CREDIT SCORING PROJECT

For ABC Banks

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BUSINESS CASE

ABC Bank intends to build an in-house risk model to make lending decisions for subprime mortages

BUSINESS OBJECTIVE

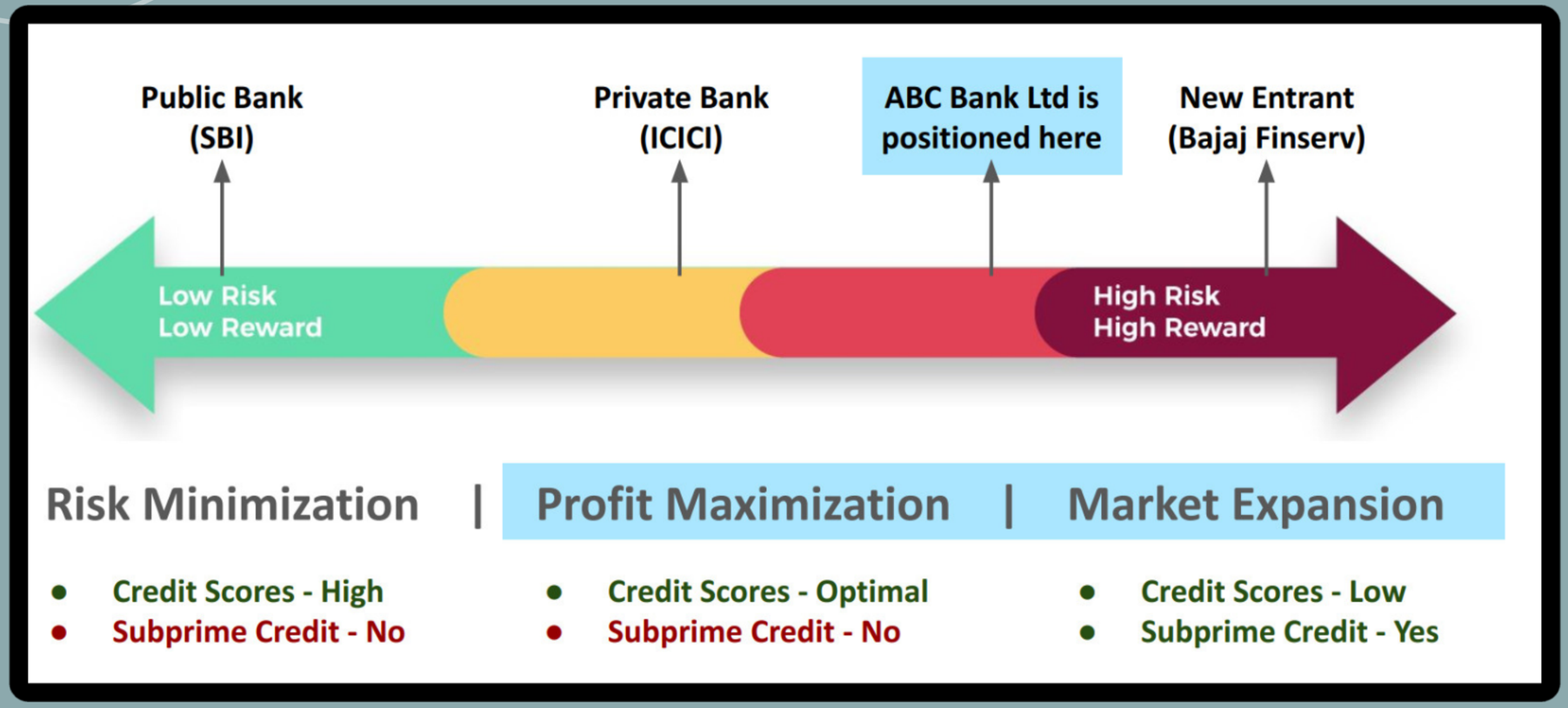
To maximise profitability, given :

- Profit from a good customer is $100
- Loss from a bad customer is $500

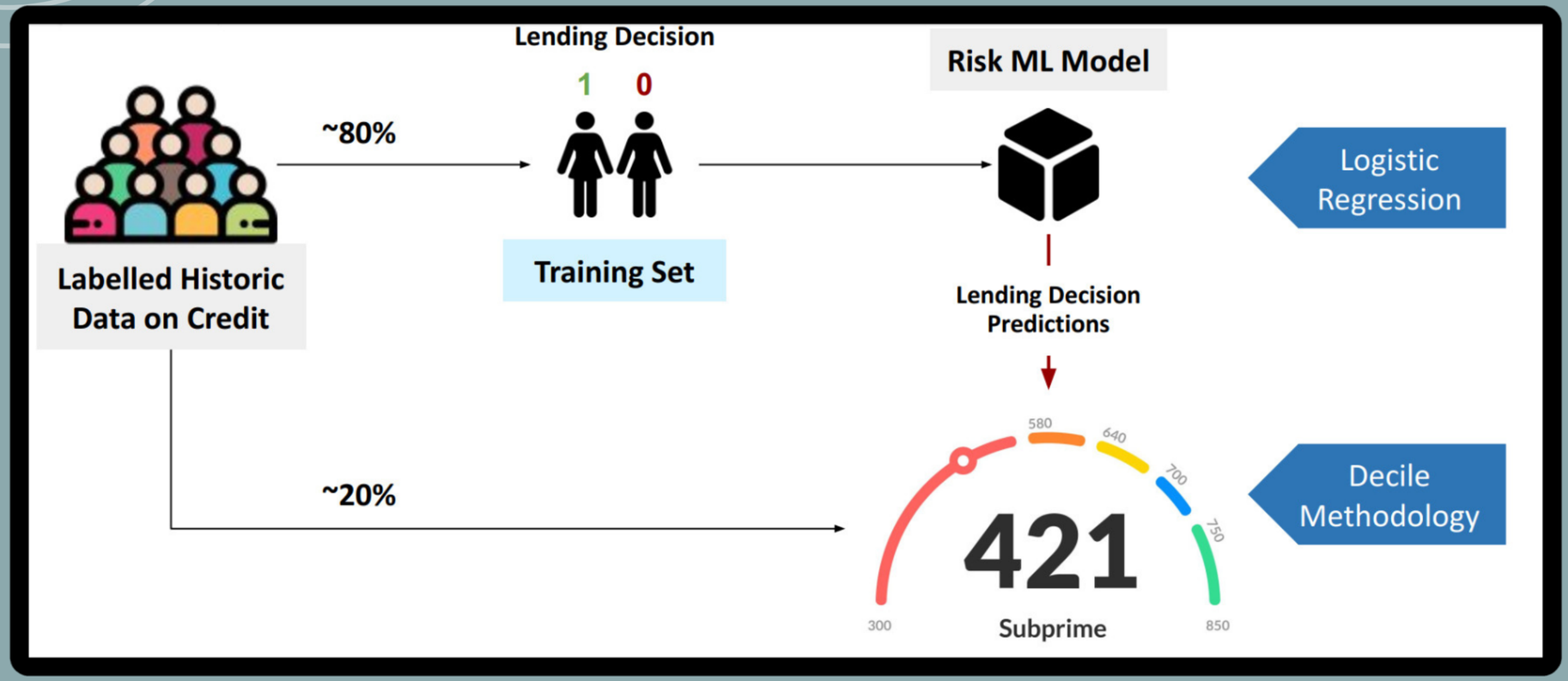
SHARED DATA INCLUDED

- Credit bureau records
- Loan outcomes(paid off or bad loan)

UNDERSTANDING OF THE ASSIGNMENT



HIGH – LEVEL SOLUTION ARCHITECTURE



BUILDING MODELS

Assumptions

- missing values imputed with means
- customer ID excluded from analysis

Training a classification models, for

- predicting likelihood of loans being good/bad
- using Logistic Regression Classifier

Risk Model Building

```
[ ]  classifier = LogisticRegression()
     classifier.fit(X_train, y_train)
     y_pred = classifier.predict(X_test)
```

```
/usr/local/lib/python3.10/dist-packages/sklearn/linear_model/_logistic.py
STOP: TOTAL NO. of ITERATIONS REACHED LIMIT.

Increase the number of iterations (max_iter) or scale the data as shown i
    https://scikit-learn.org/stable/modules/preprocessing.html
Please also refer to the documentation for alternative solver options:
    https://scikit-learn.org/stable/modules/linear_model.html#logistic-re
  n_iter_i = _check_optimize_result(
```

Model performance

```
[ ]  print(confusion_matrix(y_test, y_pred))
```

```
[[489   9]
 [ 93   9]]
```

```
[ ]  print(accuracy_score(y_test,y_pred))
```

RESULTS

83.3%

Model accuracy acheived

0$

Operational cost to business

ANALYZING USING EXCELS

Analyzing the results and make pivot table for further analysis

Sensitivity	1-Specificity	Specificity	
Cumm.Good %	Cumm.Bad%	Cumm.Bad Avoided	Profit to Business
11%	6%	94%	2400
21%	14%	86%	3600
32%	19%	81%	6600
43%	25%	75%	9000
54%	32%	68%	10200
65%	35%	65%	14400
75%	47%	53%	13200
84%	60%	40%	11400
93%	77%	23%	6600
100%	100%	0%	-1200

	%Good loans predicted correcly	%Bad loans predicted correctly	Probability Threshold for Approval
Strategy for Profit Maximisation	**54%**	**68%**	**85.26%**
Strategy for Profit-cum-Market Expansion	**65%**	**65%**	**80.89%**

THANK YOU

Have any question?

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