60	13	1.5385	1.0638	83.550	19.681
0.45-0.50	40	4.7337	4.3617	88.284	24.043
0.35-0.40	35	4.1420	5.9574	92.426	30.000
0.25-0.30	5	0.5917	1.4894	93.018	31.489
0.10-0.15	36	4.2604	23.2979	97.278	54.787
0.05-0.10	6	0.7101	8.7234	97.988	63.511
0.00-0.05	17	2.0118	36.4894	100.000	100.000

Target Variable=deposit 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	46	7.2555	1.2748	7.256	1.275
0.80-0.85	396	62.4606	13.7394	69.716	15.014
0.65-0.70	66	10.4101	4.2493	80.126	19.263
0.55-0.60	9	1.4196	0.7082	81.546	19.972
0.45-0.50	27	4.2587	5.2408	85.804	25.212
0.35-0.40	25	3.9432	4.8159	89.748	30.028
0.25-0.30	4	0.6309	1.8414	90.379	31.870

Target Variable=deposit Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.10-0.15	33	5.2050	25.3541	95.584	57.224
0.05-0.10	8	1.2618	8.2153	96.845	65.439
0.00-0.05	20	3.1546	34.5609	100.000	100.000

SAS Enterprise Miner Report

Node=ClassDecTree (B2D5)
Summary

Node id = Tree2
Node label = ClassDecTree (B2D5)
Meta path = Ids2 => Part => Tree2
Notes =

Node=ClassDecTree (B2D5)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	DecisionTree		Kass	Y		Pred	N	
AVG	Y		KassApply	BEFORE		Predict	Y	
AssessMeasure	PROFIT/LOSS		LeafSize	5		ProfitLoss	NONE	
AssessPercentage	0.25		Leafid	Y		RASE	N	
CV	N		Maxbranch	2		SampleMethod	RANDOM	
CVNIter	10		Maxdepth	5	6	SampleSeed	12345	
CVRepeat	1		MinCatSize	5		SampleSize	10000	
CVSeed	12345		MissingValue	USEINSEARCH		ShowNodeId	Y	
ClassColorBy	PERCENTCORRECT		NSubtree	1		ShowValid	Y	
Count	Y		NodeRole	SEGMENT		SigLevel	0.2	
CreateSample	DEFAULT		NodeSample	20000		SplitPrecision	4	
Criterion	DEFAULT		NominalCriterion	PROBCHISQ		Splitsize	.	
Depth	Y		Nrules	5		Subtree	ASSESSMENT	
Dummy	N		Nsurrs	0		Target	ALL	
Exhaustive	5000		NumInputs	1		ToolType	MODEL	
Freeze	N		NumSingleImp	5		TrainMode	BATCH	
ImportModel	N		ObsImportance	N		UseDecision	N	
ImportedTreeData			OrdinalCriterion	ENTROPY		UseMultipleTarget	N	
Inputs	N		PercentCorrect	N		UsePriors	N	
IntColorBy	AVG		Performance	DISK		UseVarOnce	N	
IntervalCriterion	PROBF		Precision	4		VarSelection	Y	

Node=ClassDecTree (B2D5)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month
ID	INTERVAL	1	_dataobs_

Node=ClassDecTree (B2D5)
Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Sum of Frequencies	1785.00	1340.00	1340.00
Misclassification Rate	0.18	0.20	0.21
Maximum Absolute Error	0.95	1.00	1.00
Sum of Squared Errors	483.78	406.66	418.79
Average Squared Error	0.14	0.15	0.16
Root Average Squared Error	0.37	0.39	0.40
Divisor for ASE	3570.00	2680.00	2680.00
Total Degrees of Freedom	1785.00	.	.

SAS Enterprise Miner Report
Node=ClassDecTree (B2D5)
Treemap

SAS Enterprise Miner Report
Node=ClassDecTree (B2D5)
Model Iteration Plots
Average Square Error
0.250
0.225
0.200
0.175
0.150
0.125
0
5
10
15
20
Iteration
Misclassification Rate
0.5
0.4
0.3
0.2
0
5
10
15
20
Iteration
Train
Validate

SAS Enterprise Miner Report
Node=ClassDecTree (B2D5)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=ClassDecTree (B2D5)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=ClassDecTree (B2D5)
Model Assessment Scores where TARGET='deposit'
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=ClassDecTree (B2D5)
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=ClassDecTree (B2D5)
Score Distributions

Target Variable=deposit 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	68	8.0473	0.0000	8.047	0.000
0.80-0.85	476	56.3314	12.2340	64.379	12.234
0.65-0.70	104	12.3077	5.4255	76.686	17.660
0.60-0.65	85	10.0592	5.3191	86.746	22.979
0.55-0.60	13	1.5385	1.0638	88.284	24.043
0.35-0.40	35	4.1420	5.9574	92.426	30.000
0.25-0.30	5	0.5917	1.4894	93.018	31.489
0.10-0.15	36	4.2604	23.2979	97.278	54.787
0.05-0.10	6	0.7101	8.7234	97.988	63.511
0.00-0.05	17	2.0118	36.4894	100.000	100.000

Target Variable=deposit 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	46	7.2555	1.2748	7.256	1.275
0.80-0.85	362	57.0978	13.3144	64.353	14.589
0.65-0.70	66	10.4101	4.2493	74.763	18.839
0.60-0.65	61	9.6215	5.6657	84.385	24.504
0.55-0.60	9	1.4196	0.7082	85.804	25.212
0.35-0.40	25	3.9432	4.8159	89.748	30.028
0.25-0.30	4	0.6309	1.8414	90.379	31.870

Target Variable=deposit Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.10-0.15	33	5.2050	25.3541	95.584	57.224
0.05-0.10	8	1.2618	8.2153	96.845	65.439
0.00-0.05	20	3.1546	34.5609	100.000	100.000

SAS Enterprise Miner Report

Node=ClassDecTree (B2D4)
Summary

Node id = Tree3
Node label = ClassDecTree (B2D4)
Meta path = Ids2 => Part => Tree3
Notes =

Node=ClassDecTree (B2D4)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	DecisionTree		Kass	Y		Pred	N	
AVG	Y		KassApply	BEFORE		Predict	Y	
AssessMeasure	PROFIT/LOSS		LeafSize	5		ProfitLoss	NONE	
AssessPercentage	0.25		Leafid	Y		RASE	N	
CV	N		Maxbranch	2		SampleMethod	RANDOM	
CVNIter	10		Maxdepth	4	6	SampleSeed	12345	
CVRepeat	1		MinCatSize	5		SampleSize	10000	
CVSeed	12345		MissingValue	USEINSEARCH		ShowNodeId	Y	
ClassColorBy	PERCENTCORRECT		NSubtree	1		ShowValid	Y	
Count	Y		NodeRole	SEGMENT		SigLevel	0.2	
CreateSample	DEFAULT		NodeSample	20000		SplitPrecision	4	
Criterion	DEFAULT		NominalCriterion	PROBCHISQ		Splitsize	.	
Depth	Y		Nrules	5		Subtree	ASSESSMENT	
Dummy	N		Nsurrs	0		Target	ALL	
Exhaustive	5000		NumInputs	1		ToolType	MODEL	
Freeze	N		NumSingleImp	5		TrainMode	BATCH	
ImportModel	N		ObsImportance	N		UseDecision	N	
ImportedTreeData			OrdinalCriterion	ENTROPY		UseMultipleTarget	N	
Inputs	N		PercentCorrect	N		UsePriors	N	
IntColorBy	AVG		Performance	DISK		UseVarOnce	N	
IntervalCriterion	PROBF		Precision	4		VarSelection	Y	

Node=ClassDecTree (B2D4)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month
ID	INTERVAL	1	_dataobs_

Node=ClassDecTree (B2D4)
Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Sum of Frequencies	1785.00	1340.00	1340.00
Misclassification Rate	0.21	0.21	0.24
Maximum Absolute Error	0.93	0.93	0.87
Sum of Squared Errors	551.30	430.91	471.95
Average Squared Error	0.15	0.16	0.18
Root Average Squared Error	0.39	0.40	0.42
Divisor for ASE	3570.00	2680.00	2680.00
Total Degrees of Freedom	1785.00	.	.

SAS Enterprise Miner Report
Node=ClassDecTree (B2D4)
Treemap

SAS Enterprise Miner Report
Node=ClassDecTree (B2D4)
Model Iteration Plots
Average Square Error
0.250
0.225
0.200
0.175
0.150
0
5
10
15
Iteration
Misclassification Rate
0.5
0.4
0.3
0.2
0
5
10
15
Iteration
Train
Validate

SAS Enterprise Miner Report
Node=ClassDecTree (B2D4)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=ClassDecTree (B2D4)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=ClassDecTree (B2D4)
Model Assessment Scores where TARGET='deposit'
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=ClassDecTree (B2D4)
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=ClassDecTree (B2D4)
Score Distributions

Target Variable=deposit Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.80-0.85	450	53.2544	11.5957	53.254	11.596
0.65-0.70	104	12.3077	5.4255	65.562	17.021
0.60-0.65	188	22.2485	11.2766	87.811	28.298
0.55-0.60	10	1.1834	0.8511	88.994	29.149
0.10-0.15	89	10.5325	65.4255	99.527	94.574
0.05-0.10	4	0.4734	5.4255	100.000	100.000

Target Variable=deposit Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.80-0.85	344	54.2587	12.0397	54.259	12.040
0.65-0.70	66	10.4101	4.2493	64.669	16.289
0.60-0.65	132	20.8202	11.7564	85.489	28.045
0.55-0.60	7	1.1041	0.7082	86.593	28.754
0.10-0.15	83	13.0915	65.4391	99.685	94.193
0.05-0.10	2	0.3155	5.8074	100.000	100.000

SAS Enterprise Miner Report

Node=ClassDecTree (B2D3)
Summary

Node id = Tree4
Node label = ClassDecTree (B2D3)
Meta path = Ids2 => Part => Tree4
Notes =

Node=ClassDecTree (B2D3)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	DecisionTree		Kass	Y		Pred	N	
AVG	Y		KassApply	BEFORE		Predict	Y	
AssessMeasure	PROFIT/LOSS		LeafSize	5		ProfitLoss	NONE	
AssessPercentage	0.25		Leafid	Y		RASE	N	
CV	N		Maxbranch	2		SampleMethod	RANDOM	
CVNIter	10		Maxdepth	3	6	SampleSeed	12345	
CVRepeat	1		MinCatSize	5		SampleSize	10000	
CVSeed	12345		MissingValue	USEINSEARCH		ShowNodeId	Y	
ClassColorBy	PERCENTCORRECT		NSubtree	1		ShowValid	Y	
Count	Y		NodeRole	SEGMENT		SigLevel	0.2	
CreateSample	DEFAULT		NodeSample	20000		SplitPrecision	4	
Criterion	DEFAULT		NominalCriterion	PROBCHISQ		Splitsize	.	
Depth	Y		Nrules	5		Subtree	ASSESSMENT	
Dummy	N		Nsurrs	0		Target	ALL	
Exhaustive	5000		NumInputs	1		ToolType	MODEL	
Freeze	N		NumSingleImp	5		TrainMode	BATCH	
ImportModel	N		ObsImportance	N		UseDecision	N	
ImportedTreeData			OrdinalCriterion	ENTROPY		UseMultipleTarget	N	
Inputs	N		PercentCorrect	N		UsePriors	N	
IntColorBy	AVG		Performance	DISK		UseVarOnce	N	
IntervalCriterion	PROBF		Precision	4		VarSelection	Y	

Node=ClassDecTree (B2D3)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month
ID	INTERVAL	1	_dataobs_

Node=ClassDecTree (B2D3)
Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Sum of Frequencies	1785.00	1340.00	1340.00
Misclassification Rate	0.21	0.22	0.24
Maximum Absolute Error	0.93	0.93	0.87
Sum of Squared Errors	555.69	431.64	468.45
Average Squared Error	0.16	0.16	0.17
Root Average Squared Error	0.39	0.40	0.42
Divisor for ASE	3570.00	2680.00	2680.00
Total Degrees of Freedom	1785.00	.	.

SAS Enterprise Miner Report
Node=ClassDecTree (B2D3)
Treemap

SAS Enterprise Miner Report
Node=ClassDecTree (B2D3)
Model Iteration Plots
Average Square Error
0.24
0.22
0.20
0.18
0.16
2
4
6
8
Iteration
Misclassification Rate
0.45
0.40
0.35
0.30
0.25
0.20
2
4
6
8
Iteration
Train
Validate

SAS Enterprise Miner Report
Node=ClassDecTree (B2D3)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=ClassDecTree (B2D3)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=ClassDecTree (B2D3)
Model Assessment Scores where TARGET='deposit'
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=ClassDecTree (B2D3)
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=ClassDecTree (B2D3)
Score Distributions

Target Variable=deposit Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.80-0.85	450	53.2544	11.5957	53.254	11.596
0.65-0.70	104	12.3077	5.4255	65.562	17.021
0.60-0.65	188	22.2485	11.2766	87.811	28.298
0.25-0.30	15	1.7751	4.3617	89.586	32.660
0.10-0.15	84	9.9408	61.9149	99.527	94.574
0.05-0.10	4	0.4734	5.4255	100.000	100.000

Target Variable=deposit Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.80-0.85	344	54.2587	12.0397	54.259	12.040
0.65-0.70	66	10.4101	4.2493	64.669	16.289
0.60-0.65	132	20.8202	11.7564	85.489	28.045
0.25-0.30	15	2.3659	3.1161	87.855	31.161
0.10-0.15	75	11.8297	63.0312	99.685	94.193
0.05-0.10	2	0.3155	5.8074	100.000	100.000

SAS Enterprise Miner Report

Node=ClassDecTree (B3D6)
Summary

Node id = Tree5
Node label = ClassDecTree (B3D6)
Meta path = Ids2 => Part => Tree5
Notes =

Node=ClassDecTree (B3D6)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	DecisionTree		Kass	Y		Pred	N	
AVG	Y		KassApply	BEFORE		Predict	Y	
AssessMeasure	PROFIT/LOSS		LeafSize	5		ProfitLoss	NONE	
AssessPercentage	0.25		Leafid	Y		RASE	N	
CV	N		Maxbranch	3	2	SampleMethod	RANDOM	
CVNIter	10		Maxdepth	6		SampleSeed	12345	
CVRepeat	1		MinCatSize	5		SampleSize	10000	
CVSeed	12345		MissingValue	USEINSEARCH		ShowNodeId	Y	
ClassColorBy	PERCENTCORRECT		NSubtree	1		ShowValid	Y	
Count	Y		NodeRole	SEGMENT		SigLevel	0.2	
CreateSample	DEFAULT		NodeSample	20000		SplitPrecision	4	
Criterion	DEFAULT		NominalCriterion	PROBCHISQ		Splitsize	.	
Depth	Y		Nrules	5		Subtree	ASSESSMENT	
Dummy	N		Nsurrs	0		Target	ALL	
Exhaustive	5000		NumInputs	1		ToolType	MODEL	
Freeze	N		NumSingleImp	5		TrainMode	BATCH	
ImportModel	N		ObsImportance	N		UseDecision	N	
ImportedTreeData			OrdinalCriterion	ENTROPY		UseMultipleTarget	N	
Inputs	N		PercentCorrect	N		UsePriors	N	
IntColorBy	AVG		Performance	DISK		UseVarOnce	N	
IntervalCriterion	PROBF		Precision	4		VarSelection	Y	

Node=ClassDecTree (B3D6)
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
INPUT	INTERVAL	7	age balance campaign day duration pdays previous
INPUT	NOMINAL	8	contact default education housing job loan marital month
ID	INTERVAL	1	_dataobs_

Node=ClassDecTree (B3D6)
Model Fit Statistics

Target=deposit Target Label=deposit

Label of Statistic	Train	Validation	Test
Sum of Frequencies	1785.00	1340.00	1340.00
Misclassification Rate	0.16	0.17	0.19
Maximum Absolute Error	0.98	0.98	0.98
Sum of Squared Errors	451.14	377.46	400.65
Average Squared Error	0.13	0.14	0.15
Root Average Squared Error	0.36	0.38	0.39
Divisor for ASE	3570.00	2680.00	2680.00
Total Degrees of Freedom	1785.00	.	.

SAS Enterprise Miner Report
Node=ClassDecTree (B3D6)
Treemap

SAS Enterprise Miner Report
Node=ClassDecTree (B3D6)
Model Iteration Plots
Average Square Error
0.250
0.225
0.200
0.175
0.150
0.125
0
10
20
30
Iteration
Misclassification Rate
0.5
0.4
0.3
0.2
0
10
20
30
Iteration
Train
Validate

SAS Enterprise Miner Report
Node=ClassDecTree (B3D6)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Gain
Depth
Gain
Baseline Gain
Best Gain

SAS Enterprise Miner Report
Node=ClassDecTree (B3D6)
Model Assessment Scores where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=ClassDecTree (B3D6)
Model Assessment Scores where TARGET='deposit'
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=ClassDecTree (B3D6)
Score Distributions where TARGET='deposit'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

Node=ClassDecTree (B3D6)
Score Distributions

Target Variable=deposit Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.85-0.90	84	9.9408	1.2766	9.941	1.277
0.80-0.85	412	48.7574	9.4681	58.698	10.745
0.75-0.80	210	24.8521	6.1702	83.550	16.915
0.70-0.75	10	1.1834	0.4255	84.734	17.340
0.65-0.70	22	2.6036	1.0638	87.337	18.404
0.30-0.35	9	1.0651	2.1277	88.402	20.532
0.20-0.25	76	8.9941	30.5319	97.396	51.064
0.10-0.15	8	0.9467	5.6383	98.343	56.702
0.05-0.10	1	0.1183	1.8085	98.462	58.511
0.00-0.05	13	1.5385	41.4894	100.000	100.000

Target Variable=deposit Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.85-0.90	57	8.9905	2.4079	8.991	2.408
0.80-0.85	314	49.5268	9.9150	58.517	12.323
0.75-0.80	140	22.0820	6.5156	80.599	18.839
0.70-0.75	7	1.1041	0.4249	81.703	19.263
0.65-0.70	22	3.4700	0.5666	85.174	19.830
0.30-0.35	2	0.3155	1.6997	85.489	21.530
0.20-0.25	68	10.7256	32.1530	96.215	53.683

Target Variable=deposit Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.10-0.15	7	1.1041	4.9575	97.319	58.640
0.05-0.10	4	0.6309	0.9915	97.950	59.632
0.00-0.05	13	2.0505	40.3683	100.000	100.000

SAS Enterprise Miner Report

Node=NN Model Comparison Summary

Node id = MdlComp3
Node label = NN Model Comparison
Meta path = Ids2 => Part => Neural => MdlComp3
Notes =

Node=NN Model Comparison Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	ModelCompare		NumberOfReportedLevels	1E-6		SelectionData	DEFAULT	
AssessAllTargetLevels	N		NumberofBins	20		SelectionDepth	10	
DecileBin	20		ProfitEpsilon	1E-6		SelectionTable	TRAIN	TABLE
HPCriteria	DEFAULT		RecomputeAssess	N		StatisticUsed	_VMISC_	
LiftEpsilon	1E-6		RocChart	Y		TargetLabel	deposit	
ModelCriteria	Valid: Misclassification Rate		RocEpsilon	0.01		TargetName	deposit	
ModelDescription	Neural Network 3HU		RoiEpsilon	1E-6		classViyaCriteria	DEFAULT	
ModelId	Neural		ScoreDistBin	20		intervalViyaCriteria	DEFAULT	
NormalizeReportingVariables	Y		SelectionCriteria	DEFAULT				

Node=NN Model Comparison Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit

Node=NN 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	Neural	Neural	Neural Network 3HU	deposit	deposit	0.18060	0.12353	0.17367	0.674
	Neural2	Neural2	Neural Network 3HUBP	deposit	deposit	0.18209	0.12359	0.17031	0.668
	Neural3	Neural3	Neural Network 3HUDB	deposit	deposit	0.18284	0.12284	0.16863	0.670

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	Neural	Neural	Neural Network 3HU	deposit	deposit	0.18060	0.12954	0.18060	0.640
	Neural2	Neural2	Neural Network 3HUBP	deposit	deposit	0.18209	0.13051	0.18209	0.640
	Neural3	Neural3	Neural Network 3HUDB	deposit	deposit	0.18284	0.13067	0.18284	0.636

SAS Enterprise Miner Report
Node=NN Model Comparison
Classification Chart
TARGET='deposit' and _TYPE_='PREDICTION'
Data Role = TRAIN
Model Description = Neural Network 3HU
Data Role = TRAIN
Model Description = Neural Network 3HUBP
Data Role = TRAIN
Model Description = Neural Network 3HUDB
Data Role = VALIDATE
Model Description = Neural Network 3HU
Data Role = VALIDATE
Model Description = Neural Network 3HUBP
Data Role = VALIDATE
Model Description = Neural Network 3HUDB
Total Percentage
0
10
20
30
40
50
NO
YES
Target
Correct Text
Correct
Incorrect

SAS Enterprise Miner Report
Node=NN Model Comparison
Multiple Model Assessment Scores where DataRole=TEST
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Respo...
Mean Posterior Probability
Depth
Model Node
Neural
Neural2
Neural3

SAS Enterprise Miner Report
Node=NN Model Comparison
Multiple Model Assessment Scores where DataRole=TRAIN
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Respo...
Mean Posterior Probability
Depth
Model Node
Neural
Neural2
Neural3

SAS Enterprise Miner Report
Node=NN Model Comparison
Multiple Model Assessment Scores where DataRole=VALIDATE
TARGET='deposit'
Gain
Depth
Cumulative Lift
Depth
Cumulative % Captured Respo...
Depth
Mean Posterior Probability
Depth
Model Node
Neural
Neural2
Neural3

SAS Enterprise Miner Report

Node=Regression Model Comparison Summary

Node id = MdlComp2
Node label = Regression Model Comparison
Meta path = Ids2 => Part => Reg2 => MdlComp2
Notes =

Node=Regression Model Comparison Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	ModelCompare		NumberOfReportedLevels	1E-6		SelectionData	DEFAULT	
AssessAllTargetLevels	N		NumberofBins	20		SelectionDepth	10	
DecileBin	20		ProfitEpsilon	1E-6		SelectionTable	TRAIN	TABLE
HPCriteria	DEFAULT		RecomputeAssess	N		StatisticUsed	_VMISC_	
LiftEpsilon	1E-6		RocChart	Y		TargetLabel	deposit	
ModelCriteria	Valid: Misclassification Rate		RocEpsilon	0.01		TargetName	deposit	
ModelDescription	Forward Regression		RoiEpsilon	1E-6		classViyaCriteria	DEFAULT	
ModelId	Reg2		ScoreDistBin	20		intervalViyaCriteria	DEFAULT	
NormalizeReportingVariables	Y		SelectionCriteria	DEFAULT				

Node=Regression Model Comparison Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit

Node=Regression 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	Reg2	Reg2	Forward Regression	deposit	deposit	0.19328	0.13359	0.18599	0.636
	Reg3	Reg3	Backward Regression	deposit	deposit	0.19328	0.13359	0.18599	0.636
	Reg4	Reg4	Stepwise Regression	deposit	deposit	0.19328	0.13359	0.18599	0.636
	Reg	Reg	Exhaustive Regression	deposit	deposit	0.19403	0.13224	0.18880	0.640
	Reg5	Reg5	Interactive Regression	deposit	deposit	0.21119	0.11165	0.15406	0.698

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	Reg2	Reg2	Forward Regression	deposit	deposit	0.19328	0.13825	0.19328	0.633
	Reg3	Reg3	Backward Regression	deposit	deposit	0.19328	0.13825	0.19328	0.633
	Reg4	Reg4	Stepwise Regression	deposit	deposit	0.19328	0.13825	0.19328	0.633
	Reg	Reg	Exhaustive Regression	deposit	deposit	0.19403	0.13737	0.19403	0.621
	Reg5	Reg5	Interactive Regression	deposit	deposit	0.21119	0.15104	0.21119	0.596

SAS Enterprise Miner Report
Node=Regression Model Comparison
Classification Chart
TARGET='deposit' and _TYPE_='PREDICTION'
Data Role = TRAIN
Model Description = Backward Regression
Data Role = TRAIN
Model Description = Exhaustive Regression
Data Role = TRAIN
Model Description = Forward Regression
Data Role = TRAIN
Model Description = Interactive Regression
Data Role = TRAIN
Model Description = Stepwise Regression
Data Role = VALIDATE
Model Description = Backward Regression
Data Role = VALIDATE
Model Description = Exhaustive Regression
Data Role = VALIDATE
Model Description = Forward Regression
Data Role = VALIDATE
Model Description = Interactive Regression
Data Role = VALIDATE
Model Description = Stepwise Regression
Total Percentage
0
10
20
30
40
50
NO
YES
Target
Correct Text
Correct
Incorrect

SAS Enterprise Miner Report
Node=Regression Model Comparison
Multiple Model Assessment Scores where DataRole=TEST
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Resp...
Mean Posterior Probability
Depth
Model Node
Reg
Reg2
Reg3
Reg4
Reg5

SAS Enterprise Miner Report
Node=Regression Model Comparison
Multiple Model Assessment Scores where DataRole=TRAIN
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Resp...
Mean Posterior Probability
Depth
Model Node
Reg
Reg2
Reg3
Reg4
Reg5

SAS Enterprise Miner Report
Node=Regression Model Comparison
Multiple Model Assessment Scores where DataRole=VALIDATE
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Resp...
Mean Posterior Probability
Depth
Model Node
Reg
Reg2
Reg3
Reg4
Reg5

SAS Enterprise Miner Report

Node=DecTree Model Comparison Summary

Node id = MdlComp
Node label = DecTree Model Comparison
Meta path = Ids2 => Part => Tree5 => MdlComp
Notes =

Node=DecTree Model Comparison Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	ModelCompare		NumberOfReportedLevels	1E-6		SelectionData	DEFAULT	
AssessAllTargetLevels	N		NumberofBins	20		SelectionDepth	10	
DecileBin	20		ProfitEpsilon	1E-6		SelectionTable	TRAIN	TABLE
HPCriteria	DEFAULT		RecomputeAssess	N		StatisticUsed	_VMISC_	
LiftEpsilon	1E-6		RocChart	Y		TargetLabel	deposit	
ModelCriteria	Valid: Misclassification Rate		RocEpsilon	0.01		TargetName	deposit	
ModelDescription	ClassDecTree (B3D6)		RoiEpsilon	1E-6		classViyaCriteria	DEFAULT	
ModelId	Tree5		ScoreDistBin	20		intervalViyaCriteria	DEFAULT	
NormalizeReportingVariables	Y		SelectionCriteria	DEFAULT				

Node=DecTree Model Comparison Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit

Node=DecTree 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	Tree5	Tree5	ClassDecTree (B3D6)	deposit	deposit	0.17463	0.12637	0.15686	0.689
	Tree	Tree	ClassDecTree (B2D6)	deposit	deposit	0.19254	0.13342	0.18151	0.642
	Tree2	Tree2	ClassDecTree (B2D5)	deposit	deposit	0.20000	0.13551	0.18207	0.642
	Tree3	Tree3	ClassDecTree (B2D4)	deposit	deposit	0.21493	0.15443	0.20560	0.598
	Tree4	Tree4	ClassDecTree (B2D3)	deposit	deposit	0.21642	0.15566	0.20672	0.595

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	Tree5	Tree5	ClassDecTree (B3D6)	deposit	deposit	0.17463	0.14084	0.17463	0.653
	Tree	Tree	ClassDecTree (B2D6)	deposit	deposit	0.19254	0.14782	0.19254	0.616
	Tree2	Tree2	ClassDecTree (B2D5)	deposit	deposit	0.20000	0.15174	0.20000	0.606
	Tree3	Tree3	ClassDecTree (B2D4)	deposit	deposit	0.21493	0.16079	0.21493	0.578
	Tree4	Tree4	ClassDecTree (B2D3)	deposit	deposit	0.21642	0.16106	0.21642	0.574

SAS Enterprise Miner Report
Node=DecTree Model Comparison
Classification Chart
TARGET='deposit' and _TYPE_='PREDICTION'
Data Role = TRAIN
Model Description = ClassDecTree (B2D3)
Data Role = TRAIN
Model Description = ClassDecTree (B2D4)
Data Role = TRAIN
Model Description = ClassDecTree (B2D5)
Data Role = TRAIN
Model Description = ClassDecTree (B2D6)
Data Role = TRAIN
Model Description = ClassDecTree (B3D6)
Data Role = VALIDATE
Model Description = ClassDecTree (B2D3)
Data Role = VALIDATE
Model Description = ClassDecTree (B2D4)
Data Role = VALIDATE
Model Description = ClassDecTree (B2D5)
Data Role = VALIDATE
Model Description = ClassDecTree (B2D6)
Data Role = VALIDATE
Model Description = ClassDecTree (B3D6)
Total Percentage
0
10
20
30
40
50
NO
YES
Target
Correct Text
Correct
Incorrect

SAS Enterprise Miner Report
Node=DecTree Model Comparison
Multiple Model Assessment Scores where DataRole=TEST
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Resp...
Mean Posterior Probability
Depth
Model Node
Tree
Tree2
Tree3
Tree4
Tree5

SAS Enterprise Miner Report
Node=DecTree Model Comparison
Multiple Model Assessment Scores where DataRole=TRAIN
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Resp...
Mean Posterior Probability
Depth
Model Node
Tree
Tree2
Tree3
Tree4
Tree5

SAS Enterprise Miner Report
Node=DecTree Model Comparison
Multiple Model Assessment Scores where DataRole=VALIDATE
TARGET='deposit'
Gain
Depth
Cumulative Lift
Depth
Cumulative % Captured Resp...
Depth
Mean Posterior Probability
Depth
Model Node
Tree
Tree2
Tree3
Tree4
Tree5

SAS Enterprise Miner Report

Node=BANKMARKETINGSCOREDATA
Summary

Node id = Ids3
Node label = BANKMARKETINGSCOREDATA
Meta path = Ids3
Notes =

Node=BANKMARKETINGSCOREDATA
Properties

Property	Value	Default	Property	Value	Default
Component	DataSource		DsCreatedBy	aling5	
ApplyIntervalLevelLowerLimit	Y		DsId	bankmarketingscoredata	
ApplyMaxClassLevels	Y		DsModifiedBy	aling5	
ApplyMaxPercentMissing	Y		DsModifyDate	1962277552.1	
CMeta	WORK.M1BKZJJZ		DsSampleName		
ComputeStatistics	N		DsSampleSize		
DBPassThrough	Y		DsSampleSizeType		
Data	ALDATA.BANKMARKETINGSCOREDATA		DsScope	LOCAL	
DataSelection	DATASOURCE		IdentifyEmptyColumns	Y	
DataSource	bankmarketingscoredata		IntervalLowerLimit	20	
DataSourceRole	RAW		Library	ALDATA	
Description			MaxClassLevels	20	
DropMapVariables	Y		MaxPercentMissing	50	
DsCreateDate	1962277551.9		MetaAdvisor	BASIC	

Property	Value	Default
NBytes	197632	.
NCols	17	.
NObs	1117	.
NewTable		
NewVariableRole	REJECT	
OutputType	VIEW	
Role	SCORE	TRAIN
Sample	D	
SampleSizeObs	10000	
SampleSizePercent	20	
SampleSizeType	PERCENT	
Scope	LOCAL	
Segment		
Table	BANKMARKETINGSCOREDATA	

Node=BANKMARKETINGSCOREDATA
Data Attributes

Attribute	Value	Attribute	Value	Attribute	Value
Data Name	BANKMARKETINGSCOREDATA	Date Created	07Mar2022:12:39:42	Data Size	197632
Data Type	DATA	Date Modified	07Mar2022:12:39:42	Role	RAW
Data Label		Number Rows	1117	Segment	
Engine	BASE	Number Columns	17	Data Library	ALDATA

Node=BANKMARKETINGSCOREDATA
Variables List

Name	Label	Role	Level	Type	Length	Format	Creator
age	age	INPUT	INTERVAL	N	8	BEST.	
balance	balance	INPUT	INTERVAL	N	8	BEST.	
campaign	campaign	INPUT	INTERVAL	N	8	BEST.	
contact	contact	INPUT	NOMINAL	C	9	$9.	
day	day	INPUT	INTERVAL	N	8	BEST.	
default	default	INPUT	NOMINAL	C	3	$3.	
deposit	deposit	INPUT	NOMINAL	C	3	$3.	
duration	duration	INPUT	INTERVAL	N	8	BEST.	
education	education	INPUT	NOMINAL	C	9	$9.	
housing	housing	INPUT	NOMINAL	C	3	$3.	
job	job	INPUT	NOMINAL	C	13	$13.	
loan	loan	INPUT	NOMINAL	C	3	$3.	
marital	marital	INPUT	NOMINAL	C	8	$8.	
month	month	INPUT	NOMINAL	C	3	$3.	
pdays	pdays	INPUT	INTERVAL	N	8	BEST.	
poutcome	poutcome	INPUT	NOMINAL	C	7	$7.	
previous	previous	INPUT	INTERVAL	N	8	BEST.	

SAS Enterprise Miner Report

Node=Final Model Comparison Summary

Node id = MdlComp4
Node label = Final Model Comparison
Meta path = Ids2 => Part => Tree5 => MdlComp => MdlComp4
Notes =

Node=Final Model Comparison Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	ModelCompare		NumberOfReportedLevels	1E-6		SelectionData	DEFAULT	
AssessAllTargetLevels	N		NumberofBins	20		SelectionDepth	10	
DecileBin	20		ProfitEpsilon	1E-6		SelectionTable	TRAIN	TABLE
HPCriteria	DEFAULT		RecomputeAssess	N		StatisticUsed	_VMISC_	
LiftEpsilon	1E-6		RocChart	Y		TargetLabel	deposit	
ModelCriteria	Valid: Misclassification Rate		RocEpsilon	0.01		TargetName	deposit	
ModelDescription	ClassDecTree (B3D6)		RoiEpsilon	1E-6		classViyaCriteria	DEFAULT	
ModelId	Tree5		ScoreDistBin	20		intervalViyaCriteria	DEFAULT	
NormalizeReportingVariables	Y		SelectionCriteria	DEFAULT				

Node=Final Model Comparison Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit

Node=Final 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	MdlComp	Tree5	ClassDecTree (B3D6)	deposit	deposit	0.17463	0.12637	0.15686	0.689
	MdlComp3	Neural	Neural Network 3HU	deposit	deposit	0.18060	0.12353	0.17367	0.674
	MdlComp2	Reg2	Forward Regression	deposit	deposit	0.19328	0.13359	0.18599	0.636

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	MdlComp	Tree5	ClassDecTree (B3D6)	deposit	deposit	0.17463	0.14084	0.17463	0.653
	MdlComp3	Neural	Neural Network 3HU	deposit	deposit	0.18060	0.12954	0.18060	0.640
	MdlComp2	Reg2	Forward Regression	deposit	deposit	0.19328	0.13825	0.19328	0.633

SAS Enterprise Miner Report
Node=Final Model Comparison
Classification Chart
TARGET='deposit' and _TYPE_='PREDICTION'
Data Role = TRAIN
Model Description = ClassDecTree (B3D6)
Data Role = TRAIN
Model Description = Forward Regression
Data Role = TRAIN
Model Description = Neural Network 3HU
Data Role = VALIDATE
Model Description = ClassDecTree (B3D6)
Data Role = VALIDATE
Model Description = Forward Regression
Data Role = VALIDATE
Model Description = Neural Network 3HU
Total Percentage
0
10
20
30
40
50
NO
YES
Target
Correct Text
Correct
Incorrect

SAS Enterprise Miner Report
Node=Final Model Comparison
Multiple Model Assessment Scores where DataRole=TEST
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Respo...
Mean Posterior Probability
Depth
Model Node
Neural
Reg2
Tree5

SAS Enterprise Miner Report
Node=Final Model Comparison
Multiple Model Assessment Scores where DataRole=TRAIN
TARGET='deposit'
Gain
Cumulative Lift
Cumulative % Captured Respo...
Mean Posterior Probability
Depth
Model Node
Neural
Reg2
Tree5

SAS Enterprise Miner Report
Node=Final Model Comparison
Multiple Model Assessment Scores where DataRole=VALIDATE
TARGET='deposit'
Gain
Depth
Cumulative Lift
Depth
Cumulative % Captured Respo...
Depth
Mean Posterior Probability
Depth
Model Node
Neural
Reg2
Tree5

SAS Enterprise Miner Report

Node=Score
Summary

Node id = Score
Node label = Score
Meta path = Ids2 => Part => Tree5 => MdlComp => MdlComp4 => Score
Notes =

Node=Score
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Score		HideInput	Y		JScore	N	
CScore	N		HideOther	Y		OptimizedCode	Y	
FixedOutputNames	Y		HidePredict	Y		OutputType	VIEW	
GraphReports	Y		HideRejected	Y		PackageName	DEFAULT	
HideAssess	Y		HideResidual	Y		PreferenceName		
HideClassification	Y		HideTarget	Y		ScoreTest	N	
HideFreq	Y		HideVariables	N		ScoreValidate	N	

Node=Score
Variable Summary

Role	Level	Frequency Count	Name
TARGET	NOMINAL	1	deposit
SEGMENT	NOMINAL	1	_NODE_

Node=Score
Output Variables

Variable Name	Creator	Variable Label	Function	Type
EM_CLASSIFICATION	Score	Prediction for deposit	CLASSIFICATION	C
EM_EVENTPROBABILITY	Score	Probability for level YES of deposit	PREDICT	N
EM_PROBABILITY	Score	Probability of Classification	PREDICT	N
EM_SEGMENT	Score	Node	TRANSFORM	N
I_deposit	Tree5	Into: deposit	CLASSIFICATION	C
P_depositno	Tree5	Predicted: deposit=no	PREDICT	N
P_deposityes	Tree5	Predicted: deposit=yes	PREDICT	N
Q_depositno	Tree5	Unadjusted P: deposit=no	TRANSFORM	N
Q_deposityes	Tree5	Unadjusted P: deposit=yes	TRANSFORM	N
U_deposit	Tree5	Unnormalized Into: deposit	CLASSIFICATION	C
V_depositno	Tree5	Validated: deposit=no	PREDICT	N
V_deposityes	Tree5	Validated: deposit=yes	PREDICT	N
NODE	Tree5	Node	TRANSFORM	N
WARN	Tree5	Warnings	ASSESS	C

SAS Enterprise Miner Report
Node=Score
Bar Chart
Output Type = CLASSIFICATION
Data Role = SCORE
Output Type = CLASSIFICATION
Data Role = TEST
Output Type = CLASSIFICATION
Data Role = TRAIN
Output Type = CLASSIFICATION
Data Role = VALIDATE
Output Type = SEGMENT
Data Role = SCORE
Output Type = SEGMENT
Data Role = TEST
Output Type = SEGMENT
Data Role = TRAIN
Output Type = SEGMENT
Data Role = VALIDATE
Percent
Formatted Value
10 11 20 28 29 33 34 35 36 37 38 40 5 57 58 59 6 7 NO YES

SAS Enterprise Miner Report
Node=Score
Histogram
Data Role = SCORE
Variable Name = P_depositno
Data Role = SCORE
Variable Name = P_deposityes
Data Role = TEST
Variable Name = P_depositno
Data Role = TEST
Variable Name = P_deposityes
Data Role = TRAIN
Variable Name = P_depositno
Data Role = TRAIN
Variable Name = P_deposityes
Data Role = VALIDATE
Variable Name = P_depositno
Data Role = VALIDATE
Variable Name = P_deposityes
Percent
Numeric Value
0
10
20
30
40
50
0.0
0.2
0.4
0.6
0.8
1.0

SAS Enterprise Miner Report

Node=BANKMARKETINGTRAIN_TRAIN Summary

Node id = Ids
Node label = BANKMARKETINGTRAIN_TRAIN
Meta path = Ids
Notes =

Node=BANKMARKETINGTRAIN_TRAIN Properties

Property	Value	Default	Property	Value	Default
Component	DataSource		DsCreatedBy	aling5	
ApplyIntervalLevelLowerLimit	Y		DsId	bankmarketingtraintrain	
ApplyMaxClassLevels	Y		DsModifiedBy	aling5	
ApplyMaxPercentMissing	Y		DsModifyDate	1961967501.4	
CMeta	WORK.M1AUQU0V		DsSampleName		
ComputeStatistics	N		DsSampleSize		
DBPassThrough	Y		DsSampleSizeType		
Data	ALDATA.BANKMARKETINGTRAIN_TRAIN		DsScope	LOCAL	
DataSelection	DATASOURCE		IdentifyEmptyColumns	Y	
DataSource	bankmarketingtraintrain		IntervalLowerLimit	20	
DataSourceRole	RAW		Library	ALDATA	
Description			MaxClassLevels	20	
DropMapVariables	Y		MaxPercentMissing	50	
DsCreateDate	1961967501.3		MetaAdvisor	BASIC	

Property	Value	Default
NBytes	590848	.
NCols	17	.
NObs	4465	.
NewTable		
NewVariableRole	REJECT	
OutputType	VIEW	
Role	RAW	TRAIN
Sample	D	
SampleSizeObs	10000	
SampleSizePercent	20	
SampleSizeType	PERCENT	
Scope	LOCAL	
Segment		
Table	BANKMARKETINGTRAIN_TRAIN	

Node=BANKMARKETINGTRAIN_TRAIN Data Attributes

Attribute	Value	Attribute	Value	Attribute	Value
Data Name	BANKMARKETINGTRAIN_TRAIN	Date Created	03Mar2022:22:55:56	Data Size	590848
Data Type	DATA	Date Modified	03Mar2022:22:55:56	Role	RAW
Data Label		Number Rows	4465	Segment	
Engine	BASE	Number Columns	17	Data Library	ALDATA

Node=BANKMARKETINGTRAIN_TRAIN
Variables List

Name	Label	Role	Level	Type	Length	Format	Creator
age	age	INPUT	INTERVAL	N	8	BEST.	
balance	balance	INPUT	INTERVAL	N	8	BEST.	
campaign	campaign	INPUT	INTERVAL	N	8	BEST.	
contact	contact	REJECTED	NOMINAL	C	9	$9.	
day	day	REJECTED	INTERVAL	N	8	BEST.	
default	default	INPUT	NOMINAL	C	3	$3.	
deposit	deposit	INPUT	NOMINAL	C	3	$3.	
duration	duration	INPUT	INTERVAL	N	8	BEST.	
education	education	INPUT	NOMINAL	C	9	$9.	
housing	housing	INPUT	NOMINAL	C	3	$3.	
job	job	INPUT	NOMINAL	C	13	$13.	
loan	loan	INPUT	NOMINAL	C	3	$3.	
marital	marital	INPUT	NOMINAL	C	8	$8.	
month	month	REJECTED	NOMINAL	C	3	$3.	
pdays	pdays	INPUT	INTERVAL	N	8	BEST.	
poutcome	poutcome	REJECTED	NOMINAL	C	7	$7.	
previous	previous	INPUT	INTERVAL	N	8	BEST.	

SAS Enterprise Miner Report

Node=Filter
Summary

Node id = Filter
Node label = Filter
Meta path = Ids => Filter
Notes =

Node=Filter
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Filter		KeepMissingInterval	Y		PercentsCutoff	0.5	
ClassFilterMethod	MINPCT		MADSCutoff	9		PublishScoreCode	Y	
CreateDistributionData	Y	N	MaxValues	25		SpacingsCutoff	9	
ExportTable	FILTERED		MinFreq	1		StddevCutoff	3	
IntervalFilterMethod	STDDEV		MinPercent	0.01		TabletoFilter	TRAIN	
KeepMissingClass	Y		NormalizeClassValue	Y		UpdateClassLevel	N	

Node=Filter
Variable Summary

Role	Level	Frequency Count	Name
REJECTED	INTERVAL	1	day
REJECTED	NOMINAL	3	contact month poutcome
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Filter
Excluded Class Values

Variable	Role	Level	Train Count	Train Percent	Label	Filter Method
job	INPUT	UNKNOWN	20	0.44793	job	MINPCT

Node=Filter
Limits for Interval Variables

Variable	Role	Minimum	Maximum	Filter Method	Keep Missing Values	Label
age	INPUT	5.38	76.82	STDDEV	Y	age
balance	INPUT	-8278.08	11247.28	STDDEV	Y	balance
campaign	INPUT	-5.42	10.39	STDDEV	Y	campaign
duration	INPUT	-669.58	1411.90	STDDEV	Y	duration
pdays	INPUT	-280.58	386.36	STDDEV	Y	pdays
previous	INPUT	-6.28	8.01	STDDEV	Y	previous

SAS Enterprise Miner Report

Node=Sample(90%)
Summary

Node id = Smpl
Node label = Sample(90%)
Meta path = Ids => Filter => Smpl
Notes =

Node=Sample(90%)
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Sample		IgnoreSmallStrata	N		OutputType	DATA	
AdjustFreq	N		IntervalDistribution	Y		Pvalue	0.01	
Alpha	0.01		LevelProportion	100		RandomSeed	12345	
ClassDistribution	Y		LevelSampleProportion	50		SizeObs	.	
ClusterMethod	RANDOM		LevelSelection	EVENT		SizePercent	90	10
FreqCount	N		Method	DEFAULT		SizeType	PERCENT	
FreqMiss	N		MinStrataSize	5		StratifyCriterion	PROPORTIONAL	

Node=Sample(90%)
Variable Summary

Role	Level	Frequency Count	Name
REJECTED	INTERVAL	1	day
REJECTED	NOMINAL	3	contact month poutcome
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

SAS Enterprise Miner Report

Node=Variable Selection (2)
Summary

Node id = Varsel2
Node label = Variable Selection (2)
Meta path = Ids => Filter => Smpl => Varsel2
Notes =

Node=Variable Selection (2)
Properties

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

Node=Variable Selection (2)
Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Variable Selection (2)
Variable Selection

Variable Name	Role	Measurement Level	Type	Label	Reasons for Rejection
age	INPUT	INTERVAL	N	age	
balance	INPUT	INTERVAL	N	balance	
campaign	INPUT	INTERVAL	N	campaign	
default	INPUT	NOMINAL	C	default	
deposit	INPUT	NOMINAL	C	deposit	
duration	INPUT	INTERVAL	N	duration	
education	INPUT	NOMINAL	C	education	
housing	INPUT	NOMINAL	C	housing	
job	INPUT	NOMINAL	C	job	
loan	INPUT	NOMINAL	C	loan	
marital	INPUT	NOMINAL	C	marital	
pdays	INPUT	INTERVAL	N	pdays	
previous	INPUT	INTERVAL	N	previous	

SAS Enterprise Miner Report

Node=Variable Selection
Summary

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

Node=Variable Selection
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	VariableSelection		MaxLevel	100		RoleUnusedVars	DEFAULT	
Bins	50		MaxMissingPercent	50		SASSPDS	Y	
ByPassVars	NONE		MaxRows	3000		StopR2	0.0005	
ByPassVarsRole	INPUT		MinR2	0.005		TargetModel	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
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Variable Selection
Variable Selection

Variable Name	Role	Measurement Level	Type	Label	Reasons for Rejection
age	INPUT	INTERVAL	N	age	
balance	INPUT	INTERVAL	N	balance	
campaign	INPUT	INTERVAL	N	campaign	
default	INPUT	NOMINAL	C	default	
deposit	INPUT	NOMINAL	C	deposit	
duration	INPUT	INTERVAL	N	duration	
education	INPUT	NOMINAL	C	education	
housing	INPUT	NOMINAL	C	housing	
job	INPUT	NOMINAL	C	job	
loan	INPUT	NOMINAL	C	loan	
marital	INPUT	NOMINAL	C	marital	
pdays	INPUT	INTERVAL	N	pdays	
previous	INPUT	INTERVAL	N	previous	

SAS Enterprise Miner Report

Node=90% Average Clustering k=4 Summary

Node id = Clus6
Node label = 90% Average Clustering k=4
Meta path = Ids => Filter => Smpl => Varsel2 => Clus6
Notes =

Node=90% Average Clustering k=4 Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	AVERAGE	WARD	ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	USER	AUTOMATIC
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	4	10	TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=90% Average Clustering k=4 Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital
ID	INTERVAL	1	_dataobs_

Node=90% Average Clustering k=4 Mean Statistics

Variable	Segment 1	Segment 2	Segment 3	Segment 4
Clustering Criterion	0.550	0.55	0.550	0.55
Maximum Relative Change in Cluster Seeds	0.002	0.00	0.002	0.00
Improvement in Clustering Criterion	.	.	.	.
Frequency of Cluster	50.000	755.00	442.000	2409.00
Root-Mean-Square Standard Deviation	0.603	0.60	0.527	0.54
Maximum Distance from Cluster Seed	5.582	6.49	6.868	6.20
Nearest Cluster	4.000	4.00	4.000	2.00
Distance to Nearest Cluster	8.728	2.93	2.985	2.93
age	39.220	41.37	39.796	40.62
balance	-43.780	1571.26	693.851	1226.05
campaign	2.660	1.87	2.364	2.30
duration	322.760	332.00	336.934	358.15
pdays	9.400	197.29	21.846	1.83

Variable	Segment 1	Segment 2	Segment 3	Segment 4
previous	0.160	2.91	0.274	0.04
default=no	0.000	1.00	1.000	1.00
default=yes	1.000	-0.00	0.000	0.00
deposit=no	0.760	0.33	0.686	0.57
deposit=yes	0.240	0.67	0.314	0.43
education=primary	0.140	0.10	0.118	0.14
education=secondary	0.520	0.47	0.606	0.47
education=tertiary	0.280	0.39	0.258	0.35
education=unknown	0.060	0.04	0.018	0.04
housing=no	0.440	0.52	0.432	0.53
housing=yes	0.560	0.48	0.568	0.47
job=admin.	0.080	0.14	0.170	0.10
job=blue-collar	0.280	0.12	0.233	0.18
job=entrepreneur	0.080	0.01	0.038	0.03
job=housemaid	0.060	0.02	0.011	0.03
job=management	0.180	0.26	0.190	0.24
job=retired	0.060	0.08	0.027	0.06
job=self-employed	0.100	0.03	0.032	0.04
job=services	0.040	0.07	0.115	0.08
job=student	-0.000	0.05	-0.000	0.04
job=technician	0.120	0.17	0.167	0.16
job=unemployed	-0.000	0.03	0.016	0.03
loan=no	0.620	0.96	0.000	1.00
loan=yes	0.380	0.04	1.000	0.00
marital=divorced	0.180	0.10	0.136	0.11
marital=married	0.520	0.53	0.606	0.55
marital=single	0.300	0.37	0.258	0.34

SAS Enterprise Miner Report
Node=90% Average Clustering k=4
Tree Diagram

SAS Enterprise Miner Report
Node=90% Average Clustering k=4
Segment Plot
Variable = age
Variable = balance
Variable = campaign
Variable = default
Variable = duration
Variable = job
Variable = loan
Variable = pdays
Variable = previous
Percent
Segment Variable
Formatted Value
18:25.25
25.25:32.5
32.5:39.75
39.75:47
47:54.25
54.25:61.5
61.5:68.75
68.75:76
-1273:511.25
-3058:-1273
.
2295.9:4080.5
4080.5:5865.1
511.25:2295.9
5865.1:7649.8
7649.8:9434.4
9434.4:11219
1:2.125
2.125:3.25
3.25:4.375
4.375:5.5
5.5:6.625
6.625:7.75
7.75:8.875
8.875:10
no
yes
1058.3:1234.1
1234.1:1410
178.88:354.75
354.75:530.63
3:178.88
530.63:706.5
706.5:882.38
882.38:1058.3
admin.
blue-collar
entrepreneur
housemaid
management
retired
self-employed
services
student
technician
unemployed
-1:47.25
143.75:192
192:240.25
240.25:288.5
288.5:336.75
336.75:385
47.25:95.5
95.5:143.75
0:1
1:2
2:3
3:4
4:5
5:6
6:7
7:8

SAS Enterprise Miner Report

Node=90% Centroid Clustering k=4 Summary

Node id = Clus5
Node label = 90% Centroid Clustering k=4
Meta path = Ids => Filter => Smpl => Varsel2 => Clus5
Notes =

Node=90% Centroid Clustering k=4 Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	CENTROID	WARD	ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	USER	AUTOMATIC
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	4	10	TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=90% Centroid Clustering k=4 Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital
ID	INTERVAL	1	_dataobs_

Node=90% Centroid Clustering k=4 Mean Statistics

Variable	Segment 1	Segment 2	Segment 3	Segment 4
Clustering Criterion	0.550	0.55	0.550	0.55
Maximum Relative Change in Cluster Seeds	0.002	0.00	0.002	0.00
Improvement in Clustering Criterion	.	.	.	.
Frequency of Cluster	50.000	755.00	442.000	2409.00
Root-Mean-Square Standard Deviation	0.603	0.60	0.527	0.54
Maximum Distance from Cluster Seed	5.582	6.49	6.868	6.20
Nearest Cluster	4.000	4.00	4.000	2.00
Distance to Nearest Cluster	8.728	2.93	2.985	2.93
age	39.220	41.37	39.796	40.62
balance	-43.780	1571.26	693.851	1226.05
campaign	2.660	1.87	2.364	2.30
duration	322.760	332.00	336.934	358.15
pdays	9.400	197.29	21.846	1.83

Variable	Segment 1	Segment 2	Segment 3	Segment 4
previous	0.160	2.91	0.274	0.04
default=no	0.000	1.00	1.000	1.00
default=yes	1.000	-0.00	0.000	0.00
deposit=no	0.760	0.33	0.686	0.57
deposit=yes	0.240	0.67	0.314	0.43
education=primary	0.140	0.10	0.118	0.14
education=secondary	0.520	0.47	0.606	0.47
education=tertiary	0.280	0.39	0.258	0.35
education=unknown	0.060	0.04	0.018	0.04
housing=no	0.440	0.52	0.432	0.53
housing=yes	0.560	0.48	0.568	0.47
job=admin.	0.080	0.14	0.170	0.10
job=blue-collar	0.280	0.12	0.233	0.18
job=entrepreneur	0.080	0.01	0.038	0.03
job=housemaid	0.060	0.02	0.011	0.03
job=management	0.180	0.26	0.190	0.24
job=retired	0.060	0.08	0.027	0.06
job=self-employed	0.100	0.03	0.032	0.04
job=services	0.040	0.07	0.115	0.08
job=student	-0.000	0.05	-0.000	0.04
job=technician	0.120	0.17	0.167	0.16
job=unemployed	-0.000	0.03	0.016	0.03
loan=no	0.620	0.96	0.000	1.00
loan=yes	0.380	0.04	1.000	0.00
marital=divorced	0.180	0.10	0.136	0.11
marital=married	0.520	0.53	0.606	0.55
marital=single	0.300	0.37	0.258	0.34

SAS Enterprise Miner Report
Node=90% Centroid Clustering k=4
Tree Diagram

SAS Enterprise Miner Report
Node=90% Centroid Clustering k=4
Segment Plot
Variable = age
Variable = balance
Variable = campaign
Variable = default
Variable = duration
Variable = job
Variable = loan
Variable = pdays
Variable = previous
Percent
0
20
40
60
80
100
1
2
3
4
Segment Variable
Formatted Value
18:25.25
25.25:32.5
32.5:39.75
39.75:47
47:54.25
54.25:61.5
61.5:68.75
68.75:76
-1273:511.25
-3058:-1273
.
2295.9:4080.5
4080.5:5865.1
511.25:2295.9
5865.1:7649.8
7649.8:9434.4
9434.4:11219
1:2.125
2.125:3.25
3.25:4.375
4.375:5.5
5.5:6.625
6.625:7.75
7.75:8.875
8.875:10
no
yes
1058.3:1234.1
1234.1:1410
178.88:354.75
354.75:530.63
3:178.88
530.63:706.5
706.5:882.38
882.38:1058.3
admin.
blue-collar
entrepreneur
housemaid
management
retired
self-employed
services
student
technician
unemployed
-1:47.25
143.75:192
192:240.25
240.25:288.5
288.5:336.75
336.75:385
47.25:95.5
95.5:143.75
0:1
1:2
2:3
3:4
4:5
5:6
6:7
7:8

SAS Enterprise Miner Report

Node=90% Ward Clustering k=4 Summary

Node id = Clus4
Node label = 90% Ward Clustering k=4
Meta path = Ids => Filter => Smpl => Varsel2 => Clus4
Notes =

Node=90% Ward Clustering k=4 Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	WARD		ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	USER	AUTOMATIC
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	4	10	TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=90% Ward Clustering k=4 Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital
ID	INTERVAL	1	_dataobs_

Node=90% Ward Clustering k=4 Mean Statistics

Variable	Segment 1	Segment 2	Segment 3	Segment 4
Clustering Criterion	0.550	0.55	0.550	0.55
Maximum Relative Change in Cluster Seeds	0.002	0.00	0.002	0.00
Improvement in Clustering Criterion	.	.	.	.
Frequency of Cluster	50.000	755.00	442.000	2409.00
Root-Mean-Square Standard Deviation	0.603	0.60	0.527	0.54
Maximum Distance from Cluster Seed	5.582	6.49	6.868	6.20
Nearest Cluster	4.000	4.00	4.000	2.00
Distance to Nearest Cluster	8.728	2.93	2.985	2.93
age	39.220	41.37	39.796	40.62
balance	-43.780	1571.26	693.851	1226.05
campaign	2.660	1.87	2.364	2.30
duration	322.760	332.00	336.934	358.15
pdays	9.400	197.29	21.846	1.83

Variable	Segment 1	Segment 2	Segment 3	Segment 4
previous	0.160	2.91	0.274	0.04
default=no	0.000	1.00	1.000	1.00
default=yes	1.000	-0.00	0.000	0.00
deposit=no	0.760	0.33	0.686	0.57
deposit=yes	0.240	0.67	0.314	0.43
education=primary	0.140	0.10	0.118	0.14
education=secondary	0.520	0.47	0.606	0.47
education=tertiary	0.280	0.39	0.258	0.35
education=unknown	0.060	0.04	0.018	0.04
housing=no	0.440	0.52	0.432	0.53
housing=yes	0.560	0.48	0.568	0.47
job=admin.	0.080	0.14	0.170	0.10
job=blue-collar	0.280	0.12	0.233	0.18
job=entrepreneur	0.080	0.01	0.038	0.03
job=housemaid	0.060	0.02	0.011	0.03
job=management	0.180	0.26	0.190	0.24
job=retired	0.060	0.08	0.027	0.06
job=self-employed	0.100	0.03	0.032	0.04
job=services	0.040	0.07	0.115	0.08
job=student	-0.000	0.05	-0.000	0.04
job=technician	0.120	0.17	0.167	0.16
job=unemployed	-0.000	0.03	0.016	0.03
loan=no	0.620	0.96	0.000	1.00
loan=yes	0.380	0.04	1.000	0.00
marital=divorced	0.180	0.10	0.136	0.11
marital=married	0.520	0.53	0.606	0.55
marital=single	0.300	0.37	0.258	0.34

SAS Enterprise Miner Report
Node=90% Ward Clustering k=4
Tree Diagram

SAS Enterprise Miner Report
Node=90% Ward Clustering k=4
Segment Plot
Variable = age
Variable = balance
Variable = campaign
Variable = default
Variable = duration
Variable = job
Variable = loan
Variable = pdays
Variable = previous
Percent
Segment Variable
Formatted Value
18:25.25
25.25:32.5
32.5:39.75
39.75:47
47:54.25
54.25:61.5
61.5:68.75
68.75:76
-1273:511.25
-3058:-1273
.
2295.9:4080.5
4080.5:5865.1
511.25:2295.9
5865.1:7649.8
7649.8:9434.4
9434.4:11219
1:2.125
2.125:3.25
3.25:4.375
4.375:5.5
5.5:6.625
6.625:7.75
7.75:8.875
8.875:10
no
yes
1058.3:1234.1
1234.1:1410
178.88:354.75
354.75:530.63
3:178.88
530.63:706.5
706.5:882.38
882.38:1058.3
admin.
blue-collar
entrepreneur
housemaid
management
retired
self-employed
services
student
technician
unemployed
-1:47.25
143.75:192
192:240.25
240.25:288.5
288.5:336.75
336.75:385
47.25:95.5
95.5:143.75
0:1
1:2
2:3
3:4
4:5
5:6
6:7
7:8

SAS Enterprise Miner Report

Node=Average Clustering k=4
Summary

Node id = Clus9
Node label = Average Clustering k=4
Meta path = Ids => Filter => Varsel => Clus9
Notes =

Node=Average Clustering k=4
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	AVERAGE	WARD	ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	USER	AUTOMATIC
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	4	10	TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=Average Clustering k=4
Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Average Clustering k=4
Mean Statistics

Variable	Segment 1	Segment 2	Segment 3	Segment 4
Clustering Criterion	0.544	0.54	0.54	0.54
Maximum Relative Change in Cluster Seeds	0.001	0.00	0.00	0.00
Improvement in Clustering Criterion	.	.	.	.
Frequency of Cluster	64.000	1342.00	1822.00	834.00
Root-Mean-Square Standard Deviation	0.595	0.54	0.51	0.61
Maximum Distance from Cluster Seed	5.575	6.59	6.25	6.46
Nearest Cluster	3.000	3.00	2.00	2.00
Distance to Nearest Cluster	8.107	2.38	2.38	3.08
age	39.859	40.25	40.73	41.27
balance	-71.625	1385.16	1029.75	1476.83
campaign	2.578	2.09	2.48	1.87
duration	340.281	561.93	204.57	318.79
pdays	11.391	5.50	2.43	202.28
previous	0.141	0.08	0.05	2.93

Variable	Segment 1	Segment 2	Segment 3	Segment 4
default=no	-0.000	1.00	1.00	1.00
default=yes	1.000	-0.00	-0.00	0.00
deposit=no	0.719	0.03	1.00	0.35
deposit=yes	0.281	0.97	0.00	0.65
education=primary	0.172	0.12	0.15	0.11
education=secondary	0.516	0.44	0.53	0.47
education=tertiary	0.234	0.40	0.28	0.37
education=unknown	0.078	0.04	0.04	0.05
housing=no	0.453	0.63	0.44	0.51
housing=yes	0.547	0.37	0.56	0.49
job=admin.	0.063	0.11	0.11	0.15
job=blue-collar	0.328	0.15	0.22	0.13
job=entrepreneur	0.063	0.02	0.04	0.02
job=housemaid	0.063	0.02	0.03	0.02
job=management	0.187	0.27	0.21	0.25
job=retired	0.047	0.08	0.04	0.08
job=self-employed	0.078	0.03	0.03	0.03
job=services	0.047	0.07	0.10	0.08
job=student	-0.000	0.05	0.02	0.05
job=technician	0.125	0.16	0.16	0.17
job=unemployed	0.000	0.03	0.03	0.03
loan=no	0.656	0.90	0.84	0.90
loan=yes	0.344	0.10	0.16	0.10
marital=divorced	0.156	0.12	0.12	0.10
marital=married	0.547	0.46	0.63	0.55
marital=single	0.297	0.42	0.26	0.35

SAS Enterprise Miner Report
Node=Average Clustering k=4
Tree Diagram

SAS Enterprise Miner Report
Node=Average Clustering k=4
Segment Plot
Variable = age
Variable = balance
Variable = campaign
Variable = default
Variable = deposit
Variable = duration
Variable = job
Variable = marital
Variable = pdays
Variable = previous
Percent
Segment Variable
Formatted Value
18:25.25
25.25:32.5
32.5:39.75
39.75:47
47:54.25
54.25:61.5
61.5:68.75
68.75:76
-1273:511.25
-3058:-1273
.
2295.9:4080.5
4080.5:5865.1
511.25:2295.9
5865.1:7649.8
7649.8:9434.4
9434.4:11219
1:2.125
2.125:3.25
3.25:4.375
4.375:5.5
5.5:6.625
6.625:7.75
7.75:8.875
8.875:10
no
yes
1058.3:1234.1
1234.1:1410
178.88:354.75
354.75:530.63
3:178.88
530.63:706.5
706.5:882.38
882.38:1058.3
admin.
blue-collar
entrepreneur
housemaid
management
retired
self-employed
services
student
technician
unemployed
divorced
married
single
-1:47.25
143.75:192
192:240.25
240.25:288.5
288.5:336.75
336.75:385
47.25:95.5
95.5:143.75
0:1
1:2
2:3
3:4
4:5
5:6
6:7
7:8

SAS Enterprise Miner Report

Node=Average Clustering Summary

Node id = Clus3
Node label = Average Clustering
Meta path = Ids => Filter => Varsel => Clus3
Notes =

Node=Average Clustering Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	AVERAGE	WARD	ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	AUTOMATIC	
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	10		TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=Average Clustering Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Average Clustering Mean Statistics

Variable	Segment 1	Segment 2
Clustering Criterion	0.61	0.612
Maximum Relative Change in Cluster Seeds	0.00	0.000
Improvement in Clustering Criterion	0.00	0.000
Frequency of Cluster	3998.00	64.000
Root-Mean-Square Standard Deviation	0.61	0.595
Maximum Distance from Cluster Seed	7.82	5.575
Nearest Cluster	2.00	1.000
Distance to Nearest Cluster	8.12	8.119
age	40.68	39.859
balance	1242.36	-71.625
campaign	2.22	2.578
duration	348.35	340.281
pdays	45.15	11.391
previous	0.66	0.141

Variable	Segment 1	Segment 2
default=no	1.00	-0.000
default=yes	-0.00	1.000
deposit=no	0.54	0.719
deposit=yes	0.46	0.281
education=primary	0.13	0.172
education=secondary	0.49	0.516
education=tertiary	0.34	0.234
education=unknown	0.04	0.078
housing=no	0.52	0.453
housing=yes	0.48	0.547
job=admin.	0.12	0.063
job=blue-collar	0.18	0.328
job=entrepreneur	0.03	0.063
job=housemaid	0.03	0.063
job=management	0.24	0.187
job=retired	0.06	0.047
job=self-employed	0.03	0.078
job=services	0.09	0.047
job=student	0.03	-0.000
job=technician	0.16	0.125
job=unemployed	0.03	0.000
loan=no	0.87	0.656
loan=yes	0.13	0.344
marital=divorced	0.11	0.156
marital=married	0.55	0.547
marital=single	0.33	0.297

SAS Enterprise Miner Report
Node=Average Clustering
Tree Diagram
1: 98.4%
Count: 4062
default
YES
NO Or Missing
2: 100.0%
Count: 64
1: 100.0%
Count: 3998

SAS Enterprise Miner Report
Node=Average Clustering
Segment Plot
Variable = default
100
80
60
40
20
0
Percent
1
2
Segment Variable
Formatted Value
no
yes

SAS Enterprise Miner Report
Node=Average Clustering
CCC Plot
Cubic Clustering Criterion
600
400
200
0
0
10
20
30
40
50
Number of Clusters
Cubic Clustering Criterion

SAS Enterprise Miner Report

Node=Centroid Clustering k=4
Summary

Node id = Clus8
Node label = Centroid Clustering k=4
Meta path = Ids => Filter => Varsel => Clus8
Notes =

Node=Centroid Clustering k=4
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	CENTROID	WARD	ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	USER	AUTOMATIC
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	4	10	TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=Centroid Clustering k=4
Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Centroid Clustering k=4
Mean Statistics

Variable	Segment 1	Segment 2	Segment 3	Segment 4
Clustering Criterion	0.544	0.54	0.54	0.54
Maximum Relative Change in Cluster Seeds	0.001	0.00	0.00	0.00
Improvement in Clustering Criterion	.	.	.	.
Frequency of Cluster	64.000	1342.00	1822.00	834.00
Root-Mean-Square Standard Deviation	0.595	0.54	0.51	0.61
Maximum Distance from Cluster Seed	5.575	6.59	6.25	6.46
Nearest Cluster	3.000	3.00	2.00	2.00
Distance to Nearest Cluster	8.107	2.38	2.38	3.08
age	39.859	40.25	40.73	41.27
balance	-71.625	1385.16	1029.75	1476.83
campaign	2.578	2.09	2.48	1.87
duration	340.281	561.93	204.57	318.79
pdays	11.391	5.50	2.43	202.28
previous	0.141	0.08	0.05	2.93

Variable	Segment 1	Segment 2	Segment 3	Segment 4
default=no	-0.000	1.00	1.00	1.00
default=yes	1.000	-0.00	-0.00	0.00
deposit=no	0.719	0.03	1.00	0.35
deposit=yes	0.281	0.97	0.00	0.65
education=primary	0.172	0.12	0.15	0.11
education=secondary	0.516	0.44	0.53	0.47
education=tertiary	0.234	0.40	0.28	0.37
education=unknown	0.078	0.04	0.04	0.05
housing=no	0.453	0.63	0.44	0.51
housing=yes	0.547	0.37	0.56	0.49
job=admin.	0.063	0.11	0.11	0.15
job=blue-collar	0.328	0.15	0.22	0.13
job=entrepreneur	0.063	0.02	0.04	0.02
job=housemaid	0.063	0.02	0.03	0.02
job=management	0.187	0.27	0.21	0.25
job=retired	0.047	0.08	0.04	0.08
job=self-employed	0.078	0.03	0.03	0.03
job=services	0.047	0.07	0.10	0.08
job=student	-0.000	0.05	0.02	0.05
job=technician	0.125	0.16	0.16	0.17
job=unemployed	0.000	0.03	0.03	0.03
loan=no	0.656	0.90	0.84	0.90
loan=yes	0.344	0.10	0.16	0.10
marital=divorced	0.156	0.12	0.12	0.10
marital=married	0.547	0.46	0.63	0.55
marital=single	0.297	0.42	0.26	0.35

SAS Enterprise Miner Report
Node=Centroid Clustering k=4
Tree Diagram

SAS Enterprise Miner Report
Node=Centroid Clustering k=4
Segment Plot
Variable = age
Variable = balance
Variable = campaign
Variable = default
Variable = deposit
Variable = duration
Variable = job
Variable = marital
Variable = pdays
Variable = previous
Percent
Segment Variable
Formatted Value
18:25.25
25.25:32.5
32.5:39.75
39.75:47
47:54.25
54.25:61.5
61.5:68.75
68.75:76
-1273:511.25
-3058:-1273
.
2295.9:4080.5
4080.5:5865.1
511.25:2295.9
5865.1:7649.8
7649.8:9434.4
9434.4:11219
1:2.125
2.125:3.25
3.25:4.375
4.375:5.5
5.5:6.625
6.625:7.75
7.75:8.875
8.875:10
no
yes
1058.3:1234.1
1234.1:1410
178.88:354.75
354.75:530.63
3:178.88
530.63:706.5
706.5:882.38
882.38:1058.3
admin.
blue-collar
entrepreneur
housemaid
management
retired
self-employed
services
student
technician
unemployed
divorced
married
single
-1:47.25
143.75:192
192:240.25
240.25:288.5
288.5:336.75
336.75:385
47.25:95.5
95.5:143.75
0:1
1:2
2:3
3:4
4:5
5:6
6:7
7:8

SAS Enterprise Miner Report

Node=Centroid Clustering Summary

Node id = Clus2
Node label = Centroid Clustering
Meta path = Ids => Filter => Varsel => Clus2
Notes =

Node=Centroid Clustering Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	CENTROID	WARD	ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	AUTOMATIC	
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	10		TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=Centroid Clustering Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Centroid Clustering Mean Statistics

Variable	Segment 1	Segment 2
Clustering Criterion	0.61	0.612
Maximum Relative Change in Cluster Seeds	0.00	0.000
Improvement in Clustering Criterion	0.00	0.000
Frequency of Cluster	3998.00	64.000
Root-Mean-Square Standard Deviation	0.61	0.595
Maximum Distance from Cluster Seed	7.82	5.575
Nearest Cluster	2.00	1.000
Distance to Nearest Cluster	8.12	8.119
age	40.68	39.859
balance	1242.36	-71.625
campaign	2.22	2.578
duration	348.35	340.281
pdays	45.15	11.391
previous	0.66	0.141

Variable	Segment 1	Segment 2
default=no	1.00	-0.000
default=yes	-0.00	1.000
deposit=no	0.54	0.719
deposit=yes	0.46	0.281
education=primary	0.13	0.172
education=secondary	0.49	0.516
education=tertiary	0.34	0.234
education=unknown	0.04	0.078
housing=no	0.52	0.453
housing=yes	0.48	0.547
job=admin.	0.12	0.063
job=blue-collar	0.18	0.328
job=entrepreneur	0.03	0.063
job=housemaid	0.03	0.063
job=management	0.24	0.187
job=retired	0.06	0.047
job=self-employed	0.03	0.078
job=services	0.09	0.047
job=student	0.03	-0.000
job=technician	0.16	0.125
job=unemployed	0.03	0.000
loan=no	0.87	0.656
loan=yes	0.13	0.344
marital=divorced	0.11	0.156
marital=married	0.55	0.547
marital=single	0.33	0.297

SAS Enterprise Miner Report
Node=Centroid Clustering
Tree Diagram
1: 98.4%
Count: 4062
default
YES
NO Or Missing
2: 100.0%
Count: 64
1: 100.0%
Count: 3998

SAS Enterprise Miner Report
Node=Centroid Clustering
Segment Plot
Variable = default
100
80
60
40
20
0
Percent
1
2
Segment Variable
Formatted Value
no
yes

SAS Enterprise Miner Report
Node=Centroid Clustering
CCC Plot
Cubic Clustering Criterion
600
400
200
0
0
10
20
30
40
50
Number of Clusters
Cubic Clustering Criterion

SAS Enterprise Miner Report

Node=Ward Clustering K=4
Summary

Node id = Clus7
Node label = Ward Clustering K=4
Meta path = Ids => Filter => Varsel => Clus7
Notes =

Node=Ward Clustering K=4
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	WARD		ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	USER	AUTOMATIC
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	4	10	TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=Ward Clustering K=4
Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Ward Clustering K=4
Mean Statistics

Variable	Segment 1	Segment 2	Segment 3	Segment 4
Clustering Criterion	0.544	0.54	0.54	0.54
Maximum Relative Change in Cluster Seeds	0.001	0.00	0.00	0.00
Improvement in Clustering Criterion	.	.	.	.
Frequency of Cluster	64.000	1342.00	1822.00	834.00
Root-Mean-Square Standard Deviation	0.595	0.54	0.51	0.61
Maximum Distance from Cluster Seed	5.575	6.59	6.25	6.46
Nearest Cluster	3.000	3.00	2.00	2.00
Distance to Nearest Cluster	8.107	2.38	2.38	3.08
age	39.859	40.25	40.73	41.27
balance	-71.625	1385.16	1029.75	1476.83
campaign	2.578	2.09	2.48	1.87
duration	340.281	561.93	204.57	318.79
pdays	11.391	5.50	2.43	202.28
previous	0.141	0.08	0.05	2.93

Variable	Segment 1	Segment 2	Segment 3	Segment 4
default=no	-0.000	1.00	1.00	1.00
default=yes	1.000	-0.00	-0.00	0.00
deposit=no	0.719	0.03	1.00	0.35
deposit=yes	0.281	0.97	0.00	0.65
education=primary	0.172	0.12	0.15	0.11
education=secondary	0.516	0.44	0.53	0.47
education=tertiary	0.234	0.40	0.28	0.37
education=unknown	0.078	0.04	0.04	0.05
housing=no	0.453	0.63	0.44	0.51
housing=yes	0.547	0.37	0.56	0.49
job=admin.	0.063	0.11	0.11	0.15
job=blue-collar	0.328	0.15	0.22	0.13
job=entrepreneur	0.063	0.02	0.04	0.02
job=housemaid	0.063	0.02	0.03	0.02
job=management	0.187	0.27	0.21	0.25
job=retired	0.047	0.08	0.04	0.08
job=self-employed	0.078	0.03	0.03	0.03
job=services	0.047	0.07	0.10	0.08
job=student	-0.000	0.05	0.02	0.05
job=technician	0.125	0.16	0.16	0.17
job=unemployed	0.000	0.03	0.03	0.03
loan=no	0.656	0.90	0.84	0.90
loan=yes	0.344	0.10	0.16	0.10
marital=divorced	0.156	0.12	0.12	0.10
marital=married	0.547	0.46	0.63	0.55
marital=single	0.297	0.42	0.26	0.35

SAS Enterprise Miner Report
Node=Ward Clustering K=4
Tree Diagram

SAS Enterprise Miner Report
Node=Ward Clustering K=4
Segment Plot
Variable = age
Variable = balance
Variable = campaign
Variable = default
Variable = deposit
Variable = duration
Variable = job
Variable = marital
Variable = pdays
Variable = previous
Percent
Segment Variable
Formatted Value
18:25.25
25.25:32.5
32.5:39.75
39.75:47
47:54.25
54.25:61.5
61.5:68.75
68.75:76
-1273:511.25
-3058:-1273
.
2295.9:4080.5
4080.5:5865.1
511.25:2295.9
5865.1:7649.8
7649.8:9434.4
9434.4:11219
1:2.125
2.125:3.25
3.25:4.375
4.375:5.5
5.5:6.625
6.625:7.75
7.75:8.875
8.875:10
no
yes
1058.3:1234.1
1234.1:1410
178.88:354.75
354.75:530.63
3:178.88
530.63:706.5
706.5:882.38
882.38:1058.3
admin.
blue-collar
entrepreneur
housemaid
management
retired
self-employed
services
student
technician
unemployed
divorced
married
single
-1:47.25
143.75:192
192:240.25
240.25:288.5
288.5:336.75
336.75:385
47.25:95.5
95.5:143.75
0:1
1:2
2:3
3:4
4:5
5:6
6:7
7:8

SAS Enterprise Miner Report

Node=Ward Clustering
Summary

Node id = Clus
Node label = Ward Clustering
Meta path = Ids => Filter => Varsel => Clus
Notes =

Node=Ward Clustering
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Cluster		FinalMaxNum	20		MissingNominal	DEFAULT	
AutomaticMaxNum	50		HideVariable	Y		MissingOrdinal	DEFAULT	
AutomaticMethod	WARD		ImputationMethod	NONE		NominalEncoding	GLM	
AutomaticMinNum	2		Initial	DEFAULT		NumberClusterMethod	AUTOMATIC	
Bins	100		Learn	.		OrdinalEncoding	RANK	
CCCCutOff	3		LearnFinal	0.02		Radius	0	
ClusterGraphs	Y		LearnInitial	0.5		Stdize	STD	
Clusvar	_SEGMENT_		LearnSteps	1000		Summary	N	
ClusvarLabel	Segment Variable		MaxC	10		TrainDefaults	Y	
ClusvarRole	SEGMENT		MaxIter	10		TreeProfile	Y	
DistancePlot	Y		MaxSteps	1200		XConv	0.0001	
Drift	N		MissingInterval	DEFAULT				

Node=Ward Clustering
Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	6	age balance campaign duration pdays previous
INPUT	NOMINAL	7	default deposit education housing job loan marital

Node=Ward Clustering
Mean Statistics

Variable	Segment 1	Segment 2
Clustering Criterion	0.61	0.612
Maximum Relative Change in Cluster Seeds	0.00	0.000
Improvement in Clustering Criterion	0.00	0.000
Frequency of Cluster	3998.00	64.000
Root-Mean-Square Standard Deviation	0.61	0.595
Maximum Distance from Cluster Seed	7.82	5.575
Nearest Cluster	2.00	1.000
Distance to Nearest Cluster	8.12	8.119
age	40.68	39.859
balance	1242.36	-71.625
campaign	2.22	2.578
duration	348.35	340.281
pdays	45.15	11.391
previous	0.66	0.141

Variable	Segment 1	Segment 2
default=no	1.00	-0.000
default=yes	-0.00	1.000
deposit=no	0.54	0.719
deposit=yes	0.46	0.281
education=primary	0.13	0.172
education=secondary	0.49	0.516
education=tertiary	0.34	0.234
education=unknown	0.04	0.078
housing=no	0.52	0.453
housing=yes	0.48	0.547
job=admin.	0.12	0.063
job=blue-collar	0.18	0.328
job=entrepreneur	0.03	0.063
job=housemaid	0.03	0.063
job=management	0.24	0.187
job=retired	0.06	0.047
job=self-employed	0.03	0.078
job=services	0.09	0.047
job=student	0.03	-0.000
job=technician	0.16	0.125
job=unemployed	0.03	0.000
loan=no	0.87	0.656
loan=yes	0.13	0.344
marital=divorced	0.11	0.156
marital=married	0.55	0.547
marital=single	0.33	0.297

SAS Enterprise Miner Report
Node=Ward Clustering
Tree Diagram
1: 98.4%
Count: 4062
default
YES
NO Or Missing
2: 100.0%
Count: 64
1: 100.0%
Count: 3998

SAS Enterprise Miner Report
Node=Ward Clustering
Segment Plot
Variable = default
100
80
60
40
20
0
Percent
1
2
Segment Variable
Formatted Value
no
yes

End of Report