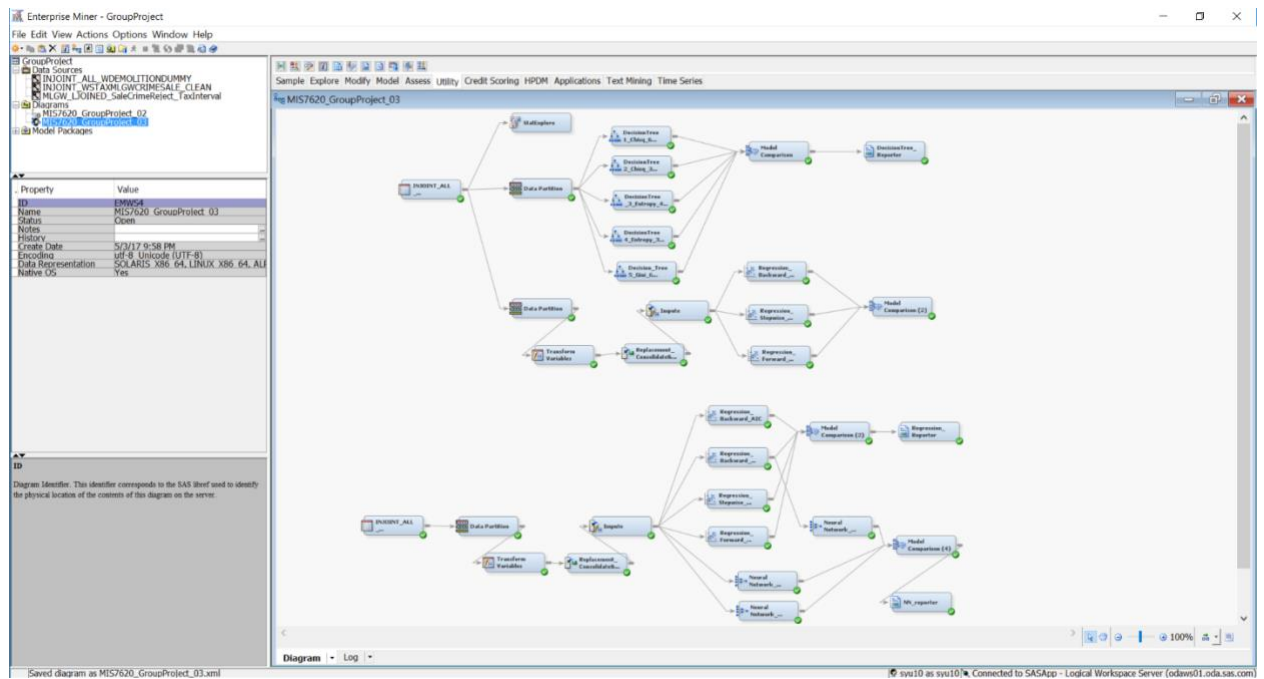
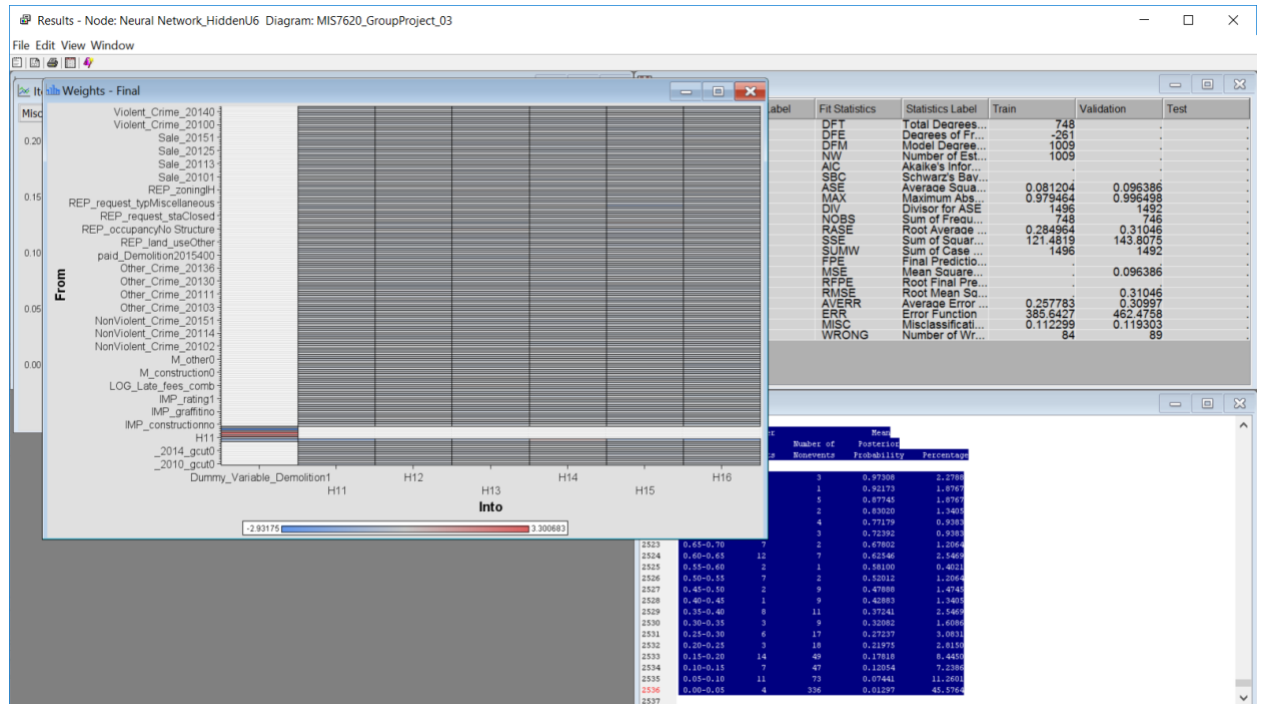


1. Minor diagram



2. Neural network with 6 hidden nodes



3. Fit statistic for decision tree

Results - Node: Model Comparison Diagram: MIS7620_GroupProject_03

File Edit View Window

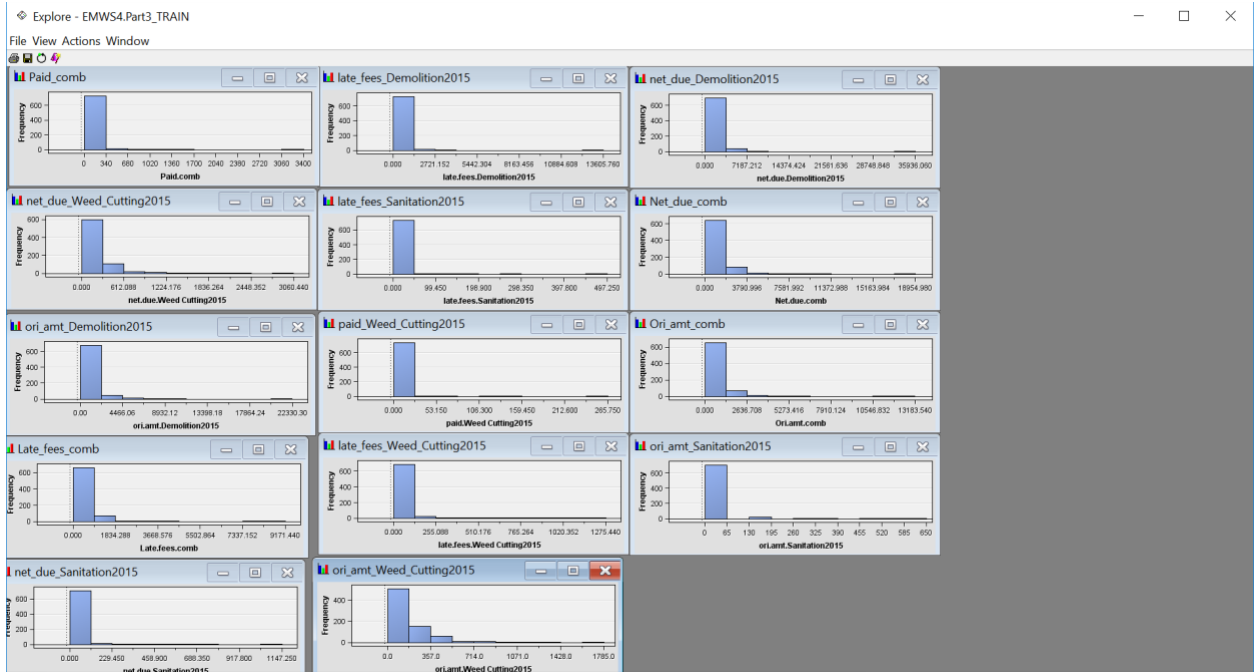
Fit Statistics

Select ed Model	Predecessor Node	Model Description	Target Label	Selection Criterion: Valid Misclassification Rate	Train Sum of Frequencies	Target Variable	Train Misclassification Rate	Train Maximum Absolute Error	Train Sum of Squared Errors	Train Average Squared Error	Train Root Average Squared Error	Train Divisor for ASE	Train Total Degrees of Freedom	Valid Sum of Frequencies	Valid Misclassification Rate	Valid Maximum Absolute Error	Valid Sum of Squared Errors	Valid Average Squared Error	Valid Root Average Squared Error	Valid Divisor for VASE	Train ROC Index	Train Gini Coefficient	Train Kolmogorov-Smirnov Statistic	Train Kolmogorov-Smirnov Probability Cutoff	Train Binomial Two-Way Kolmogorov-Smirnov Statistic
Y	Tree	DecisionTree1 Chisq 6MaxBranch	DVDA	0.128686	748	Dumm...	0.13369	0.9743	147.25	0.0984	0.3137	1496	748	746	0.1286	1.14822	0.0993	0.31519	1492	0.857	0.714	0.601	0.05	0.599	
	Tree2	DecisionTree2 Chisq 3MaxBranch	DVDA	0.128686	748	Dumm...	0.141711	0.8691	180.20	0.1204	0.3470	1496	748	746	0.1286	0.8691	160.18	0.1073	0.3276	1492	0.666	0.333	0.323	0.14	0.316
	Tree3	DecisionTree3 Entropy 4MaxBranch	DVDA	0.131367	748	Dumm...	0.131016	0.9516	143.451	0.0989	0.3056	1496	748	746	0.1313	1.15384	0.1031	0.3211	1492	0.857	0.714	0.565	0.19	0.564	
	Tree5	DecisionTree5 Gini 6MaxBranch	DVDA	0.132708	748	Dumm...	0.11631	0.9672	138.245	0.09241	0.30399	1496	748	746	0.1327	1.15847	0.1052	0.3259	1492	0.864	0.727	0.578	0.16	0.575	
	Tree4	DecisionTree4 Entropy 3MaxBranch	DVDA	0.140751	748	Dumm...	0.120321	0.9625	133.71	0.0893	0.2969	1496	748	746	0.1407	1.16413	0.1100	0.3316	1492	0.891	0.781	0.62	0.13	0.613	

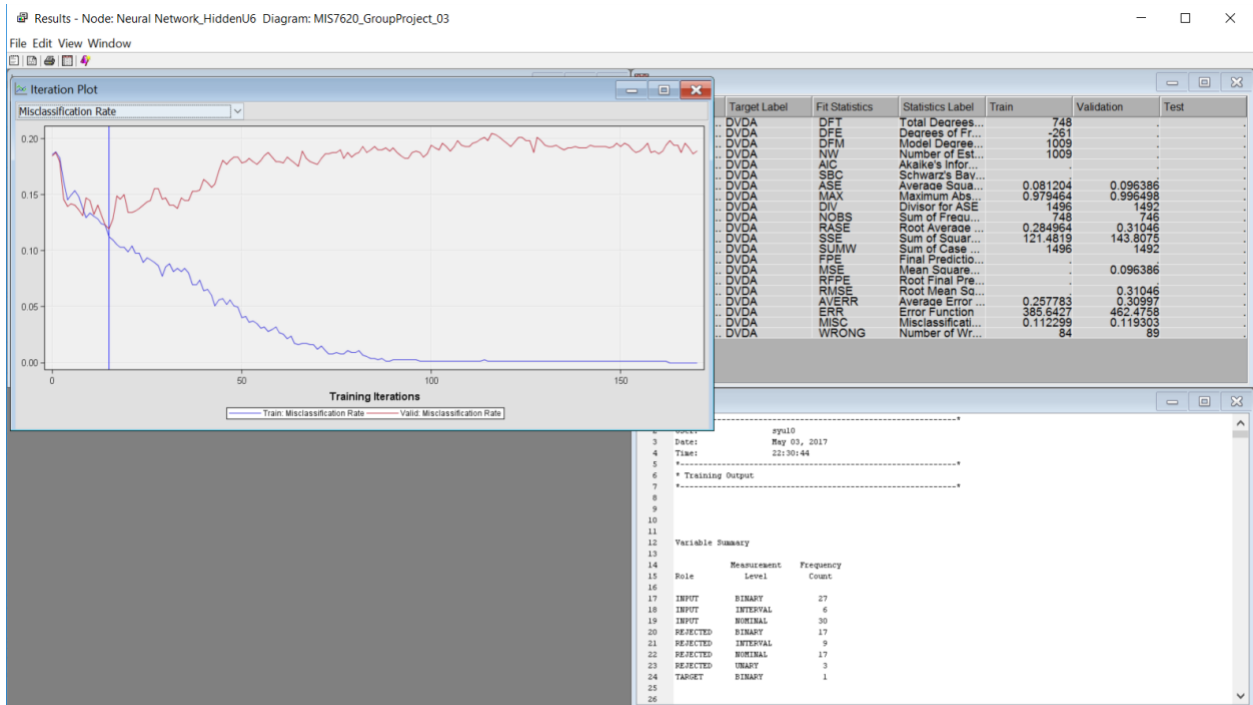
<

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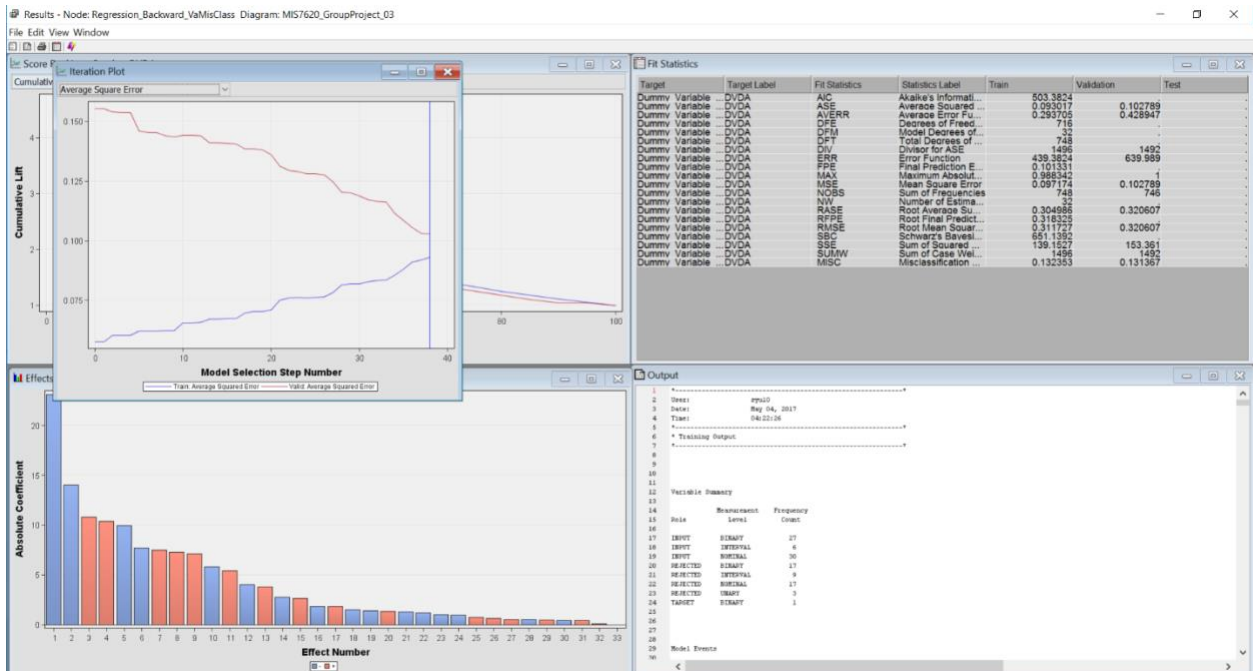
4. transformation variables



5. iteration plot for neural networks with 6 hidden units



Iteration plot for neural network for 6 hidden units



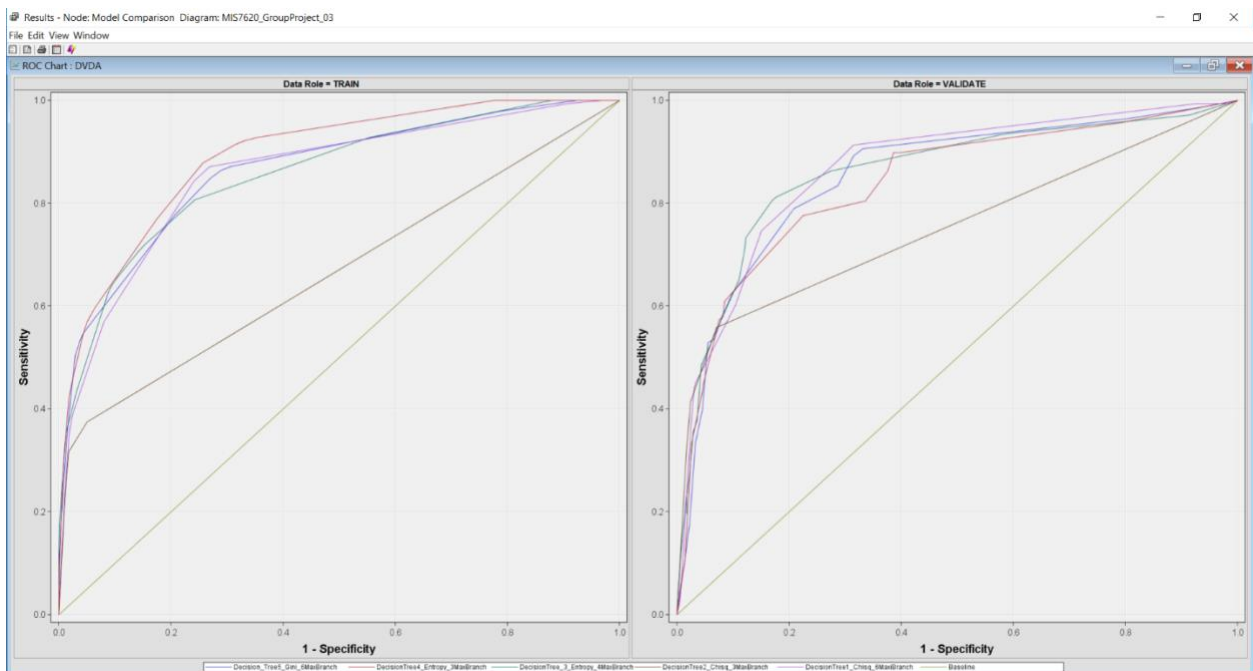
Nominal variable replacement

Replacement Editor-WORK.OUTCLASS

Variable	Formatted Value	Replacement Value	Frequency Count	Type	Character Unformatted Value	Numeric Value
request_type	CE-Weeds Occupied Property	Weeds	63C		CE-Weeds Occupied Property	.
request_type	CW-Weeds Vacant Houses	Weeds	9C		CW-Weeds Vacant Houses	.
request_type	CW-Weeds Vacant Lots	Weeds	2C		CW-Weeds Vacant Lots	.
zoning	RU-1	RU	196C		RU-1	.
zoning	RU-3	RU	30C		RU-3	.
zoning	RU-2	RU	4C		RU-2	.
zoning	R-6	R	402C		R-6	.
zoning	R-10	R	42C		R-10	.
zoning	R-8	R	37C		R-8	.
request_type	CE-Code Miscellaneous	Miscellaneous	226C		CE-Code Miscellaneous	.
request_type	SC-Mayors Action Center(MIS)	Miscellaneous	1C		SC-Mayors Action Center(MIS)	.
zoning	CMU-1	CMU	8C		CMU-1	.
zoning	CMU-3	CMU	6C		CMU-3	.
zoning	CMP-1	CMP	2C		CMP-1	.
request_type		UNKNOWN_	121C			.
request_status		UNKNOWN_	121C			.
occupancy		UNKNOWN_	72C			.
land_use		UNKNOWN_	79C			.
zoning	UNKNOWN_	DEFAULT_		C		.
Violent_Crime_2014	UNKNOWN_	DEFAULT_		N		.
Violent_Crime_2013	UNKNOWN_	DEFAULT_		N		.
Violent_Crime_2010	UNKNOWN_	DEFAULT_		N		.
vehicle	UNKNOWN_	DEFAULT_		C		.
trash	UNKNOWN_	DEFAULT_		C		.
Sale_2016	UNKNOWN_	DEFAULT_		N		.
Sale_2015	UNKNOWN_	DEFAULT_		N		.
Sale_2013	UNKNOWN_	DEFAULT_		N		.
Sale_2012	UNKNOWN_	DEFAULT_		N		.
Sale_2011	UNKNOWN_	DEFAULT_		N		.
Sale_2010	UNKNOWN_	DEFAULT_		N		.
request_type	UNKNOWN_	DEFAULT_		C		.

OK Cancel

ROC chart for decision tree



Results - Node: Model Comparison (4) Diagram: MIS7620_GroupProject_03

File Edit View Window

ROC Chart: DVDA

Data Role = TRAIN

Data Role = VALIDATE

1 - Specificity

1 - Specificity

Gain

Depth

Neural Network_HiddenU6

Neural Network_HiddenU3

Baseline

Model Description	Target Variable	Target Label	Selection Criterion: Valid: Misclassification Rate	Train: Total Degrees of Freedom	Train: Degrees of Freedom for Error	Train: Model Degrees of Freedom	Train: Number of Estimated Weights	Train: Akaike's Information Criterion	Train: Schwarz Criterion
Neural ... Dumm...	DVDA	0.1193...	748	-261	1009	1009			
Neural ... Dumm...	DVDA	0.1233...	748	645	103	103	103	739.06...	12
Neural ... Dumm...	DVDA	0.1280...	748	243	505	505	1471.5...		3

Error

Rate

0.10

0.10

746.00

746.00

0.31

0.32

0.31

73.33

80.00

73.33

64.86

70.38

72.97

0.31

0.32

0.31

143.81

152.36

146.41

1492.00

1492.00

1492.00

89.00

92.00

94.00

119 Valid: Cumulative Percent Response

120 Valid: Percent Response

121 Valid: Root Mean Squared Error

122 Valid: Sum of Squared Errors

123 Valid: Sum of Case Weights Times Preq

124 Valid: Number of Wrong Classifications

125

126

127

128

129

130

131

132

133

134

135

136

137

Forest Classification Table

Model Selection based on Valid: Misclassification Rate (VME3C)

Results - Node: Model Comparison (2) Diagram: MIST620_GroupPlot_03

File Edit View Window

ROC Chart : DVDA

Data Role = TRAIN

Data Role = VALIDATE

Score Rankings Overlay: DVDA

Cumulative Lift

Depth

Output

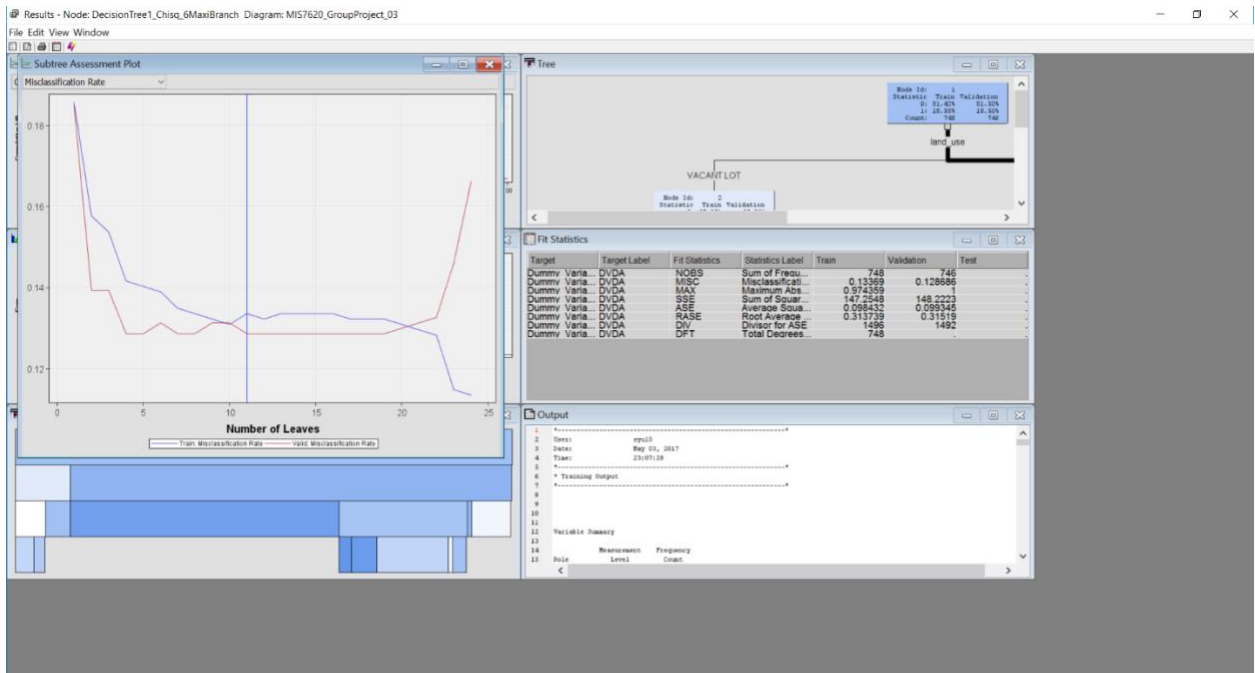
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1 *****
2 Date: May 03, 2017
3 Time: 22:40:56
4 *
5 * Training Output
6 *
7 *
8 *
9 *
10
11 Variable Summary
12
13 Rule Measurement Frequency
14 Level Count
15
16 TARGET SIBAPP I
17
18
19
20
21
22
23
24
25
26
27
28
29 Fit Statistics
30 Model Selection based on Valid Misclassification Rate (_MISCR_)
31

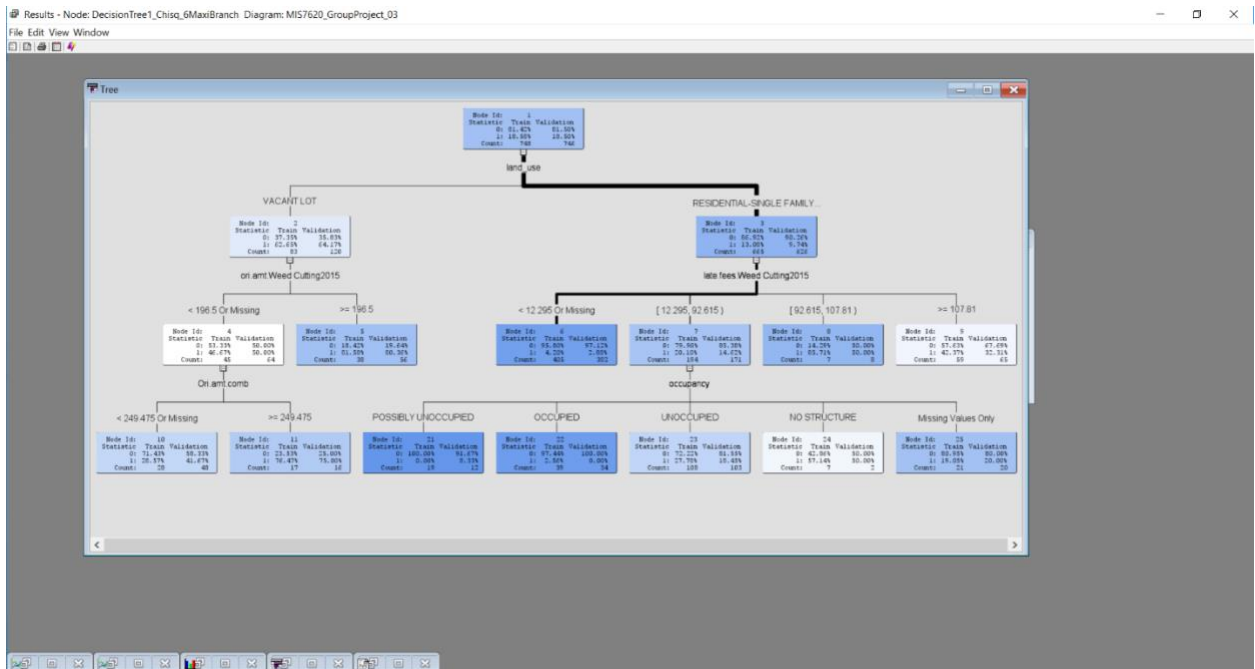
```

Selected Model	Predictor Node	Model Node	Model Description	Target Variable	Target Label	Selection Criterion	Train Akaiki's Information on Criterion	Train Average Squared Error	Train Average Error Function	Train Degrees of Freedom for Error	Train Model Degrees of Freedom	Train Total Degrees of Freedom	Train Divisor for ASE	Train Error Function
Req6	Req6	Regress.	Dumm.	DVDA		0.1178	513.78	0.1040	0.3220	732	16	748	1496	481.78
Req7	Req7	Regress.	Dumm.	DVDA		0.1178	513.78	0.1040	0.3220	732	16	748	1496	481.78
Req5	Req5	Regress.	Dumm.	DVDA		0.1212	503.38	0.0920	0.2957	716	32	748	1496	438.38
Req4	Req4	Regress.	Dumm.	DVDA		0.1474	499.99	0.0834	0.2647	696	52	748	1496	395.99

Subtree assessment plot for decision tree



Tree map for decision tree



Variables for regression neural network

Variables - lsd

(none)

☐ not Equal to

☐ Mining

☐ Basic

☒ Statistics

Columns: ☐ Label

Name	Role	Level	Report	Order	Drop	Lower Limit	Upper Limit	Number of Levels	Percent Missing	Minimum	Maximum	Mean	Standard Deviation
Dummy Variable Demolition	Target	Binary	No		No	-	-	2	0				
late fees Weed Cutting2015	Rejected	Interval	No		No	-	-	0	0	0	1569.71	56.00339	154.22
late fees Sanitation2015	Rejected	Interval	No		No	-	-	0	0	0	1433.06	18.3661	96.8191
late fees Demolition2015	Rejected	Interval	No		No	-	-	0	0	0	1369.76	132.2446	558.0583
paid Weed Cutting2015	Rejected	Interval	No		No	-	-	0	0	0	514.37	1.728722	23.27518
ori amt Demolition2015	Rejected	Interval	No		No	-	-	0	0	0	22330.3	469.5871	1416.193
net due Weed Cutting2015	Rejected	Interval	No		No	-	-	0	0	0	3862.71	216.5429	397.2262
Violent Crime 2011	Rejected	Nominal	No		No	-	-	6	0				
gri1	Rejected	Interval	No		No	-	-	0	0				
Sale 2014	Rejected	Nominal	No		No	-	-	6	0	38018	38141	38113.85	8.52313
category	Rejected	Nominal	No		No	-	-	12	16.26506				
net due Demolition2015	Rejected	Interval	No		No	-	-	2	0	0	35936.06	595.6097	1852.304
Dummy Variable PaidDemolition	Rejected	Binary	No		No	-	-	2	0				
2016 acut	Rejected	Unary	No		No	-	-	1	0				
net due CBD2015	Rejected	Binary	No		No	-	-	2	0				
2010 acut	Rejected	Binary	No		No	-	-	2	0				
net due N2015	Rejected	Binary	No		No	-	-	2	0				
ParlDnoSpace	Rejected	Nominal	No		No	-	-	101	0				
shed	Rejected	Binary	No		No	-	-	2	7.697456				
Net due comb	Rejected	Interval	No		No	-	-	2	0	0	97300.6	887.1574	2823.623
paid CBD2015	Rejected	Unary	No		No	-	-	1	0				
paid N2015	Rejected	Unary	No		No	-	-	1	0				
tree	Rejected	Binary	No		No	-	-	2	7.697456				
porch	Rejected	Binary	No		No	-	-	2	7.697456				
Other Crime 2014	Rejected	Nominal	No		No	-	-	2	7.697456				
fences	Rejected	Binary	No		No	-	-	2	7.697456				
vegetation	Rejected	Binary	No		No	-	-	2	7.697456				
Dummy Variable PaidDemolition	Rejected	Binary	No		No	-	-	2	7.697456				
painting	Rejected	Binary	No		No	-	-	2	7.697456				
windows	Rejected	Binary	No		No	-	-	2	7.697456				
Siding	Rejected	Binary	No		No	-	-	2	7.697456				
2011 acut	Rejected	Binary	No		No	-	-	2	7.697456				
rent	Rejected	Binary	No		No	-	-	2	7.697456				
boarded	Rejected	Binary	No		No	-	-	2	7.697456				
NonViolent Crime 2014	Rejected	Nominal	No		No	-	-	3	0				
2011 acut	Rejected	Nominal	No		No	-	-	3	0				
entry	Rejected	Binary	No		No	-	-	2	7.697456				
division	Rejected	Nominal	No		No	-	-	2	16.26506				
department	Rejected	Nominal	No		No	-	-	5	16.26506				
roof	Rejected	Nominal	No		No	-	-	1	7.697456				
Violent Crime 2015	Rejected	Nominal	No		No	-	-	4	0				
request priority	Rejected	Nominal	No		No	-	-	4	84.40428				
fire	Rejected	Nominal	No		No	-	-	4	7.697456				
Sale 2013	Input	Nominal	No		No	-	-	4	0				
Other Crime 2011	Input	Nominal	No		No	-	-	11	0				
zoning	Input	Nominal	No		No	-	-	12	0				
occupancy	Input	Nominal	No		No	-	-	5	9.50468				
Violent Crime 2013	Input	Nominal	No		No	-	-	5	0				
ori amt Sanitation2015	Input	Interval	No		No	-	-	0	0	0	1236.5	15.11827	82.17446
Paid comb	Input	Interval	No		No	-	-	0	0	0	3400	30.71677	166.624
foundation	Input	Binary	No		No	-	-	2	7.697456				
2012 acut	Input	Nominal	No		No	-	-	3	0				
2015 acut	Input	Nominal	No		No	-	-	3	0				
2014 acut	Input	Nominal	No		No	-	-	3	0				
Or amt comb	Input	Interval	No		No	-	-	0	0	0	6672.85	608.64	1900.913
ori amt Weed Cutting2015	Input	Interval	No		No	-	-	0	0	0	2293	162.0683	256.5064
vehicle	Input	Binary	No		No	-	-	2	7.697456				
late fees Sanitation2015	Input	Interval	No		No	-	-	2	7.697456	0	497.25	3.70407	25.04306
construction	Input	Binary	No		No	-	-	2	0	0	30577.75	309.2342	969.046
late fees comb	Input	Interval	No		No	-	-	2	0	0			
2013 acut	Input	Binary	No		No	-	-	2	0				
profit	Input	Binary	No		No	-	-	2	7.697456				
2014 acut	Input	Binary	No		No	-	-	2	0				

Explore...

OK

Cancel

Statistic exploration

