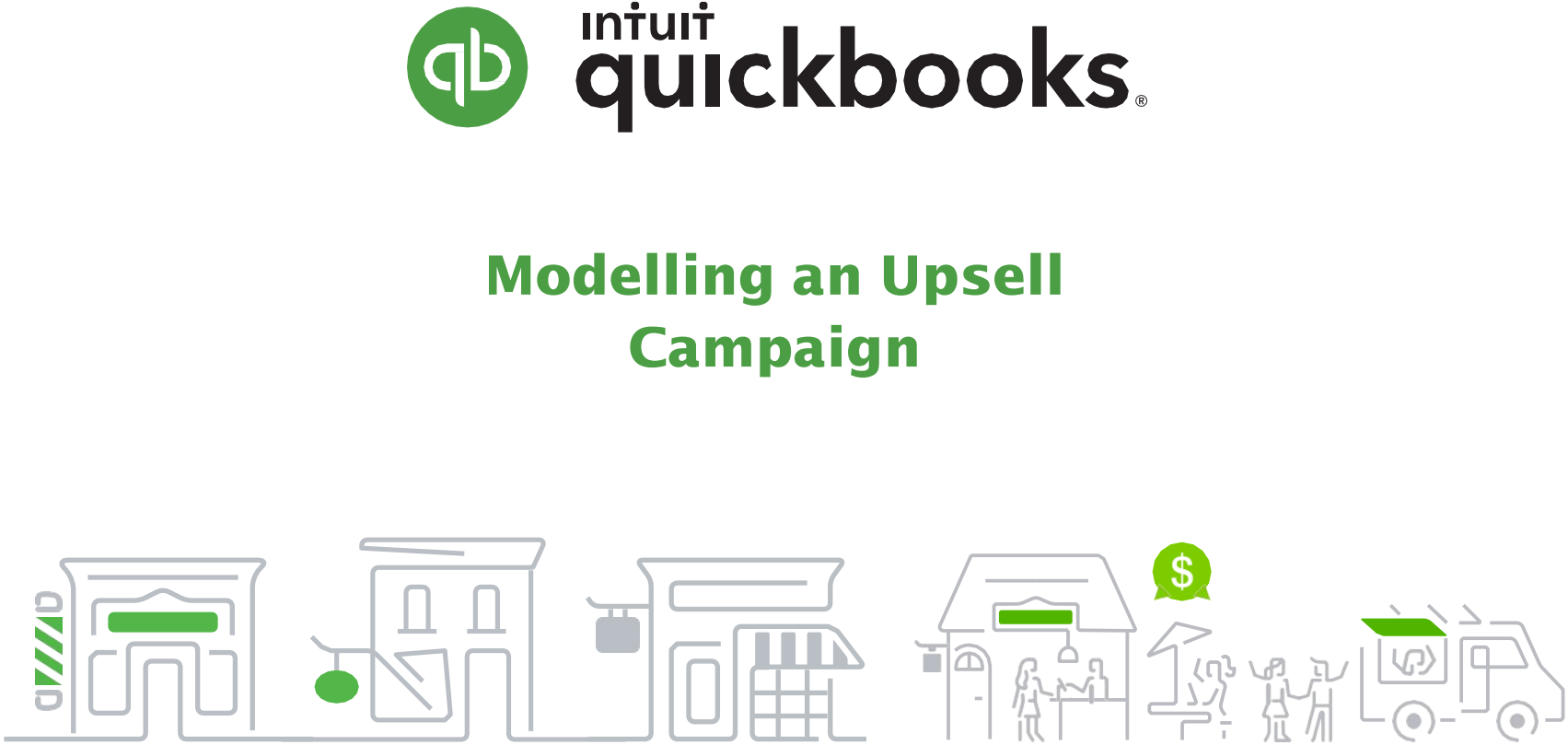
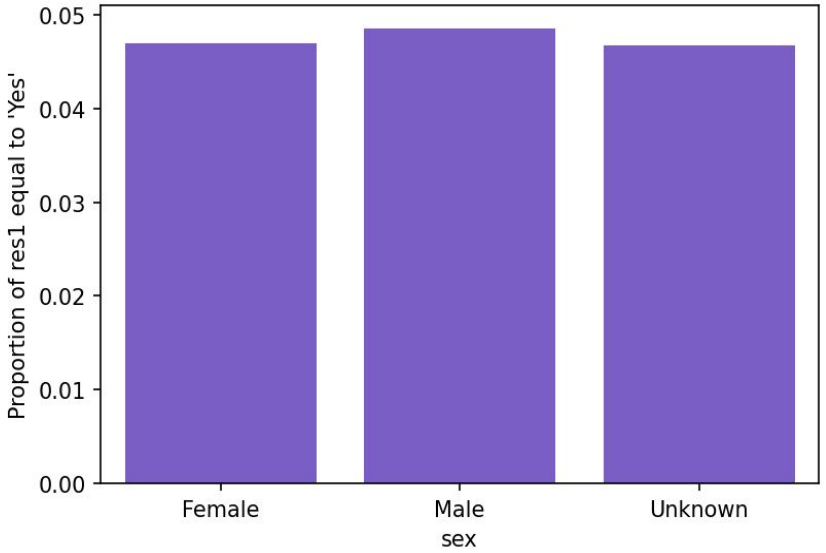
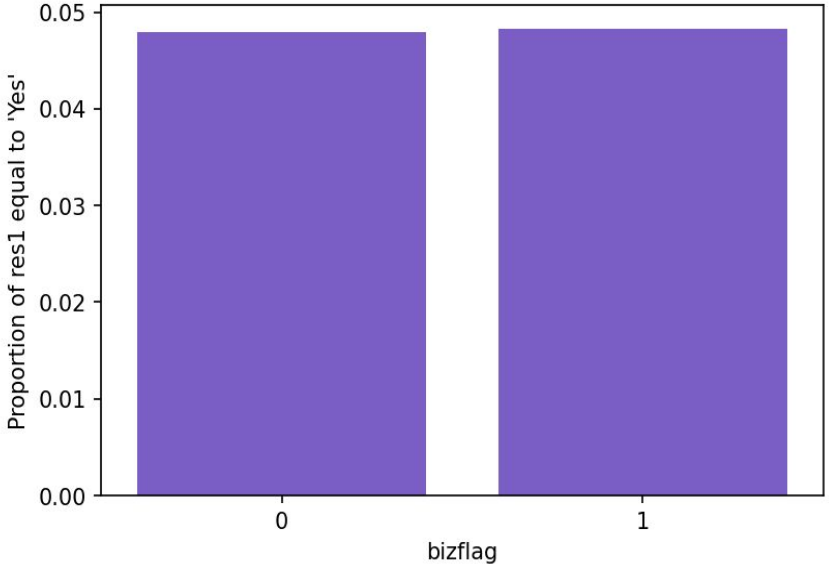


Modelling an Upsell Campaign

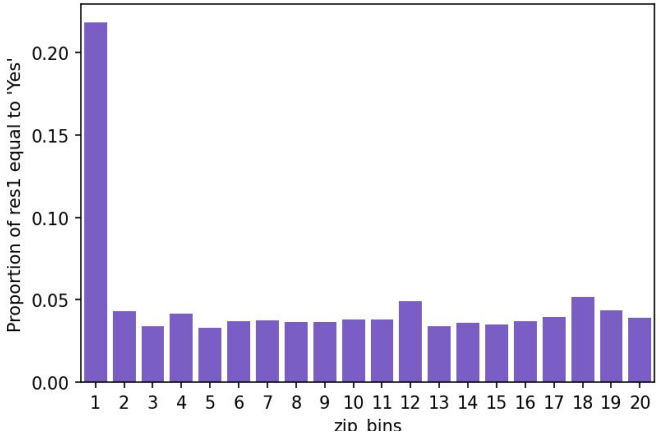
Exploratory Data Analysis

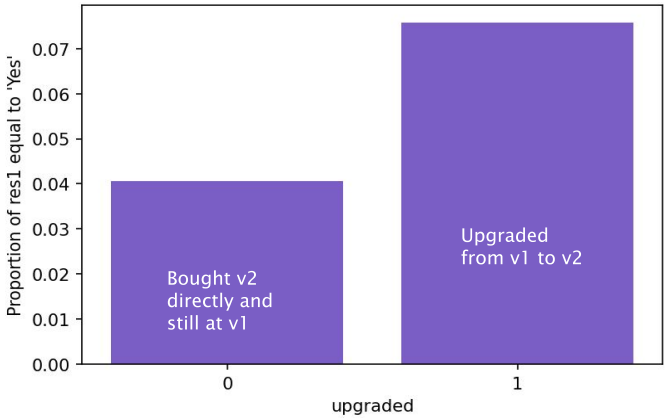
No Visible Relationship



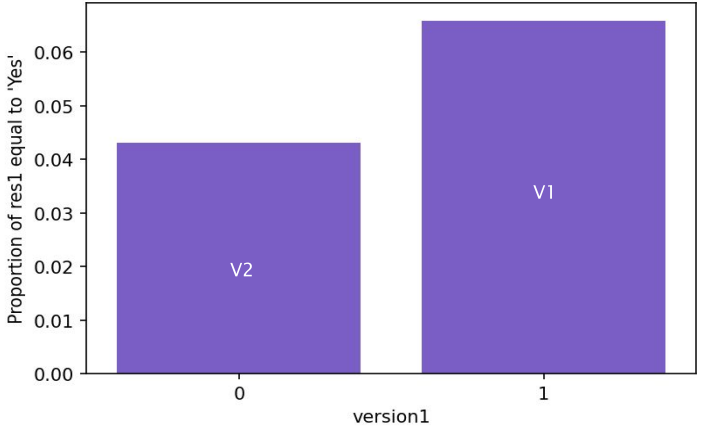


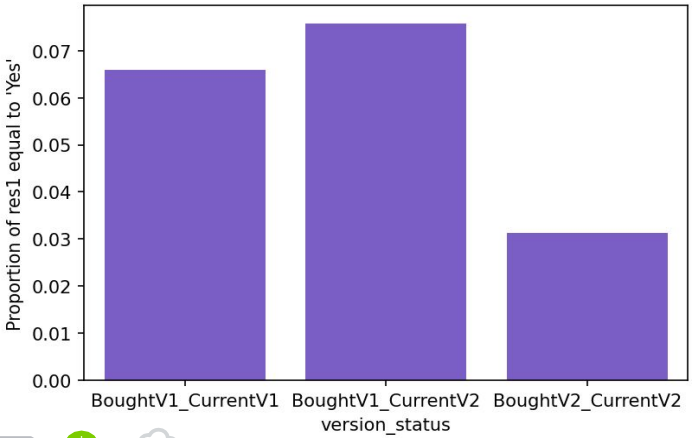
Exploratory Data Analysis



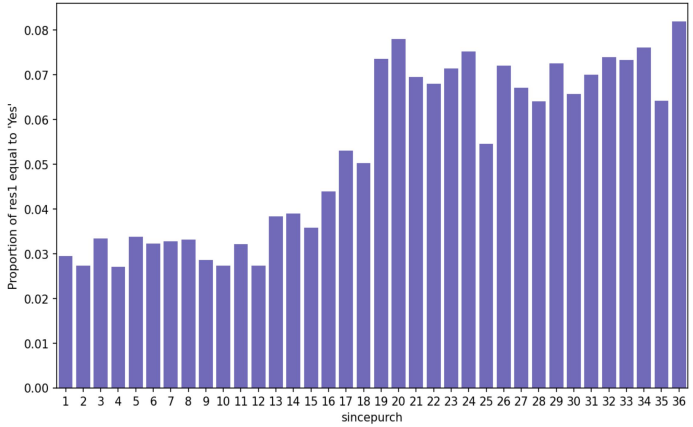


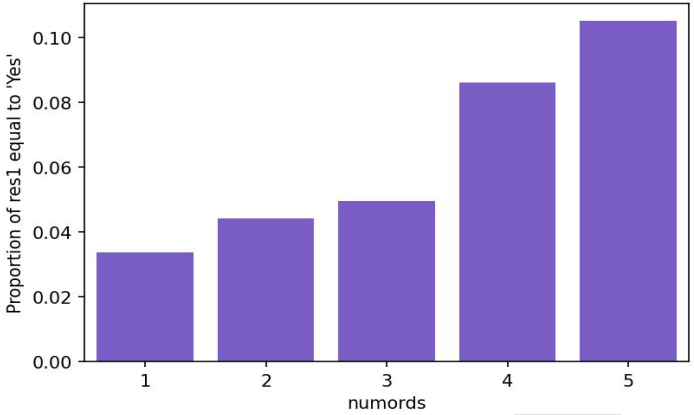
Visible relationship



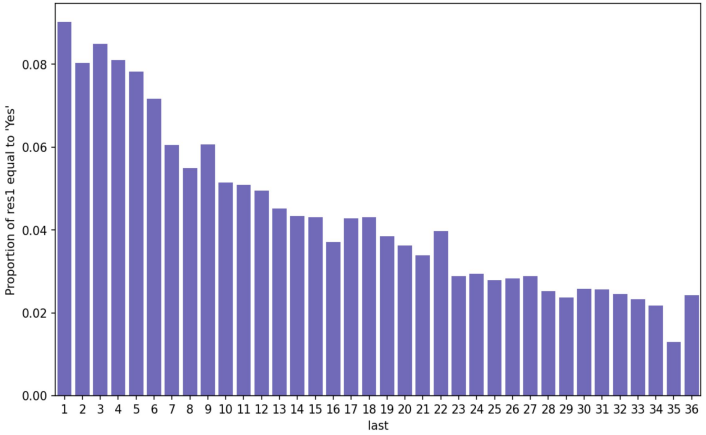


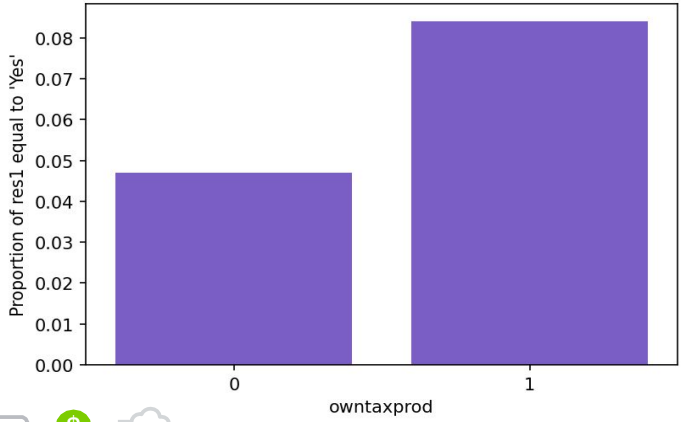
Exploratory Data Analysis





Visible relationship





Break-even Analysis

Cost per Mail
$1.41

Magin per Response
$60

Break-even rate
2.35%

RFM Model

RFM Analysis - Models

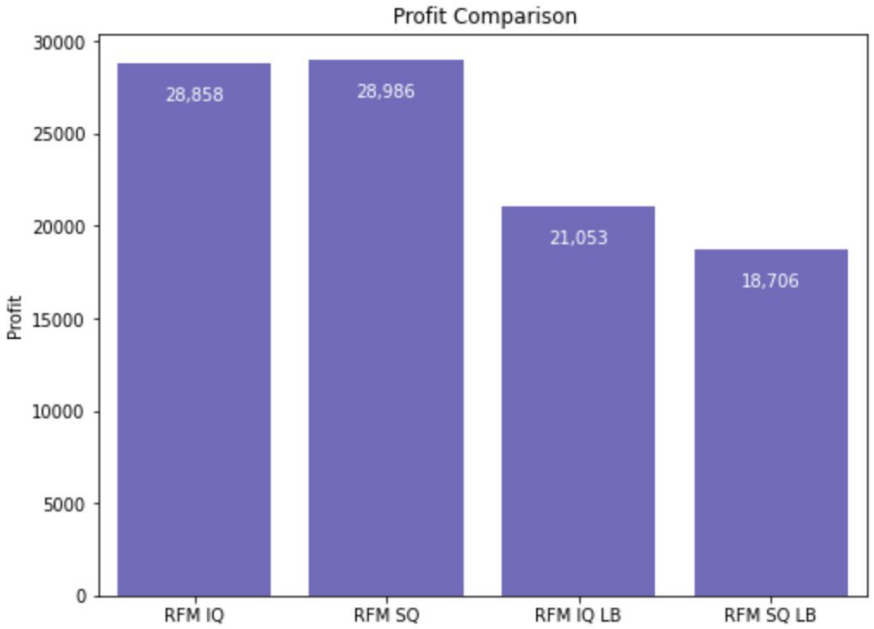
Model 1
RFM IQ

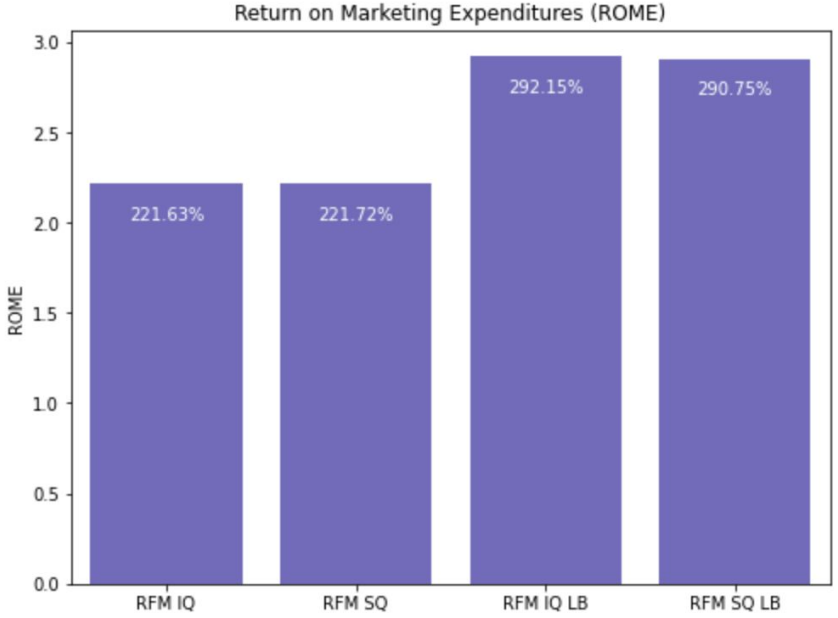
Model 2
RFM SQ

Model 3
RFM IQ LB

Model 4
RFM SQ LB

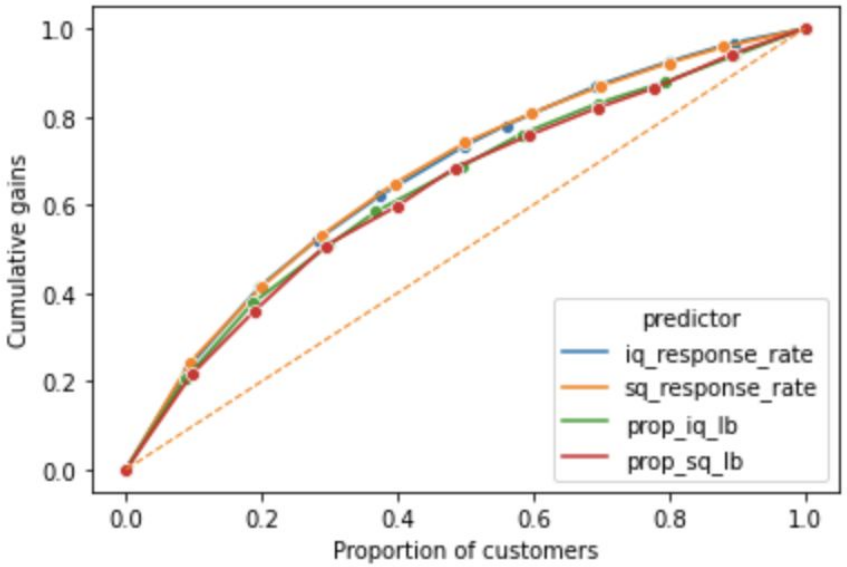
Model Performance Analysis



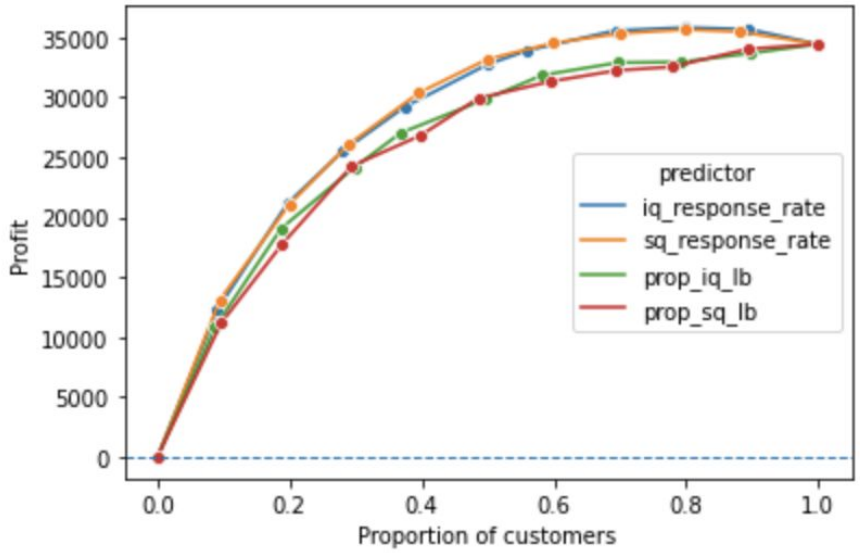


Model Comparison

Gains chart



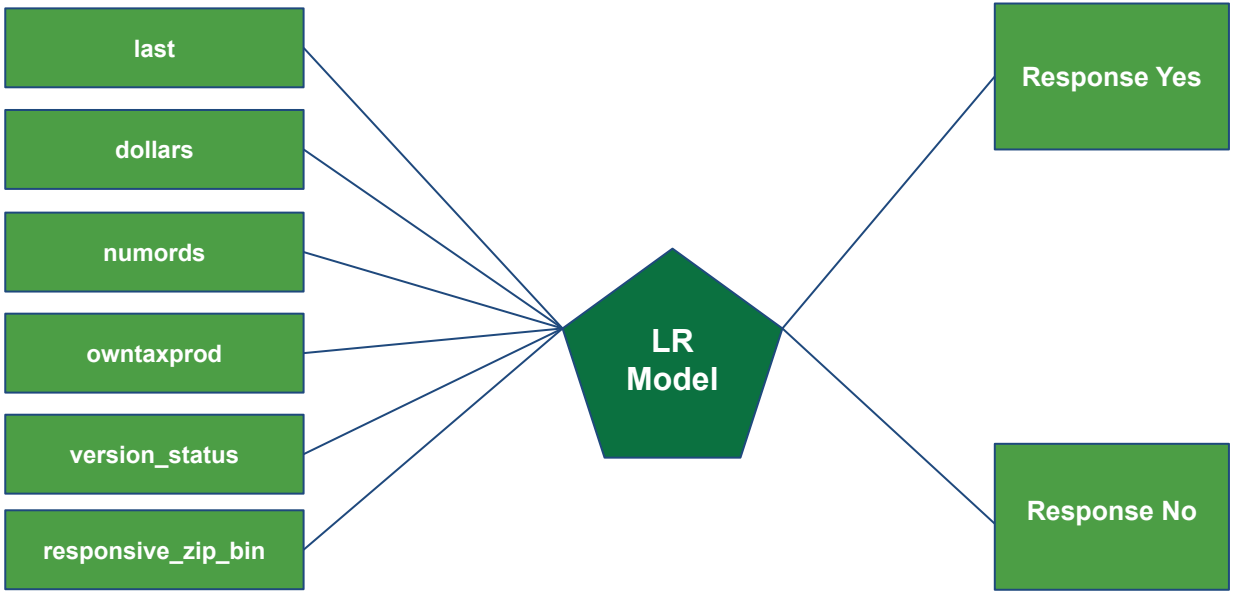
Profits chart



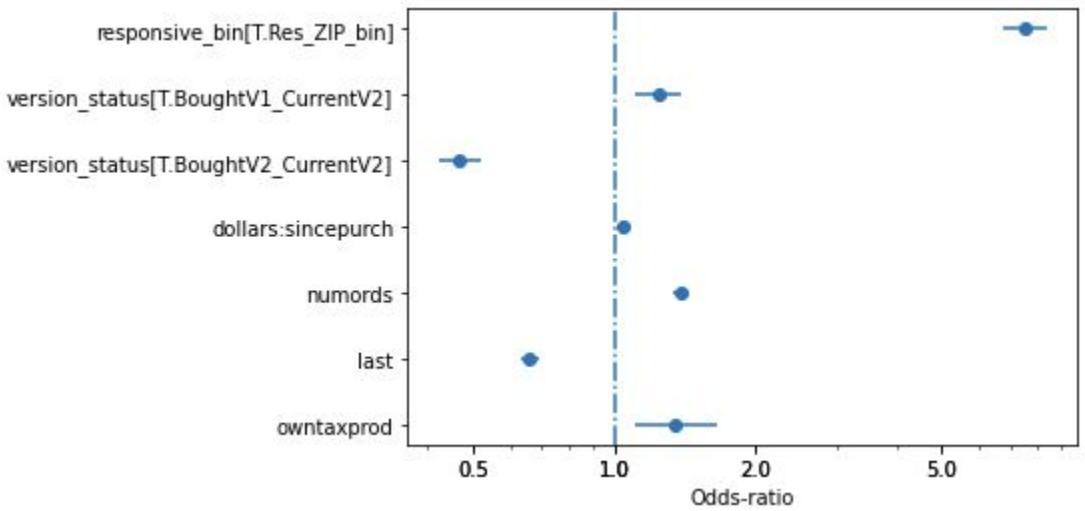
Expected Profit
$ 28,986

Logistic Regression Model

Predicting Response from Logistic Regression



Odd's Ratios of the LR Model

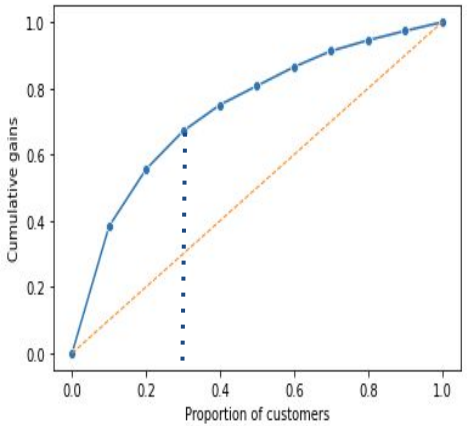


LR Performance

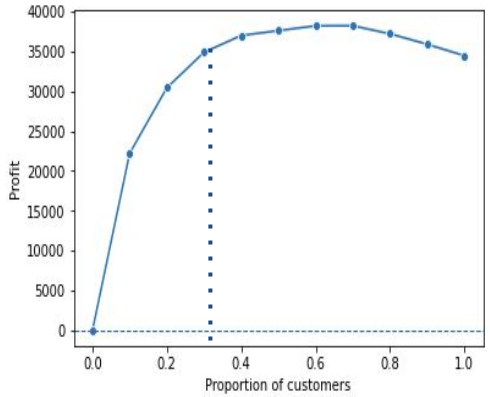
AUC-ROC Score
69.5%

Profit
$ 35,357

Gains Chart



Profit Chart



Neural Network Model

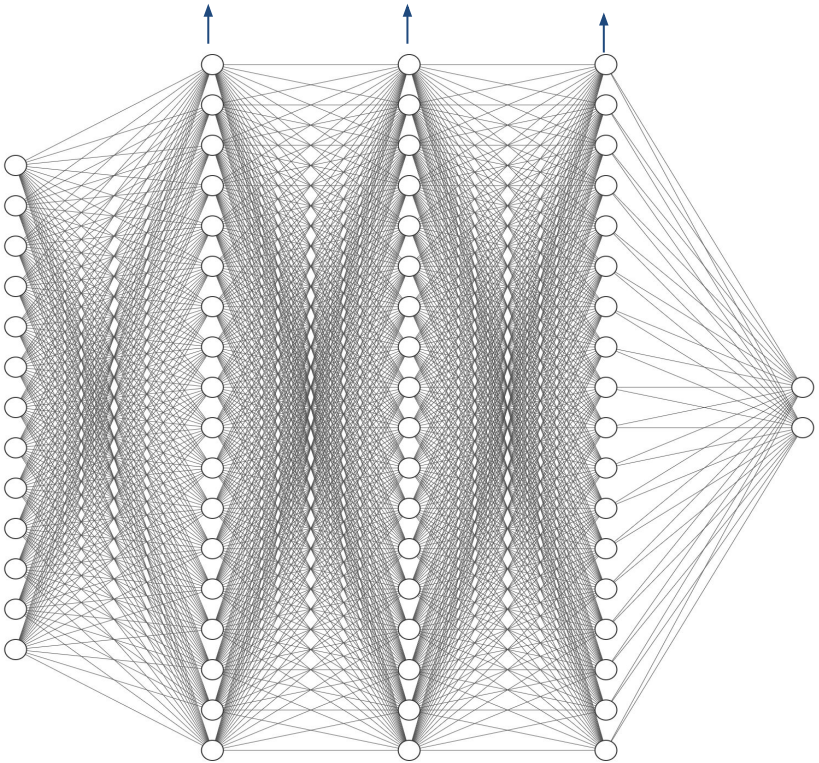
Neural Network Model 1

31 explanatory variables

3 hidden layers, 100 nodes each

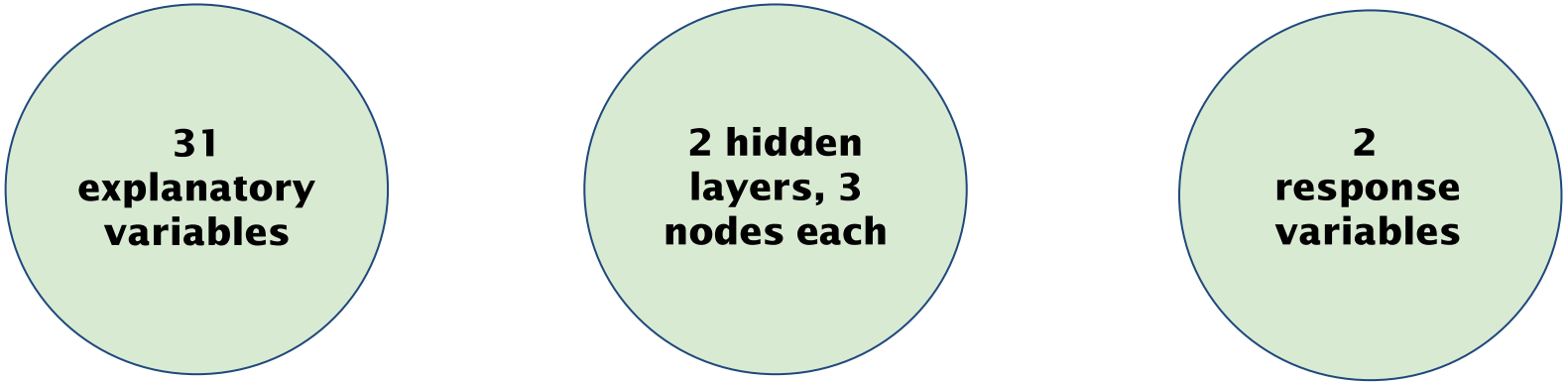
2 response variables

Neural Network Model 1

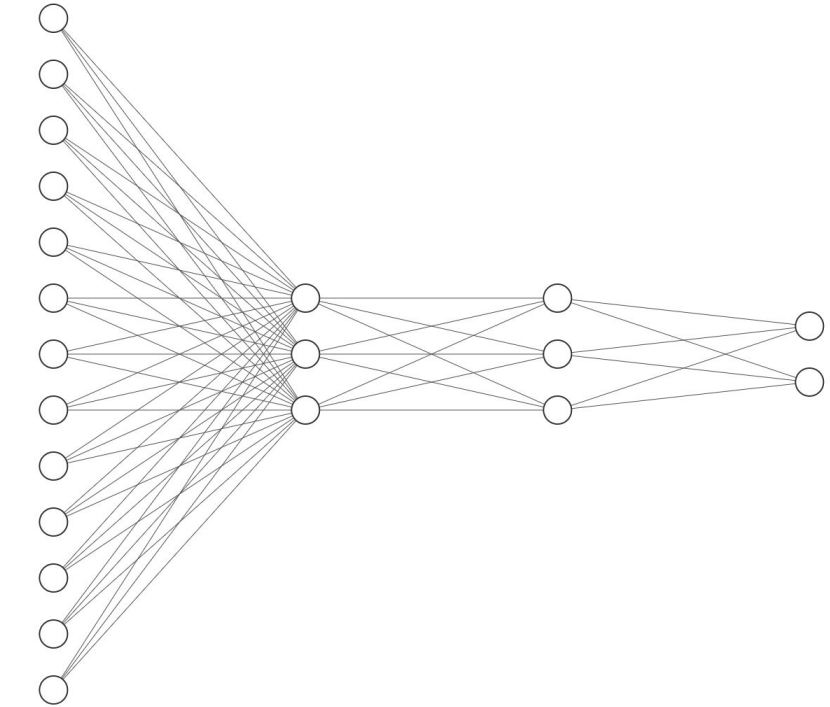


- This model effectively captures patterns in the training data
- The predictions of the response rate of the model was satisfactory but not ideal
- There is strong evidence that the model will perform poorly on foreign data

Neural Network Model 2



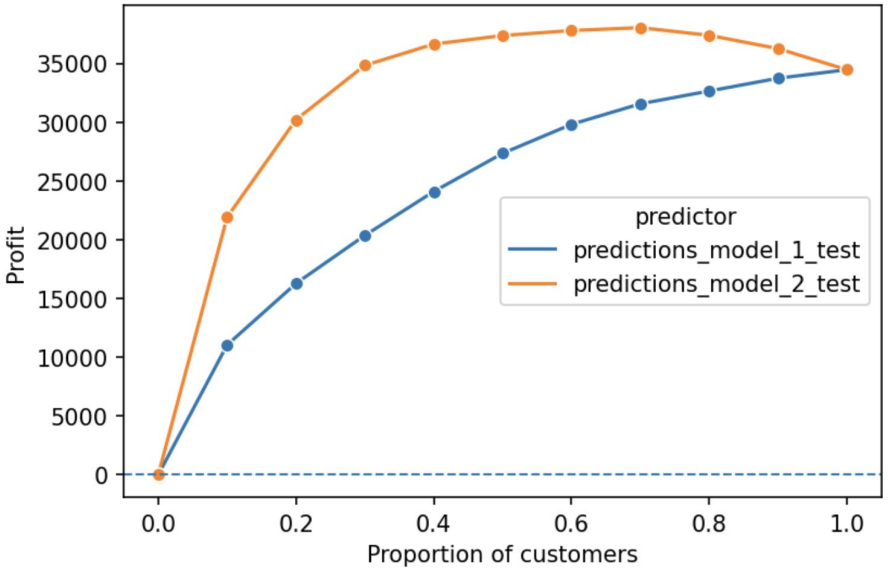
Neural Network Model 2



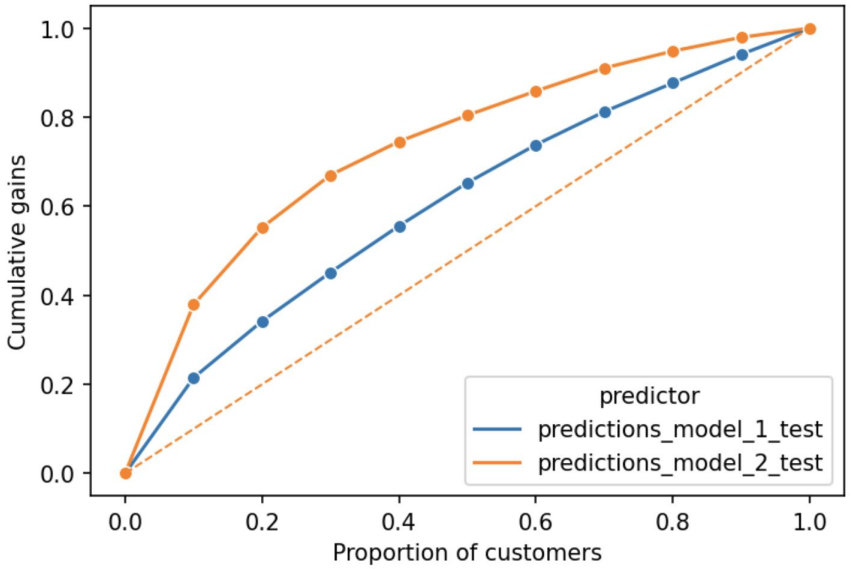
- This model effectively captured patterns in the training data
- The predictions of the response rate of the model was ideal
- There is strong evidence that the model will predict the response rates of customers effectively

Neural Networks

Profit Plot



Gains Plot



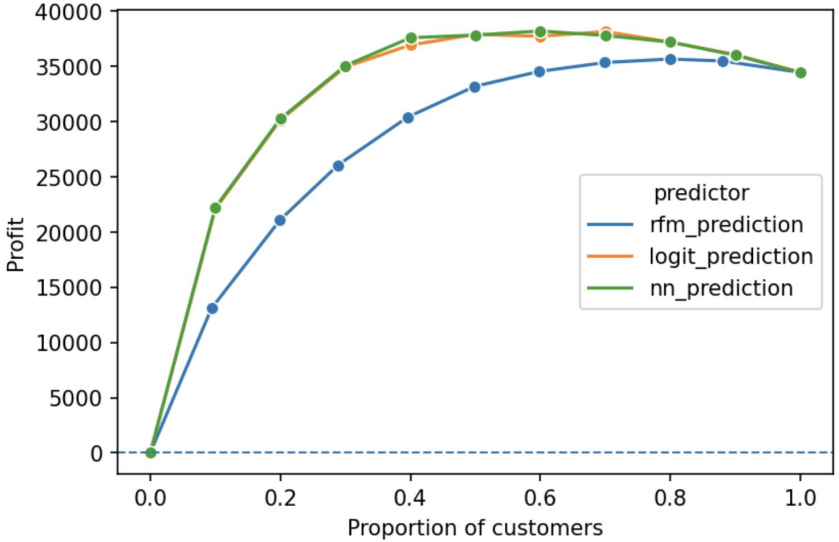
Neural Networks

Expected Profit	AUC-ROC Score
$ 36,000	75.53%

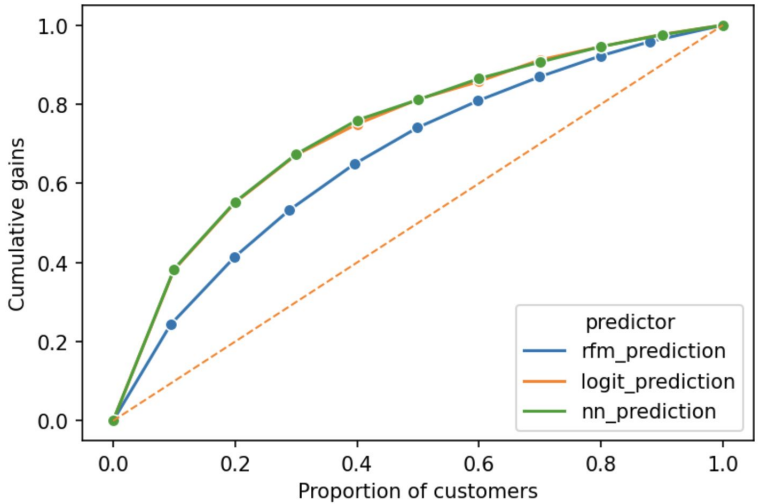
Final Model and Projected Profit

Model comparison- RFM SQ, Logistic and NN

Profit Plot



Gains Plot



Neural Network

Expected Profit
$ 36,000

AUC-ROC Score
75.53%

Logistic Regression

Expected Profit
$ 35,357

AUC-ROC Score
69.5%

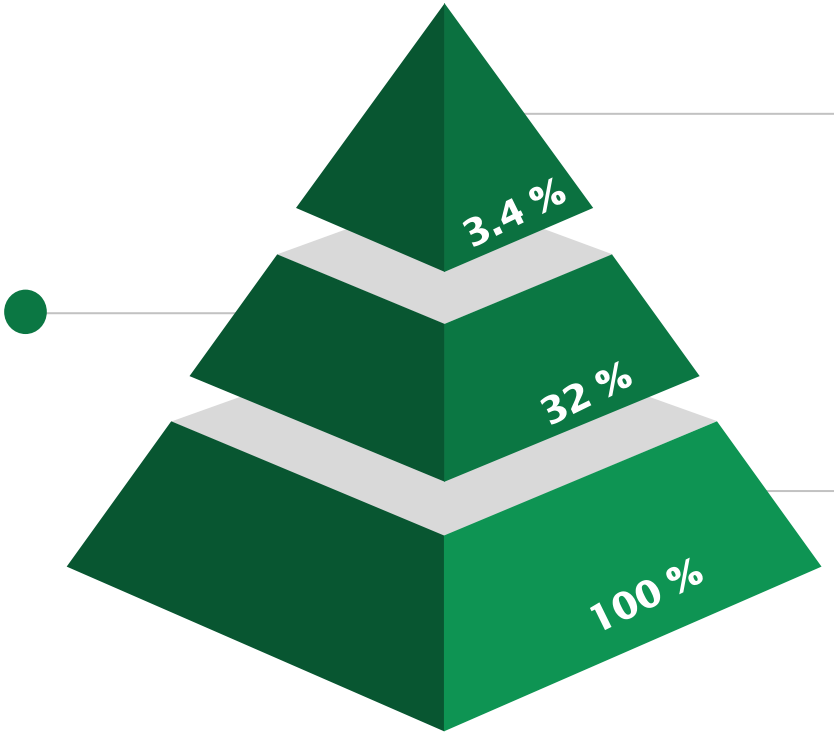
Projected Profit

Number of respondents= **26,123**

Revenue= **$ 1,567,379**

Number of users contacted= **245,420**

Cost= **$ 346,042**



Population= **763,334**

Total Profit= $ 1,221,337

Thank you!