RESULTS

Logistic Regression Models with SAS Enterprise Miner

INFO-3236 091 Spring 2021

# Analyst:

[your name]

# Overview

|  |  |
| --- | --- |
| Data file | develop SAS data file |
| Data Mining Software | SAS Enterprise Miner 14.2, SAS 9.4 |
| Project Name | [ your SAS Enterprise Miner project name] |
| Last Update Date | [ the date you finalized the result] |

# Logistic Regression Model

## Details of the Final Model

## No. 1 Analysis of Maximum Likelihood Estimates

[Provide screenshots of the ‘Analysis of Maximum Likelihood Estimates’ tables from the final model]

## No.2 Strong Predictors

2.1 Which independent variables are statistically significant in the final selected model?

[your answers]

2.2 For the first five statistically significant independent variables, interpret the impact of on the odds of a customer purchasing the annuity products.

*Note: use p = 0.05 as a cutoff (note that, in practice, p-value is used as a guideline, not a sharp cutoff)*

[your answers]

## No. 3 Classification Table

Show the classification table (also called the confusion matrix) as a 2x2 matrix for the validation sample. The columns and rows should be properly labeled, and the matrix filled with correct numbers. Provide both the screenshots of the classification table output and the numbers of TN, FP, FN, and TP.

[screenshots]

|  |  |  |
| --- | --- | --- |
|  | Predicted 0 | Predicted 1 |
| Actual 0 | TN = [ your answer ] | FP = [ your answer ] |
| Actual 1 | FN = [ your answer ] | TP = [ your answer ] |

TN: true negative

FN: false positive

FP: false positive

TP: true positive

## No. 4 Performance Measures

Compute the following from the classification table created as above:

* Accuracy
* Sensitivity
* Specificity
* Negative predicted value

|  |  |
| --- | --- |
| Measures | Resulted Values |
| Accuracy = (TP + TN) / All cases | [ your answer] |
| Sensitivity = TP / Actual Positives | [ your answer] |
| Specificity = TN / Actual Negatives | [ your answer] |
| Negative predicted value = TN / Predicted negatives | [ your answer] |

## No. 5 Misclassification Costs

Profit margin per customer is $1,000 and it costs $20 to contact one customer. What is the total cost of misclassification?

Hint: Use the two numbers: predicted outcome = 1.

[ your answer – also show the calculation]