

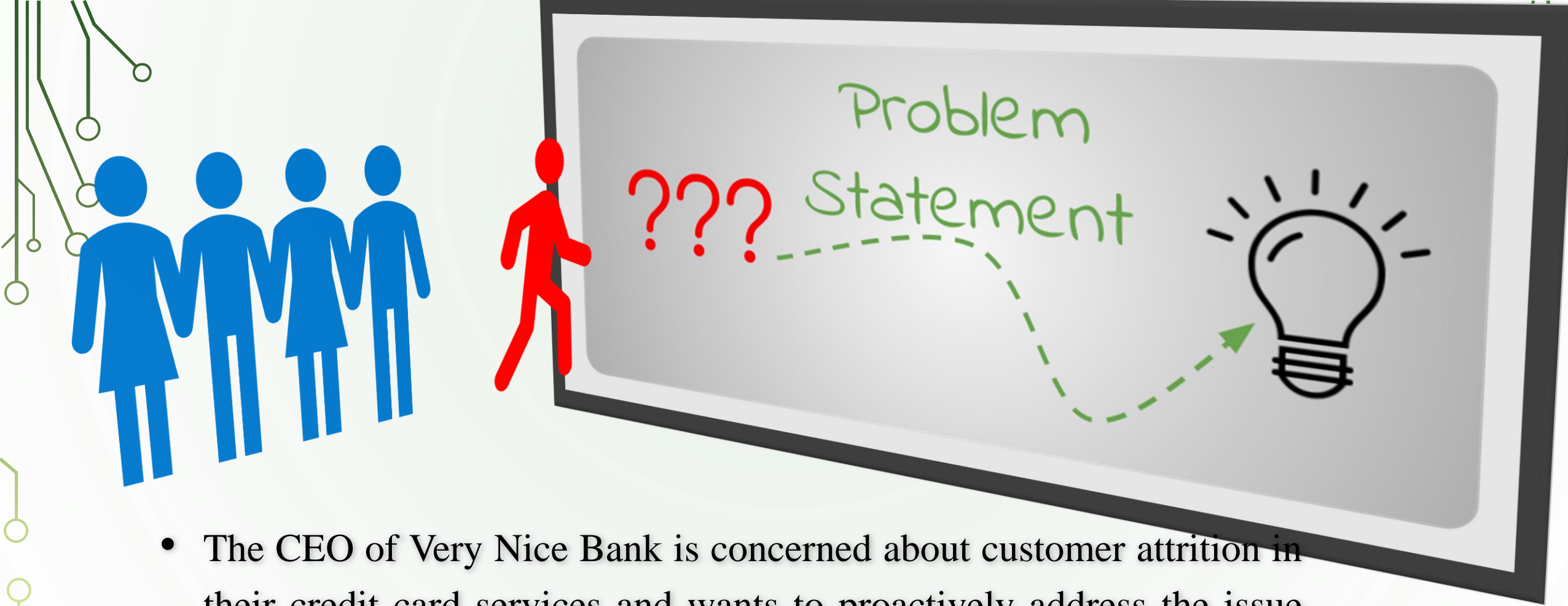


Project Team - **Green**

Phase-3 Pre-Production Pilot Test

Presenter

-Yash Jivani



- The CEO of Very Nice Bank is concerned about customer attrition in their credit card services and wants to proactively address the issue by predicting which customers are most likely to cancel their accounts.
- How can we address the issue of customer attrition in the credit card services provided by Very Nice Bank Inc?

RapidMiner Model Layout

Same Operator Parameters from Phase-2

Model
Layout
from
Phase - 2

Process

Retrieve BankChurn...

Select Attributes

Set Role

Cross Validation

Nominal to Numerical

Split Data

Apply Model (2)

Performance (2)

Read Excel

Select Attributes (2)

Set Role (2)

Nominal to Numerica...

Apply Model (3)

New 10
Records

Cross Validation

☐ split on batch attribute ⓘ

☐ leave one out ⓘ

number of folds ▼ 50 ⓘ

sampling type ▼ stratified sampling ⓘ

☐ use local random seed ▼ ⓘ

☒ enable parallel execution ⓘ

ratio

0.7

0.3

Add Entry Remove Entry OK

Features

Selected Attributes

Search

+

×

Attrition Flag

Contacts Count 12 mon

Dependent count

Gender

Months Inactive 12 mon

Total Ct Chng Q4 Q1

Total Relationship Count

Total Revolving Bal

Total Trans Ct

Initially 8 features which were finalized from Phase - 1 are selected

Row No. ↑	Attrition Flag	prediction(Attrition Fl...	confidence(Existing ...	confidence(Attrited ...
1	?	Existing Customer	1.000	0.000
2	?	Existing Customer	1.000	0.000
3	?	Existing Customer	0.999	0.001
4	?	Existing Customer	0.957	0.043
5	?	Existing Customer	1.000	0.000
6	?	Existing Customer	0.999	0.001
7	?	Existing Customer	1.000	0.000
8	?	Existing Customer	1.000	0.000
9	?	Existing Customer	0.990	0.010
10	?	Existing Customer	1.000	0.000

Total pred. Existing Customer – 10

Total pred. Attrited Customer – 0

Features

Selected Attributes

Search

+

×

Attrition Flag

Contacts Count 12 mon

Months Inactive 12 mon

Total Amt Chng Q4 Q1

Total Ct Chng Q4 Q1

Total Relationship Count

Total Revolving Bal

Total Trans Amt

Total Trans Ct

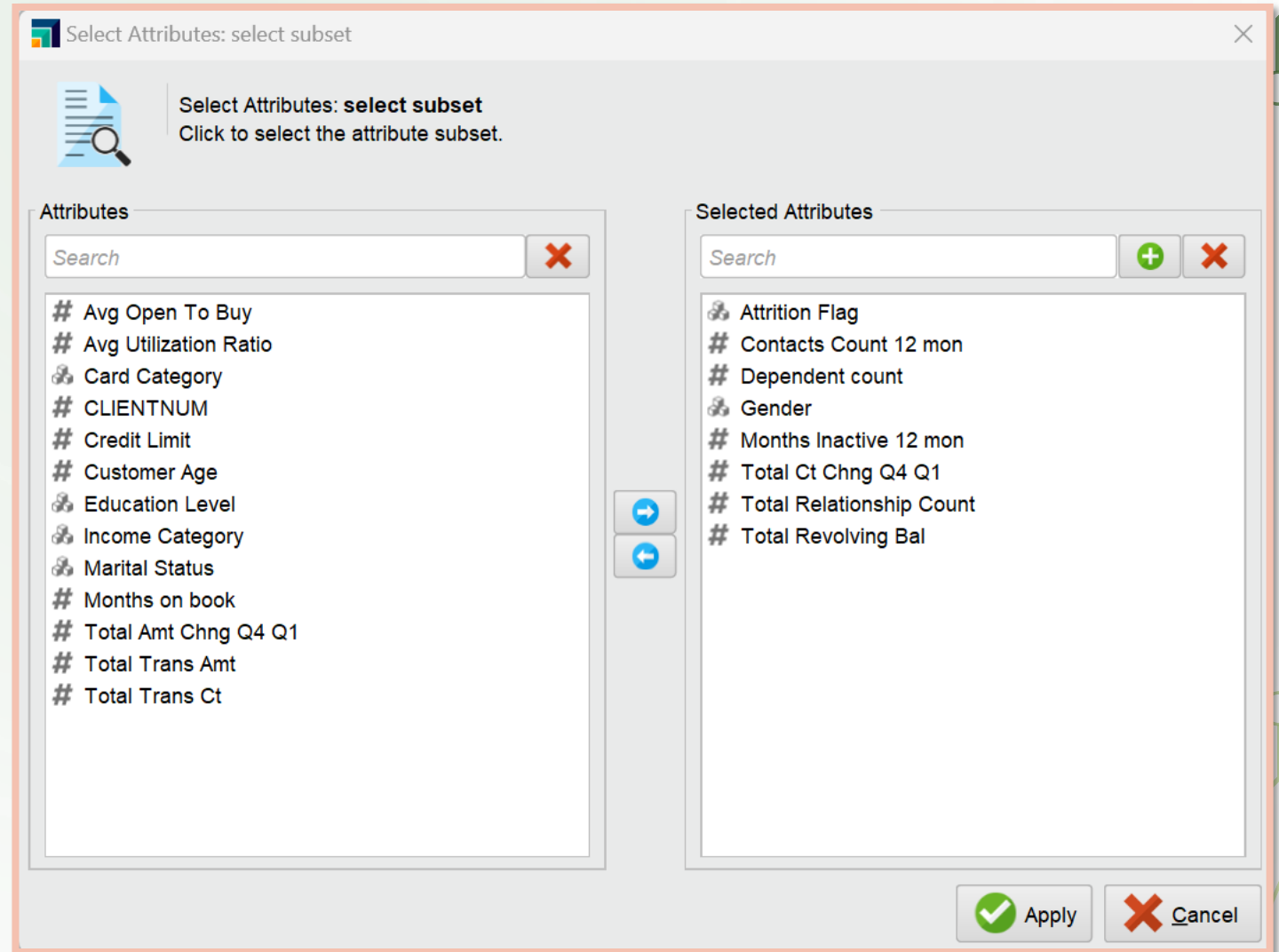
Features which were finalized from
Phase - 2 are selected

Row No.	Attrition Flag	prediction(Attrition Flag)	confidence(Existing ...	confidence(Attrited ...
1	?	Existing Customer	1.000	0.000
2	?	Existing Customer	1.000	0.000
3	?	Existing Customer	1.000	0.000
4	?	Existing Customer	0.989	0.011
5	?	Existing Customer	1.000	0.000
6	?	Existing Customer	0.989	0.011
7	?	Existing Customer	1.000	0.000
8	?	Existing Customer	1.000	0.000
9	?	Existing Customer	1.000	0.000
10	?	Existing Customer	1.000	0.000

Total pred. Existing Customer – 10
Total pred. Attrited Customer – 0

Features

Features which are finalized after multiple iterations are selected for which model has good performance score and also 2 attrited customers in test set



RapidMiner Model Prediction

Row No.	Attrition Flag	prediction(Attrition Flag)	confidence(Existing Customer)	confidence(Attrited Customer)
1	?	Existing Customer	0.998	0.002
2	?	Existing Customer	0.989	0.011
3	?	Existing Customer	0.985	0.015
4	?	Attrited Customer	0.023	0.977
5	?	Existing Customer	0.995	0.005
6	?	Existing Customer	0.829	0.171
7	?	Existing Customer	0.961	0.039
8	?	Existing Customer	0.982	0.018
9	?	Attrited Customer	0.084	0.916
10	?	Existing Customer	0.992	0.008

Total pred. Existing Customer – 8

Total pred. Attrited Customer – 2

MODEL RESULTS – CONFUSION MATRIX

Performance Score – Training Set

accuracy: 92.54% +/- 2.62% (micro average: 92.54%)			
	true Existing Customer	true Attrited Customer	class precision
pred. Existing Customer	3573	238	93.75%
pred. Attrited Customer	75	312	80.62%
class recall	97.94%	56.73%	

Accuracy – 92.54%
Mean Precision – 87.19%
Mean Recall – 77.33%

Performance Score – Validation Set

accuracy: 91.89%			
	true Existing Customer	true Attrited Customer	class precision
pred. Existing Customer	1511	93	94.20%
pred. Attrited Customer	53	143	72.96%
class recall	96.61%	60.59%	

Accuracy – 91.89%
Mean Precision – 83.58%
Mean Recall – 78.6%

Final Recommendations to the Very Nice Bank Management

- Based on the outcome and results of Data Analysis(Phase-1), Model Selection(Phase-2) and Pre-Production Pilot-Test(Phase-3), the management of **Very Nice Bank** has to provide various services and additional benefits to the customers who are most likely to churn and would leave the bank services.
- Management has to offer additional services to the customers (who are using only 1-2 services) in the form of emails, mail, offers for enrolling and taking benefits of their other services
- Also, Male customers who have completed less no. of transactions in last quarter compared to the first quarter, and those who are inactive more than 3 months should be offered personalized banking services, rewards and other offers

Final Excel File with updated values of Attrition Flag with Confidence Level

	A	B	C	D	E	F	G	H	I	J	K	L
1	CLIENTNUM	Attrition Flag	Confidence(Existin	Confidence(Attrite	Customer	Gender	Dependen	Education	Marital Sta	Income Ca	Card Cate	Months c
2		1 Existing Customer	0.998	0.002	30	F	0	College	Married	Less than	Blue	19
3		2 Existing Customer	0.989	0.011	51	M	1	Graduate	Married	\$80K - \$12	Blue	3:
4		3 Existing Customer	0.985	0.015	47	F	5	Doctorate	Single	Unknown	Blue	30
5		4 Attrited Customer	0.023	0.977	33	M	4	College	Single	\$40K - \$60	Silver	20
6		5 Existing Customer	0.995	0.005	59	M	0	High Scho	Single	\$80K - \$12	Blue	4:
7		6 Existing Customer	0.829	0.171	44	M	4	Unknown	Married	\$60K - \$80	Blue	3:
8		7 Existing Customer	0.961	0.039	30	F	1	High Scho	Single	Less than	Blue	2:
9		8 Existing Customer	0.982	0.018	43	M	5	Graduate	Married	\$120K +	Blue	30
10		9 Attrited Customer	0.084	0.916	56	M	3	Uneducate	Married	\$80K - \$12	Blue	40
11		10 Existing Customer	0.992	0.008	43	M	3	Graduate	Divorced	\$60K - \$80	Blue	2:
12												
13												

The background features a light green gradient with faint, concentric circular patterns. In the four corners, there are decorative circuit-like line art elements. The top-left and top-right corners have dark green lines, while the bottom-left and bottom-right corners have light green lines. These lines form various geometric shapes and end in small circles, resembling a stylized circuit board or network diagram.

THANK YOU!

QUESTIONS?