**How to segment your customers and increase sales with RFM analysis**

A practical guide on what RFM is and how to do it

From “big spenders” to “almost lost customers”, all customers have diverse needs and desires, and respond to your marketing campaigns in different ways.

As your business grows, segmenting your customers can significantly improve your marketing performance, making campaigns more relevant to more of your customers, ultimately increasing response rates and sales.

**What is RFM analysis?**

RFM analysis is a customer segmentation technique that uses past purchase behavior to segment customers.

**RFM**

**Recency** (R) - Time since last purchase   
**Frequency** (F) - Total number of purchases   
**Monetary value** (M) - Total monetary value

RFM analysis was first used by the direct mail industry more than four decades ago, yet it is still an effective way to optimize your marketing.

**Benefits of RFM analysis**

Increased customer retention  
Increased response rate  
Increased conversion rate  
Increased revenue

**Customer segmentation with RFM Analysis**

To perform RFM analysis, we divide customers into four equal groups according to the distribution of values for recency, frequency, and monetary value.

Four equal groups across three variables create 64 (4x4x4) different customer segments, which is a manageable number.

Note that you can use quintiles (five equal groups) for increased granularity, but managing and acting on 125 segments (5x5x5) is significantly more challenging.

| **Recency (R)** | **Frequency (F)** | **Monetary Value (M)** |
| --- | --- | --- |
| Quartile 1 (R=1) | Quartile 1 (F=1) | Quartile 1 (M=1) |
| Quartile 2 (R=2) | Quartile 2 (F=2) | Quartile 2 (M=2) |
| Quartile 3 (R=3) | Quartile 3 (F=3) | Quartile 3 (M=3) |
| Quartile 3 (R=4) | Quartile 3 (F=4) | Quartile 3 (M=4) |

For example, let’s look at a customer who:

* is within the group who purchased most recently (R=1),
* is within the group who purchased most quantity (F=1),
* is within the group who spent the most (M=1)

This customer belongs to RFM segment **1-1-1 (Best Customers)**, (R=1, F=1, M=1)

Below is a table with key RFM segments:

| **Segment** | **RFM** | **Description** | **Marketing** |
| --- | --- | --- | --- |
| **Best Customers** | 111 | Customers who bought most recently, most often and spend the most. | No price incentives, New products and loyalty programs |
| **Loyal Customers** | X1X | Customers who bought most recently | Use R and M to further segment. |
| **Big Spenders** | XX1 | Customers who spend the most | Market your most expensive products. |
| **Almost Lost** | 311 | Haven't purchased for some time, but purchased frequently and spend the most. | Agressive price incentives |
| **Lost Customers** | 411 | Haven't purchased for some time, but purchased frequently and spend the most. | Agressive price incentives. |
| **Lost Cheap Customers** | 444 | Last purchase long ago, purchased few and spend little. | Don't spend too much trying to re-acquire. |

**How to Perform an RFM Analysis**

**Segmenting your customers database**

To perform an RFM analysis you will need all the customer purchase history data. This is a file with all the transactions ever made by all of your customers.

This data is usually exported from your accouting software or a transactional database.

STEP 1 Download the RFM-analysis scripts and sample files from [GitHub](https://github.com/joaolcorreia/RFM-analysis).

STEP 2 **Prepare a CSV file with all the orders or use the template sample-orders.csv. Use the same column names!**

| **order\_date** | **order\_id** | **customer** | **grand\_total** |
| --- | --- | --- | --- |
| **2016-01-01** | US-52653 | john | 40 |
| **2016-01-02** | US-52654 | mary | 70 |
| ... | ... | ... | ... |

STEP 3 **Execute the RFM-analysis.py script in the directory where you placed orders file.**The script takes three arguments:

>python RFM-analysis.py -i sample-orders.csv -o rfm-segments.csv -d "2014-04-01"

* orders file **(-i sample-orders.csv)**
* output file with the RFM segmentation **(-o rfm-segments.csv)**
* the date the orders table was exported **(-d “YYYY-mm-dd”)**

This will create the RFM segments in a CSV file named **rfm-segments.csv**, or whatever you defined with the -o option.

**Interpreting the RFM Analysis**

| **Customer** | **Recency** | **Frequency** | **Monetary Value** | **RFM Class** |
| --- | --- | --- | --- | --- |
| Etha K. | 4 days | 58 orders | $2869 | 1-1-1 |
| Jerold Sporer | 50 days | 1 order | $44 | 3-4-4 |
| Anie Hettinger | 47 days | 2 orders | $156 | 3-2-1 |

**Etha K.** belongs to the “Best Customers” segment; she purchased recently (R=1), frequently buys (F=1) and spent the most (M=1).

**Jerold Sporer** is about to enter the “Lost Cheap Customers” segment; he has not purchased in a while (R=3), bought few (F=4), and spent little (M=4).

**Anie Hettinger** is a type of “Almost Lost” customer. She has not made a purchase for some time (R=3), she bought somewhat frequently (F=2), but she is in the group who spent the most (M=1).

With these simple RFM analysis steps, you segmented your customer database. Now, create a team activity to browse through the RFM segments and identify which are important for your business.

Or, create a custom Tableau dashboard, like the RFM analysis dashboard below, to visualize your data.

**Take your e-mail marketing to a new level with RFM segmentation**

Now it is time to enrich your customer e-mail list with the RFM segmentation and take your e-mail marketing to a higher level. Here is an RFM analysis step-by-step example:

1. Select an RFM segment to focus on (Best Customers, Almost Lost, etc).
2. Create an hypothesis as to what would work best for this RFM segment.
3. Define a goal for this e-mail campaign and RFM segment.
4. Setup email marketing conversion tracking.
5. Create an alternate e-mail version, tailored to the RFM segment on which you are focusing.
6. Create an A/B testing email campaign, where the control group receives a generic version and the experiment group receives the RFM segment tailored email.
7. Analyze results and iterate; do more of what works, less of what doesn’t.

Visit A/B testing instructions for [Mailchimp](http://kb.mailchimp.com/campaigns/ab/create-an-ab-testing-campaign) and [Vertical Response](http://help.verticalresponse.com/how-to/tutorial/setup_a_split_test_video/) or search this feature in your favortie email marketing platform.

**Closing notes**

RFM is relatively simple technique that could drastically improve your marketing performance.

Keep your RFM segmentation updated by automating the process, the RFM Analysis python script should get you most of the way there. I recommend that you update your RFM segmentation on a daily basis.

**Usage:**

$ python RFM-analysis.py -i sample-orders.csv -o rfm-segments.csv -d "2014-04-01"

* orders file (-i sample-orders.csv)
* output file with the RFM segmentation (-o rfm-segmenta.csv)
* maximum date of your orders table (-d “YYYY-mm-dd”).

**CODE:**

# RFM-analysis

RFM analysis is a simple python script (and IPython notebook) to perform RFM analysis from customer purchase history data.

[Please read the blog post on RFM analysis](https://joaocorreia.io/blog/rfm-analysis-increase-sales-by-segmenting-your-customers.html), it includes instructions on how to make RFM analysis actionable and a ready to use Tableau dashboard.

## Usage:

```bash

$ python RFM-analysis.py -i sample-orders.csv -o rfm-segments.csv -d "2014-04-01"

```

- orders file (-i sample-orders.csv)

- output file with the RFM segmentation (-o rfm-segmenta.csv)

- maximum date of your orders table (-d “YYYY-mm-dd”).