

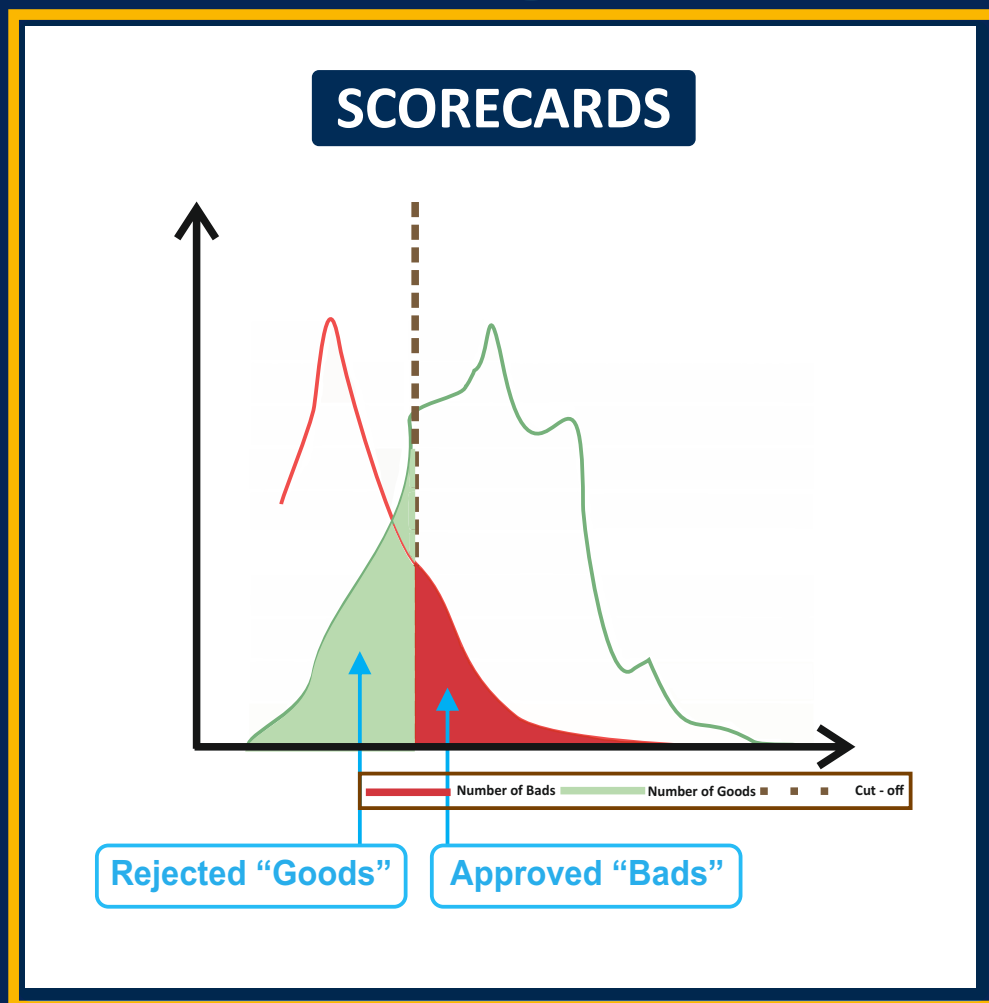
APPLICATION, BEHAVIOR & COLLECTION SCORECARDS

using Excel & Python

50+ hours

Case Study and Project- driven Methodology

Blended Learning Methodology



PEAKS²TAILS



DETAILED CURRICULUM

MODULE 1 - APPLICATION OF SCORECARDS

VARIABLE EXPLORATION

- Comprehensive walk through of the variables.
- Dropping off irrelevant variables not consistent with business logic.
- Creating important Covariate.

PORTFOLIO OVERVIEW

- Product based
- Vintage based
- Riskiness based
- Accepted and Rejected loans

DATA PREPARATION

- Missing Observations Analysis
- Univariate Analysis
- Frequency Distribution Analysis

SEGMENTATION ANALYSIS

- Business Segmentation
- Statistical Segmentation

VARIABLE SELECTION

- Weight of Evidence
- Information Value

MODEL DEVELOPMENT

- Logistic Regression
- Create a cut-off score by analysing
- The sensitivity and specificity

MODEL VALIDATION

- Discriminatory capacity of the model - Gini, Accuracy Ratio, KS statistic
- Stability of the Population -Population Stability Index
- Stability of the model components - Variable Deviation Index, Rank Ordering of the model



DETAILED CURRICULUM

MODULE 2 - BEHAVIOURAL SCORECARDS

DELINQUENCY & BAD FLAGGING	<ul style="list-style-type: none">▪ Default definition as per Roll Rate analysis.
RISK ANALYSIS	<ul style="list-style-type: none">▪ Create derived Variables
DATA QUALITY CHECKS	<ul style="list-style-type: none">▪ Missing Observations Analysis▪ Univariate Analysis▪ Frequency Distribution Analysis
PERFORMANCE EXCLUSIONS	<ul style="list-style-type: none">▪ Modelling Exclusions of inactive a/c's.
SEGMENTATION	<ul style="list-style-type: none">▪ Statistical Segmentation & Risk based Segmentation
COVARIATES CREATION	<ul style="list-style-type: none">▪ ANOVA analysis
MODEL VALIDATION & MODEL DEVELOPMENT	<ul style="list-style-type: none">▪ Logistic Regression for Model development▪ Create a cut-off score by analysing the sensitivity and specificity▪ Model discriminatory capacity▪ Model accuracy and Model Stability



DETAILED CURRICULUM

MODULE 3 - REJECT INFERENCE

METHODS OF REJECT INFERENCE

- Hard cut-off method
- Fuzzy Augmentation
- Parceling Method

MODULE 4 - COLLECTION SCORECARDS

METHOD OF MODELLING COLLECTIONS

- Triangular Matrix approach
- Vintage Analysis
- Linear Regression

BACKGROUND

OBJECTIVE

ATTENDEES

PEDADOGY

BACKGROUND

The application of scoring models in today's business environment covers a wide range of objectives. The original task of estimating the risk of default has been augmented by credit scoring models to include other aspects of credit risk management: at the pre-application stage , at the application stage , and at the performance stage .This course also teaches a range of scorecards used by the bank to take accept/reject decisions, pursue A/C management strategies and monitor collections.



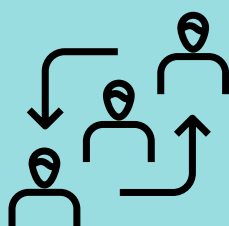
OBJECTIVE

Understanding of scorecard model vocabulary,
Learn Data manipulation techniques,
Learn predictive modelling techniques,
Detailed training on scorecard model development,
Understanding Model Validation techniques.



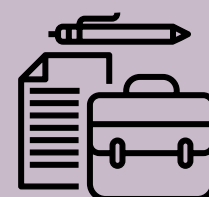
WHO CAN ATTEND

Credit risk/scoring managers and data miners; those involved in model vetting/validation and auditing; risk strategy developers; and credit risk executives. Students pursuing FRM willing to work in Banks In Model Development and Validation Teams.



PEDADOGY

An intuitive non-quantitative approach will be employed throughout so that participants develop a feel for risk/reward tradeoffs without relying on complex mathematical formulas. Having said that , participants are encouraged to have laptops with Excel for a chance to manipulate simple but illustrative calculations.



DEMO MODELS

DURING THE PROGRAM YOU WILL LEARN TO
CREATE EXCEL MODELS LIKE SHOWN BELOW

K5 Statistics

Rank Ordering Plot

AMOUNT RESPONSE

FLAG

LOCATION

Rank Correlation: 0.2285

Rank Correlation

Triangular Matrix Approach - Introduction

One of the most common portfolio evolution models is via a dynamic delinquency matrix. The figure below shows the structure of the matrix. Suppose today is 2018/Aug and collection data is available till 2018/July. Total Recovery Data is available for 10 months (starting from 2017/Oct to 2018/July).

Months on Book (MOB)	2017Sep	2017Oct	2017Nov	2017Dec	2018Jan	2018Feb	2018Mar	2018Apr	2018May	2018June
1	7.65%	5.13%	4.53%	4.52%	4.45%	4.35%	4.27%	4.20%	4.13%	4.06%
2	13.80%	10.11%	8.60%	12.79%	8.79%	10.15%	9.21%	9.20%	11.98%	
3	20.27%	14.95%	12.73%	18.84%	13.02%	14.99%	13.64%	15.99%		
4	26.47%	19.68%	16.76%	24.66%	17.13%	19.68%	17.84%			
5	32.41%	24.24%	20.69%	30.28%	21.15%	24.22%				
6	38.11%	28.69%	24.53%	35.68%	25.06%					
7	43.58%	33.02%	28.28%	40.95%						
8	48.82%	37.23%	31.90%							
9	53.85%	41.32%								
10	58.67%									

Cells represent cumulative recoveries. Each column represents a vintage. A column indicates when the collection started. Rows represent Months on the Book.

The cell highlighted in Yellow means the Total Recovery after 4 months of collection if the collection began in 2017/Oct is 9.15%. The diagonal cells correspond to 2018/July where the data ends. Every diagonal essentially is the same month.

In the above kind of representation, there are three dominant effects for the variation in collection rates

MOB	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	July-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
0												
1								2.90%	3.36%			
2								4.31%	3.05%	1.20%		
3					7.73%	6.17%	5.57%	3.22%	1.80%			
4					9.51%	7.11%	4.96%	3.73%	2.13%			
5			18.60%	12.04%	9.43%	6.50%	6.12%	5.19%	2.33%			
6			21.70%	13.12%	9.55%	7.76%	6.38%	4.63%	2.64%			
7	80.03%	56.87%	27.66%	12.59%	11.37%	6.13%	6.71%	5.66%	2.52%			
8	50.66%	53.39%	23.89%	13.42%	11.66%	8.76%	9.39%	5.97%	5.62%			
9	68.17%	38.71%	18.02%	10.03%	8.17%	7.33%	5.51%	12.37%	6.45%			
10		122.02%	12.95%	8.32%	7.51%	6.27%	13.86%	13.22%	4.90%			
11			11.90%	9.56%	7.91%	9.74%	9.07%	10.52%	5.65%			
12			10.62%	9.19%	15.91%	9.41%	9.48%	12.04%	5.87%			
13			10.26%	14.01%	14.89%	8.47%	10.60%	11.52%	5.40%			
14			27.39%	17.01%	12.90%	9.20%	9.79%	11.49%	5.57%			
15			34.33%	13.40%	14.57%	9.03%	10.02%	11.82%	5.55%			
16			23.99%	14.81%	14.12%	8.90%	10.20%	11.75%	5.51%			
17			28.57%	15.07%	13.36%	9.04%	10.00%	11.99%	5.54%			
18			28.96%	14.43%	14.10%	8.99%	10.05%	11.75%	5.53%			
19			27.18%	14.77%	14.05%	8.98%	10.10%	11.73%	5.53%			

CI 0.95 IFB 0.95

Left tail 0.025 Right tail 0.975

sel Traffic Light (without ENormal Approximation)

Grade	Total	Def	Non_Designated	PI	Correlator	Yellow	Red	Lower	Upper	actual	Default	Rat	HL	Poor	Calibration	IFB_DR
AAA	20	0	20	0.00%	23.44%	0.44%	3.42%	0.00%	1.49%	0.00%	0.02	No	0.03%			
AA+	30	0	30	0.00%	22.86%	0.86%	3.54%	0.00%	1.80%	0.00%	0.06	No	0.03%			
AA	40	0	40	0.00%	22.33%	1.27%	7.20%	0.00%	1.99%	0.00%	0.12	No	0.03%			
AA-	50	0	50	0.00%	21.82%	1.66%	8.59%	0.00%	2.15%	0.00%	0.20	No	0.03%			
A+	100	7	33	100%	19.28%	3.77%	14.03%	0.00%	2.39%	7.00%	36.36	Yes	7.00%			
A	150	10	140	150%	17.67%	5.16%	16.05%	0.00%	3.45%	6.67%	27.30	Yes	6.67%			
A-	200	30	170	2.00%	16.41%	6.46%	19.03%	0.00%	3.94%	15.00%	172.45	Yes	15.00%			
BBB+	150	45	105	3.00%	14.68%	8.79%	22.53%	0.27%	5.73%	30.00%	375.77	Yes	30.00%			
BBB	100	30	70	4.50%	13.28%	11.36%	27.03%	0.44%	8.56%	30.00%	151.31	Yes	30.00%			
BBB-	70	15	55	7.00%	12.36%	16.09%	33.86%	1.02%	12.36%	21.43%	22.39	Yes	21.43%			
BB	12	7	5	15.00%	12.01%	30.95%	51.46%	0.00%	35.20%	58.33%	17.67	Yes	58.33%			
B	10	2	8	30.00%	12.00%	51.93%	71.98%	1.60%	58.40%	20.00%	0.48	No	20.00%			
C	8	4	4	50.00%	12.00%	72.82%	87.31%	15.35%	84.65%	50.00%	0.00	No	50.00%			
Total	940	150	790	16.0%												803.33

ADR (%)

Rating Grade (from worst to best)

$y = 0.0002e^{0.222x}$

$R^2 = 0.7688$

FREQUENTLY ASKED QUESTIONS

PREREQUISITE



Knowledge of Basic Excel ,
Basic Statistics , Credit Risk
Terminology is must

CERTIFICATE



Silver Certificate on successful
completion of projects .
Gold Certification on passing a
2 hours MCQ based exam.

FEES



Rs.15000

DURATION



50+ hours

ABOUT THE TRAINER



Karan Aggarwal is one of India's leading trainers in Financial Modelling, Risk Modelling, Data Analytics and academic programs like Financial Risk Manager (FRM) & Actuarial Science. He has spearheaded several solution accelerators and spreadsheet-based prototypes in Risk and Analytics space. Karan has also authored a number of books on Advanced Excel, Statistical Modelling, Risk Modelling & Machine Learning. He is widely regarded for his problem-solving, thought leadership and intrapreneurship skills. His analytical mindset, solid fundamentals & the thirst to keep learning set him apart as a true authority in this field. Karan has also been awarded the Young Indian Entrepreneur Award by the Confederation Of Indian Industries in the year 2017.



OUR TRAINEES WORK IN



OUR SERVICES

1



2



3



4



98 74 98 74 98

