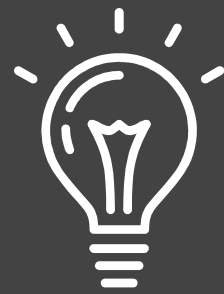# RFM
CUSTOMER SEGMENTATION

Kamil Bartocha

Follow me at **@WhiteRavenPL**
or drop me an email:
kamil.bartocha@marketingdistillery.com

RFM stands for **Recency**, **Frequency** and **Monetary**

- ⊡ It is the easiest form of customer database segmentation
- ⊡ Often used for reactivation campaigns, high valued customer programs, combating churn etc.

RFM IS BASED ON USER ACTIVITY DATA

Anything from actual orders, website visits,
app launches etc.

RFM Segmentation can be applied to **activity**-related data that has **measurable value** and is **repeatable**

E-COMMERCE
Orders, visits

SOCIAL MEDIA
Sharing, liking, engagement

GAMING
In-app purchases, levels played

DISCUSION BOARDS
Posting, up-votes

LEAD MANAGEMENT
Engagement, value

You can use **more than one RFM segmentation**

Purchase history
Website visits
Social engagement

RFM Metrics:

RECENCY

The *freshness* of customer activity.

e.g. time since last activity

FREQUENCY

The *frequency* of customer transactions.

e.g. the total number of recorded transactions

MONETARY

The *willingness* to spend.

e.g. the total transaction value

RFM Metrics can have multiple definitions

TOTALS
- **R:** Time since last transaction
- **F:** Total number of transactions
- **M:** Total transactions value

AVERAGES
- **R:** Time since last transaction
- **F:** Average time between transactions
- **M:** Average transaction value

*Transactions can only **increase** customer value in the segmentation*

*Transactions can both **increase and decrease** customer value in the segmentation*

Easy to explain

Complicates campaigning

Step 1: Calculate the RFM metrics for each customer

Customer	Recency	Frequency	Monetary
A	53 days	3 transactions	$230
B	120 days	10 transactions	$900
C	10 days	1 transaction	$20

This is called the **RFM Table**

… and can be easily computed in SQL, R, Spark etc.

Step 2: Find the distribution for each metric...

| | 0 | 20 | 40 | 60 | 80 | 90 | 100 | → days |

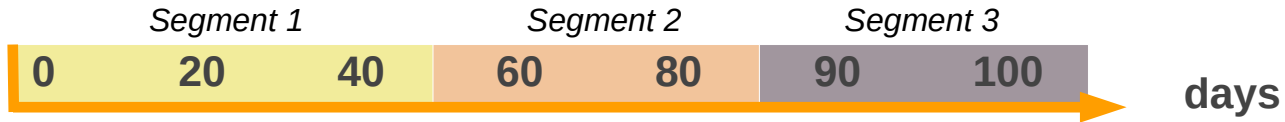| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | → orders |

| | $0 | $50 | $100 | $200 | $400 | $800 | $1200 | → value |

...and define the segmentation...

… by splitting values into bins.

The easiest way to split metrics into segments is by using quantiles:

Segment 1	Segment 2	Segment 3	Segment 4

25th quantile   median   75th quantile

- This gives a starting point for detailed analysis
- 4 segments are easy to grasp and action

There are much better ways to choose segmentation points!

- Use **Survival Analysis** to cut *Recency* segments at 25% and 50% of customer churn probability.
- Identify **high-valued customers** by splitting out the top 10% in *Frequency* and *Monetary*.
- Separate **one-time buyers** from customers with **repeat purchase.**

Step 3: Add segment numbers to the RFM Table

Customer	Recency	Frequency	Monetary	R	F	M
A	53 days	3 tran.	$230	2	2	2
B	120 days	10 tran.	$900	3	3	2
C	10 days	1 tran.	$20	1	1	1

This is called a **Segmented RFM Table**

RFM Segments split your customer base into an imaginary 3D cube

R   **R:** Segment 1
F: Segment 2
M: Segment 2

F   **M**

It is difficult to visualize!

Use a stacked contingency table to count customers in each segment and compute summary statistics

R	F	1	2	3	4
				M	
1	1				
	2				
	3				
	4				
2	1				
	2				
	3				
	4				
3	1				
	2				
	3				
	4				

Use the *Recency* segmentation to identify customers at risk of churn.

This works especially well if you use *Survival Analysis* for *Recency* segmentation.

	R	F	1	2	3	4
						M
ACTIVE	1	1				
		2				
		3				
		4				
AT RISK	2	1				
		2				
		3				
		4				
CHURNED	3	1				
		2				
		3				
		4				

Also, use *Recency* for campaigning

X/UP-SELL, PROMOTIONAL ← **ACTIVE**

RETENTION CAMPAIGN ← **AT RISK**

REACTIVATION CAMPAIGN ← **CHURNED**

		M			
R	F	1	2	3	4
1	1				
	2				
	3				
	4				
2	1				
	2				
	3				
	4				
3	1				
	2				
	3				
	4				

Use the *Frequency & Monetary* segmentation to estimate customer value.

Typical segment names: Premium, Gold, Silver etc.

R	F	M			
		1	2	3	4
1	1			SILVER	SILVER
	2		SILVER	SILVER	GOLD
	3	SILVER	SILVER	GOLD	GOLD
	4	SILVER	GOLD	GOLD	PREMIUM

Each transaction will move customers through Recency and Value tiers.

| ACTIVE | Freshers | Standard | Silver | Gold | Premium |

1 Transaction

| Prospects | AT RISK | Freshers | Standard | Silver | Gold | Premium |

0 Transactions   1 Transaction

| CHURNED | Freshers | Standard | Silver | Gold | Premium |

1 Transaction

With RFM Metrics based on sums of events, the move can only be towards higher valued segments.

You can easily verify the power of the RFM segmentation.

1. Split your data into two parts

Training Period   **Test Period**

12 months
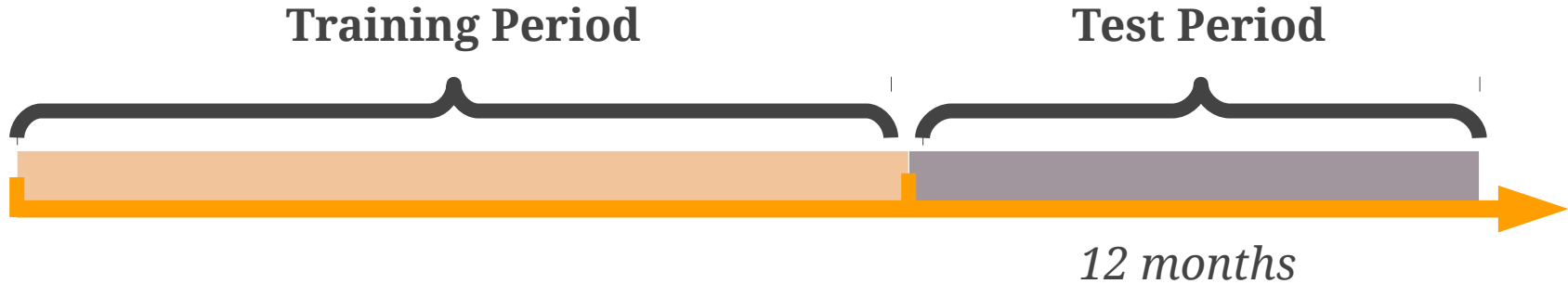
You can easily verify the power of the RFM segmentation.

2. Assign customers to RFM Segments using only data from the Training Period

Training Period
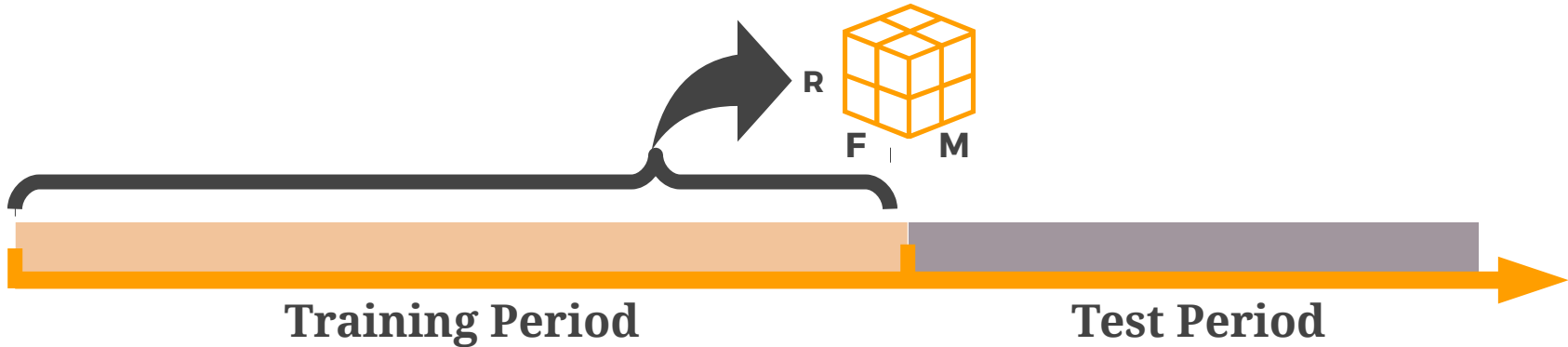
Test Period

You can easily verify the power of the RFM segmentation.

3. Calculate the average value of customers in each RFM Segment over the Test Period

Training Period
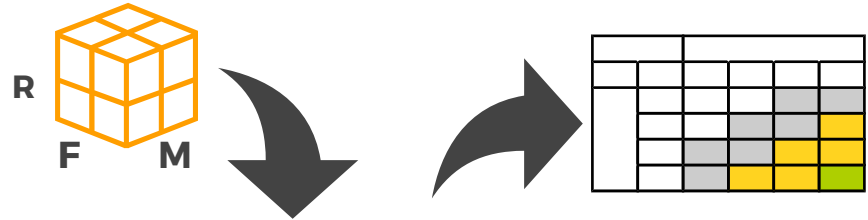
Test Period

You can easily verify the power of the RFM segmentation.

You should see the average value increase consistently with segmentation

*   i.e. behaviour in the Training Period is a good predictor of value in the Test Period*

Training Period   **Test Period**

Find out more at

http://www.marketingdistillery.com
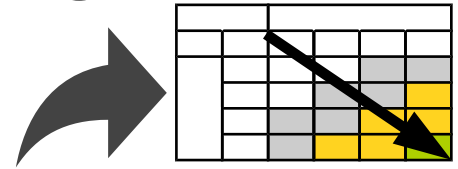
THANKS!

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