

# 4 Node CART® Regression: luof\_boolean versus Income\_10k, NH\_WhiteP

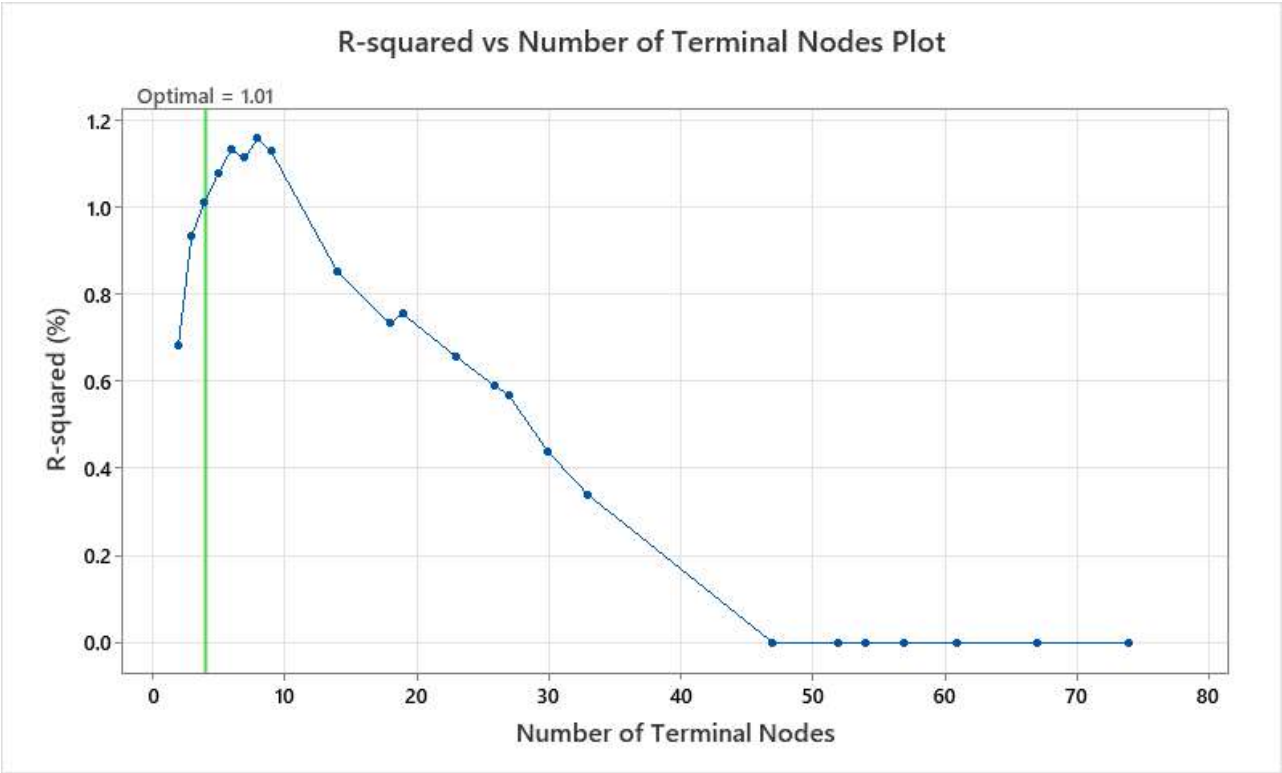
\* WARNING \* Minitab stopped growing the tree at 1024 nodes due to default limits.

## Method

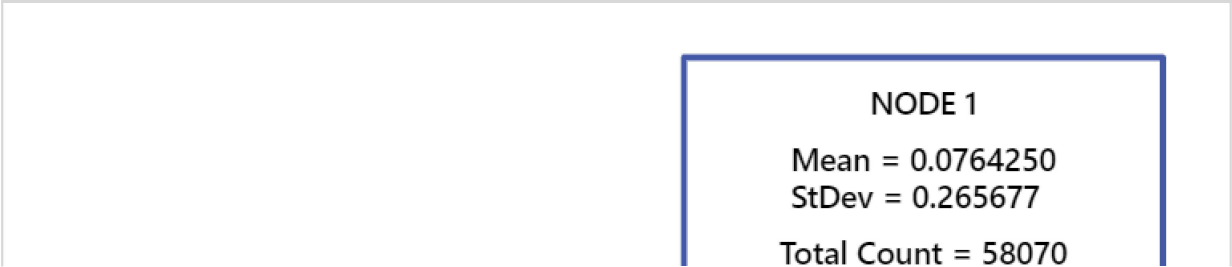
Node splitting	Least squared error
Optimal tree	Within 1 standard error of maximum R-squared
Model validation	70/30% training/test sets
Rows used	82906

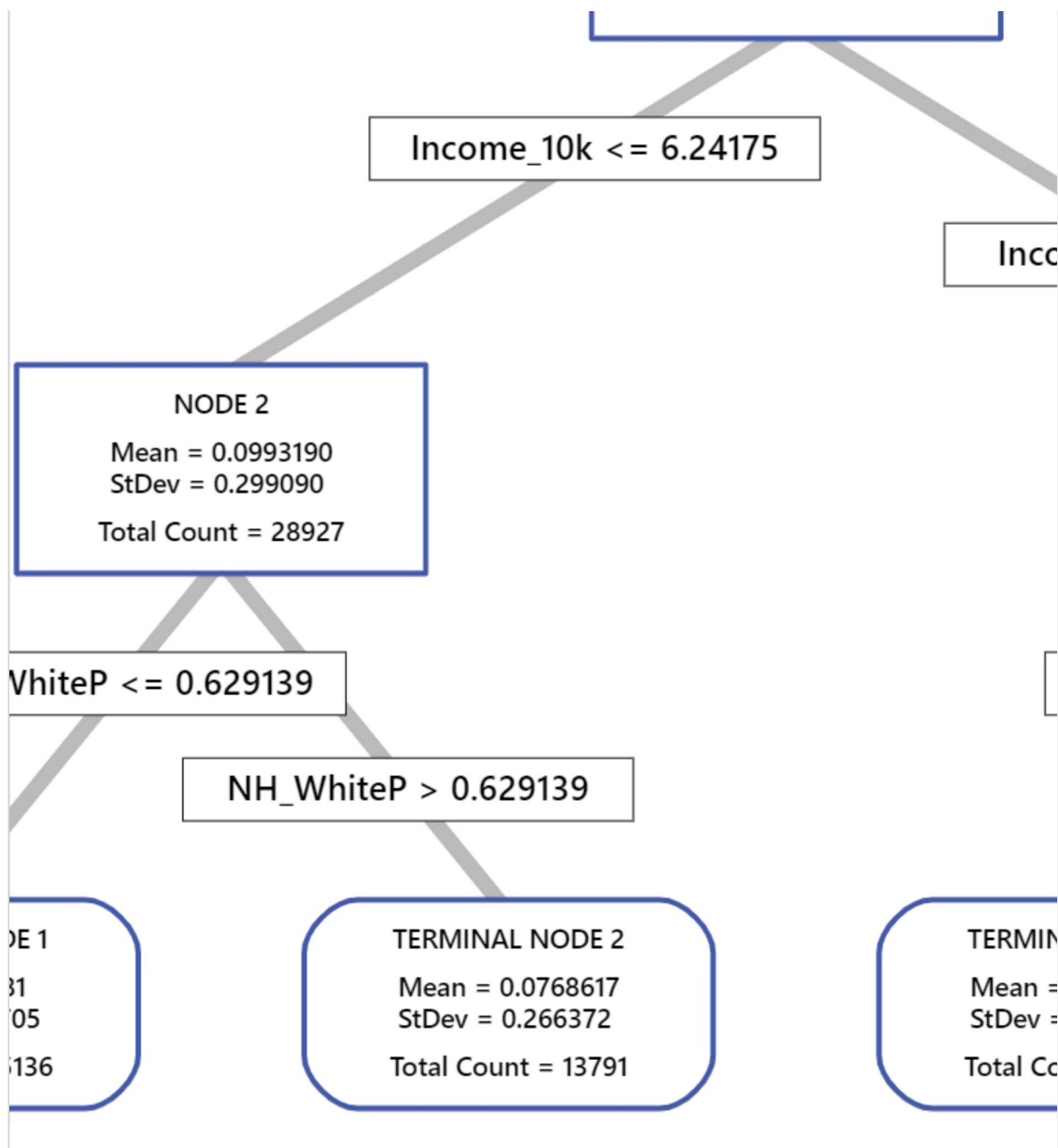
## Response Information

Data Set	N	% of N	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Training	58070	70.0	0.0764250	0.265679	0	0	0	0	1
Test	24836	30.0	0.0764616	0.265741	0	0	0	0	1



## Optimal Tree Diagram



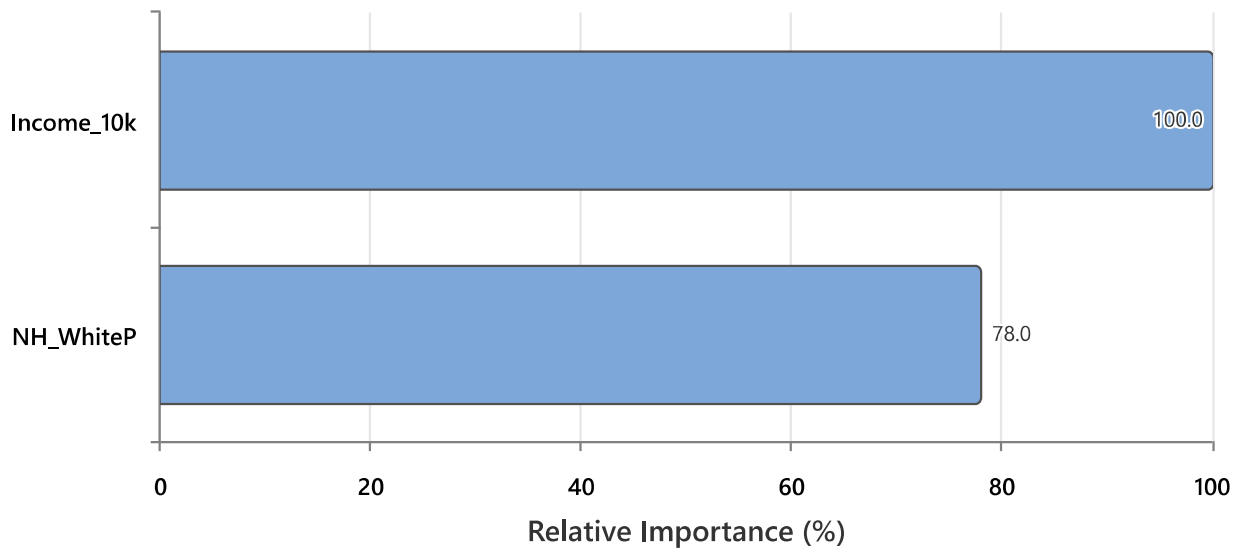


## Model Summary

Total predictors 2  
 Important predictors 2  
 Number of terminal nodes 4  
 Minimum terminal node size 10830

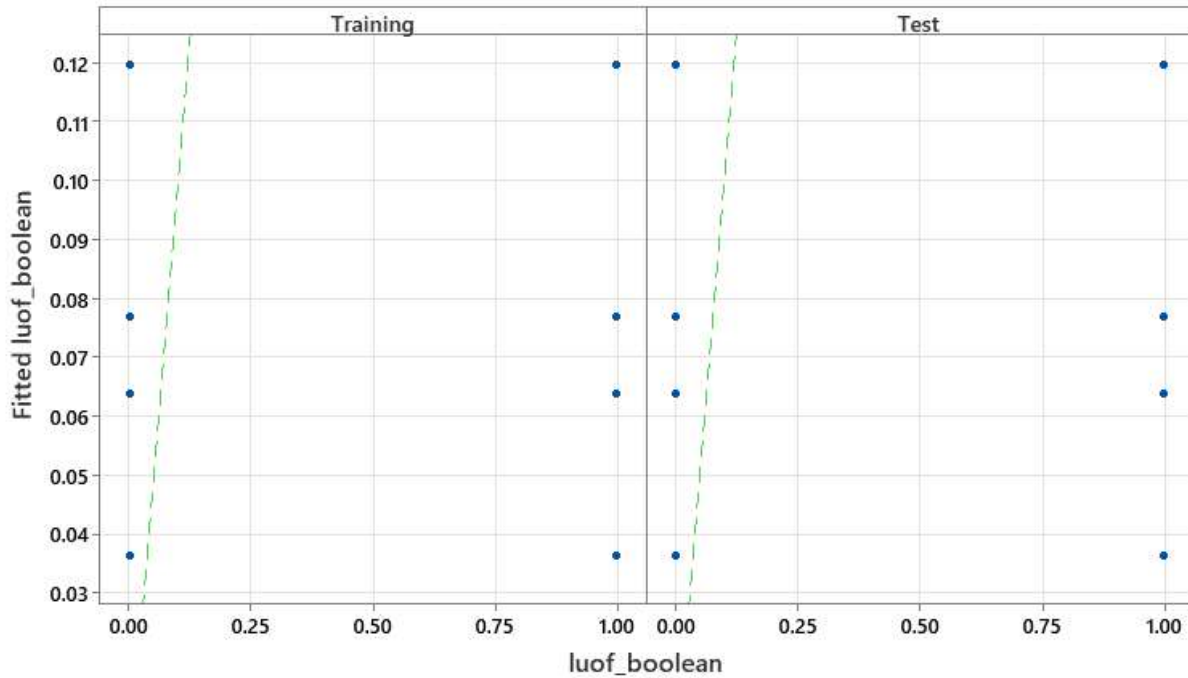
Statistics	Training	Test
R-squared	1.19%	1.01%
Root mean squared error (RMSE)	0.2641	0.2644
Mean squared error (MSE)	0.0697	0.0699
Mean absolute deviation (MAD)	0.1395	0.1396
Mean absolute percent error (MAPE)	0.9126	0.9135

## Relative Variable Importance

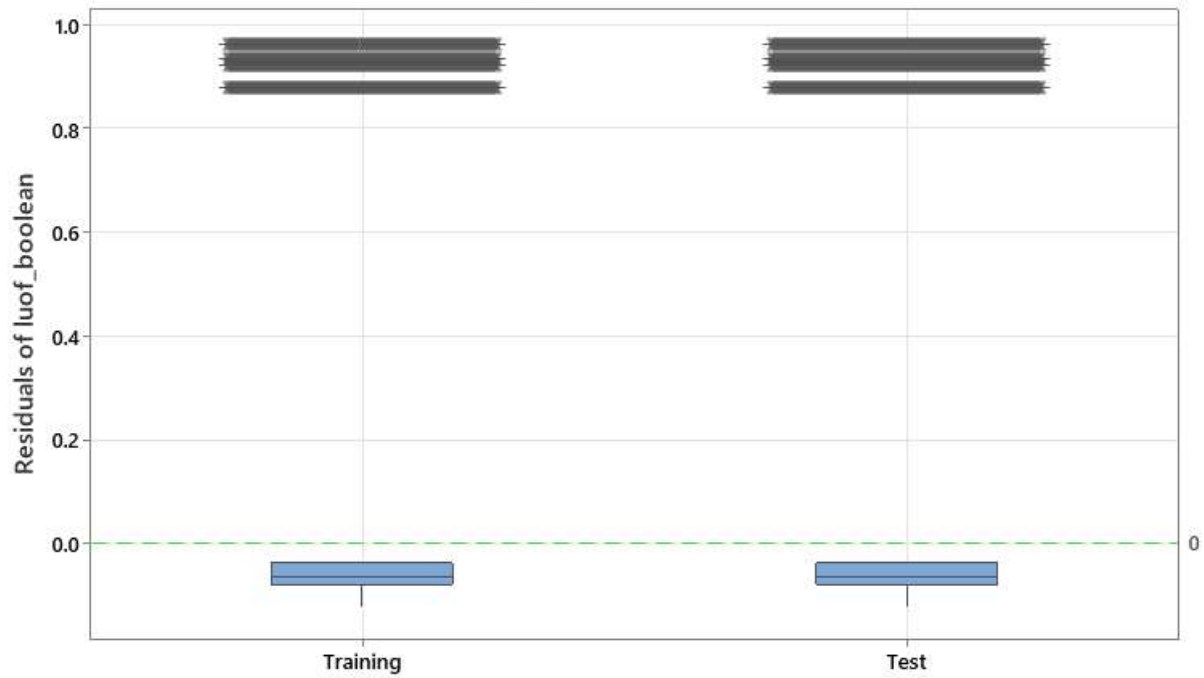


Variable importance measures model improvement when splits are made on a predictor. Relative importance is defined as % improvement with respect to the top predictor.

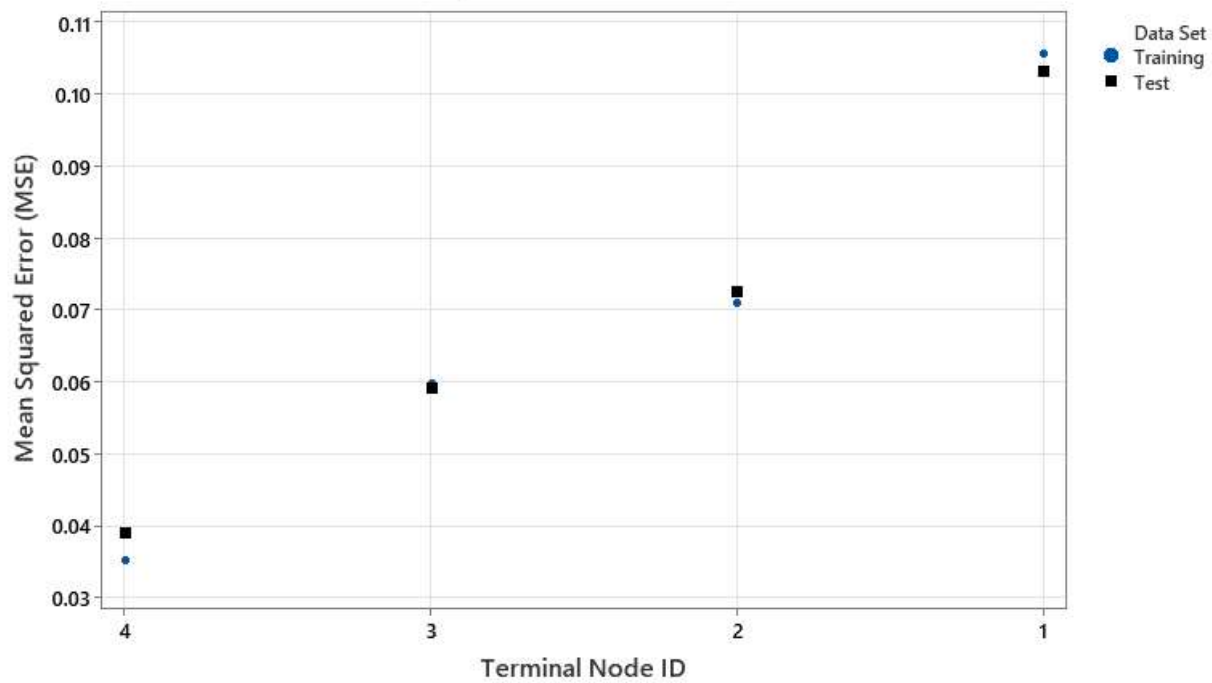
## Scatterplot of Response Fits vs Actual Values



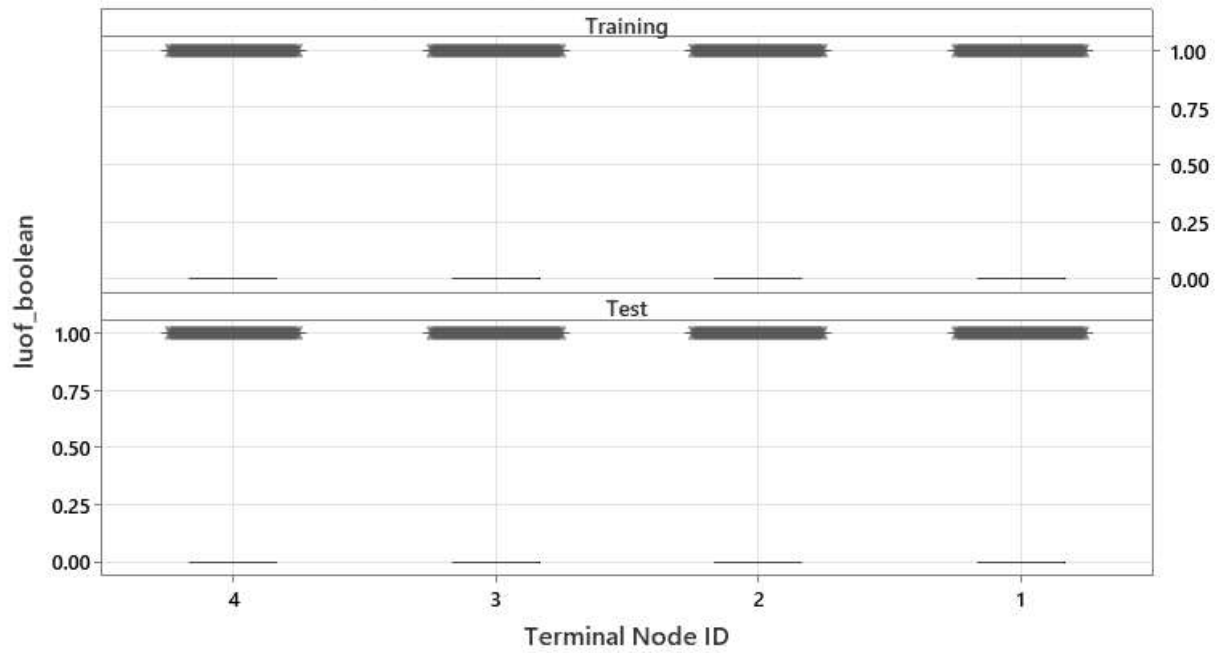
Boxplot of Residuals



Scatterplot of MSE vs Terminal Node

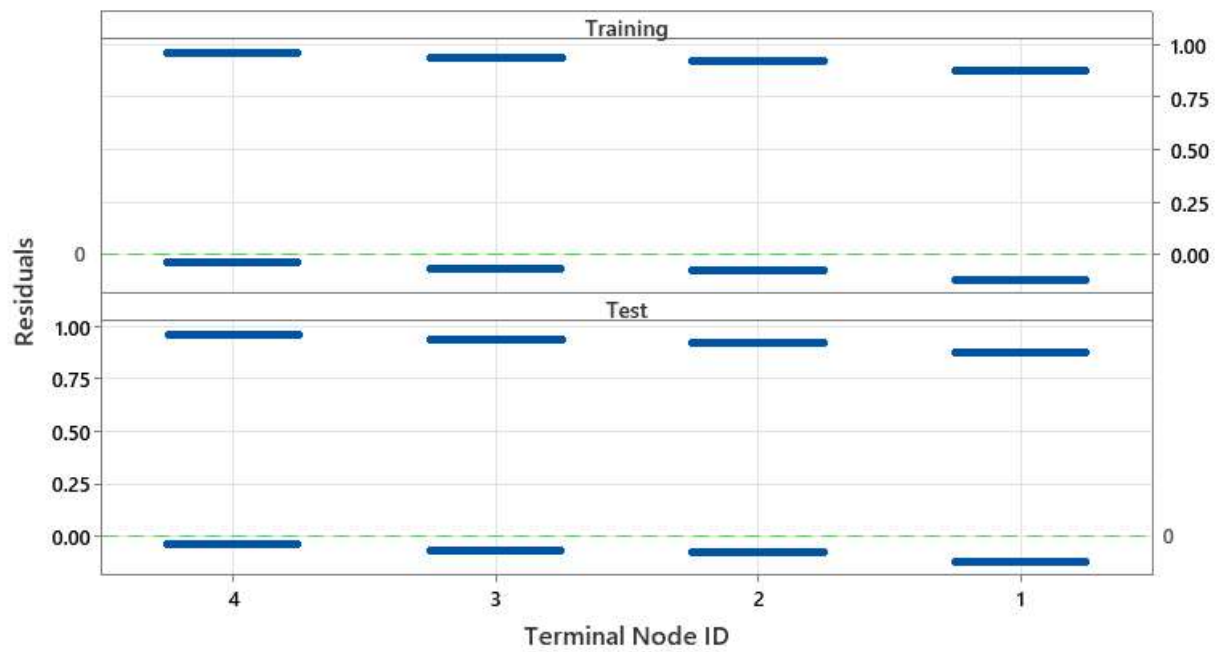


Boxplot of luof\_boolean by Terminal Node



Terminal node sorted in ascending order of MSE for training sample

Residual Plot by Terminal Node



Terminal node sorted in ascending order of MSE for training sample