

Performance_Analysis

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Testing

Actual - 100

90 - 0 - not leave ✓

10 - 1 - left ✓

Model -2 predictions

80 - 0 - not leave - 80

20 - 1 - leave

$$A = \frac{90}{100} = 90\%$$

$$R = \frac{10}{10} = 100\%$$

$$P = \frac{10}{20} = 50\%$$

Model -1 predictions

95 - 0 - not leave - 90

05 - 1 - leave - 05

$$A = \frac{95}{100} = 95\%$$

Relevant Accuracy to class 1

$$(Recall) = \frac{05}{10} = 50\%$$

$$P = \frac{5}{5} = 100\%$$

Testing - 100 customers

Actual

90 - 0 - not leave

10 - 1 - left

Model 2

80 - 0 - NL - 80

20 - 1 - YL - 10

Model1

Prediction

95 - 0 - not leave - 90

05 - 1 - leave - 05

$$A = 90\%$$

$$R = \frac{10}{10} = 100\%$$

$$P = \frac{10}{20} = 50\%$$

Accuracy = 95 / 100 = 0.95

Business objective: to identify those customers who left the bank - to identify class 1

Accuracy with in class 1 (relevant business accuracy = recall) = (correct predictions in class 1) / (total actual in class 1) = 5 / 10 = 0.5

Precision = purity of predictions = (correct predictions in class 1) / (total predictions in class 1) = 5 / 5 = 1

$$F1 \text{ score} = \frac{2}{\frac{1}{P} + \frac{1}{R}}$$

travel cc
shopping cc
Elite cc
Hospitality cc

PL score
F1 S
F1
F1

Confusion Matrix
ypred v/s ytest
pivot of Actual v/s prediction
Pred

Actual

}

Actual Pred	0	
	Negative	Positive
0	True Negative TN	False Positive FP
1	False Negative FN	True Positive TP

$$A = \frac{TP + TN}{TP + TN + FP + FN}$$

$$R = \frac{TP}{TP + FN}$$

$$P = \frac{TP}{TP + FP}$$