Package 'rfm'

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Type Package

Title Recency, Frequency and Monetary Value Analysis

Version 0.1.0

Description Tools for RFM (recency, frequency and monetary value) analysis. Generate RFM score from both transaction and customer level data. Visualize the relationship between recency, frequency and monetary value using heatmap, histograms, bar charts and scatter plots. Includes a 'shiny' app for interactive segmentation. References: i. Blattberg R.C., Kim BD., Neslin S.A (2008) <doi:10.1007/978-0-387-72579-6_12>.

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URL https://github.com/rsquaredacademy/rfm, https://rfm.rsquaredacademy.com/

BugReports https://github.com/rsquaredacademy/rfm/issues

Depends R (>= 3.2.4)

Imports assertthat, dplyr, forcats, ggplot2, grDevices, lubridate, magrittr, purrr, rlang, shiny, stats, tidyr, RColorBrewer

Suggests covr, DT, haven, jsonlite, kableExtra, knitr, readr, readxl, rmarkdown, shinyBS, shinycssloaders, shinythemes, stringr, testthat, tools, vdiffr

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R topics documented:

`rfm` `rfm` *package*

Description

Tools for customer segmentation analysis

`rfm_bar_chart` *RFM bar chart*

Description

Examine the distribution of monetary scores for the different combinations of frequency and recency scores.

Usage

```
rfm_bar_chart(rfm_table, bar_color = "blue", xaxis_title = "Monetary Score",
  sec_xaxis_title = "Frequency Score", yaxis_title = " ",
  sec_yaxis_title = "Recency Score")
```

Arguments

`rfm_table`	An object of class `rfm_table`.
`bar_color`	Color of the bars.
`xaxis_title`	X axis title.
`sec_xaxis_title`	Secondary x axis title.
`yaxis_title`	Y axis title.
`sec_yaxis_title`	Secondary y axis title.

Value

Bar chart.

Examples

```
# using transaction data
analysis_date <- lubridate::as_date('2006-12-31', tz = 'UTC')
rfm_order <- rfm_table_order(rfm_data_orders, customer_id, order_date,
revenue, analysis_date)

# bar chart
rfm_bar_chart(rfm_order)
```

---

rfm_data_customer *RFM customer data*

Description

A dataset containing customer level data.

Usage

```
rfm_data_customer
```

Format

A tibble with 39,999 rows and 5 variables:

customer_id Customer id.

total_amount Total amount of all orders.

most_recent_visit Date of the most recent transaction.

number_of_purchases Total number of transactions/orders.

purchase_interval Number of days since last transaction/order.

rfm_data_orders *RFM transaction data*

Description

A dataset containing transactions of different customers.

Usage

```
rfm_data_orders
```

Format

A tibble with 49.6 rows and 3 variables:

order_date order date

customer_id customer id

revenue transaction amount

rfm_heatmap *RFM heatmap*

Description

The heat map shows the average monetary value for different categories of recency and frequency scores. Higher scores of frequency and recency are characterized by higher average monetary value as indicated by the darker areas in the heatmap.

Usage

```
rfm_heatmap(data, plot_title = "RFM Heat Map", plot_title_justify = 0.5,
  xaxis_title = "Frequency", yaxis_title = "Recency",
  legend_title = "Mean Monetary Value", brewer_n = 5,
  brewer_name = "PuBu")
```

Arguments

data	An object of class rfm_table.
plot_title	Title of the plot.
plot_title_justify	Horizontal justification of the plot title; 0 for left justified and 1 for right justified.
xaxis_title	X axis title.
yaxis_title	Y axis title.

legend_title	Legend title.
brewer_n	Indicates the number of colors in the palette; RColorBrewer is used for the color palette of the heatmap; check the documentation of brewer.pal.
brewer_name	Palette name; check the documentation of brewer.pal.

Examples

```
# using transaction data
analysis_date <- lubridate::as_date('2006-12-31', tz = 'UTC')
rfm_order <- rfm_table_order(rfm_data_orders, customer_id, order_date,
revenue, analysis_date)

# heat map
rfm_heatmap(rfm_order)

# using customer data
analysis_date <- lubridate::as_date('2007-01-01', tz = 'UTC')
rfm_customer <- rfm_table_customer(rfm_data_customer, customer_id,
number_of_orders, recency_days, revenue, analysis_date)

# heat map
rfm_heatmap(rfm_customer)
```

---

rfm_histograms *RFM histograms*

Description

Histograms of recency, frequency and monetary value.

Usage

```
rfm_histograms(rfm_table, hist_bins = 9, hist_color = "blue",
  plot_title = "RFM Histograms", xaxis_title = " ", yaxis_title = "Count",
  hist_m_label = "Monetary", hist_r_label = "Recency",
  hist_f_label = "Frequency", plot_title_justify = 0.5)
```

Arguments

rfm_table	An object of class rfm_table.
hist_bins	Number of bins of the histograms.
hist_color	Color of the histogram.
plot_title	Title of the plot.
xaxis_title	X axis title.
yaxis_title	Y axis title.

hist_m_label	Label of the monetary value histogram.
hist_r_label	Label of the recency histogram.
hist_f_label	Label of the frequency histogram.
plot_title_justify	Horizontal justification of the plot title; 0 for left justified and 1 for right justified.

Value

Histograms

Examples

```
# using transaction data
analysis_date <- lubridate::as_date('2006-12-31', tz = 'UTC')
rfm_order <- rfm_table_order(rfm_data_orders, customer_id, order_date,
revenue, analysis_date)

# histogram
rfm_histograms(rfm_order)

# using customer data
analysis_date <- lubridate::as_date('2007-01-01', tz = 'UTC')
rfm_customer <- rfm_table_customer(rfm_data_customer, customer_id,
number_of_orders, recency_days, revenue, analysis_date)

# histogram
rfm_histograms(rfm_customer)
```

---

rfm_launch_app *Launch shiny app*

Description

Launches shiny app.

Usage

```
rfm_launch_app()
```

Examples

```
## Not run:
rfm_launch_app()

## End(Not run)
```

`rfm_order_dist` *Customers by orders*

Description

Visualize the distribution of customers across orders.

Usage

```
rfm_order_dist(rfm_table, bar_color = "blue", xaxis_title = "Orders",
  yaxis_title = "Customers", plot_title = "Customers by Orders",
  plot_title_justify = 0.5)
```

Arguments

`rfm_table`	An object of class `rfm_table`.
`bar_color`	Color of the bars.
`xaxis_title`	X axis title.
`yaxis_title`	Y axis title.
`plot_title`	Title of the plot.
`plot_title_justify`	Horizontal justification of the plot title; 0 for left justified and 1 for right justified.

Value

Bar chart.

Examples

```
# using transaction data
analysis_date <- lubridate::as_date('2006-12-31', tz = 'UTC')
rfm_order <- rfm_table_order(rfm_data_orders, customer_id, order_date,
revenue, analysis_date)

# order distribution
rfm_order_dist(rfm_order)

# using customer data
analysis_date <- lubridate::as_date('2007-01-01', tz = 'UTC')
rfm_customer <- rfm_table_customer(rfm_data_customer, customer_id,
number_of_orders, recency_days, revenue, analysis_date)

# order distribution
rfm_order_dist(rfm_customer)
```

rfm_rm_plot *RFM Scatter plot*

Description

Examine the relationship between recency, frequency and monetary values.

Usage

```
rfm_rm_plot(rfm_table, point_color = "blue", xaxis_title = "Monetary",
  yaxis_title = "Recency", plot_title = "Recency vs Monetary")

rfm_fm_plot(rfm_table, point_color = "blue", xaxis_title = "Monetary",
  yaxis_title = "Frequency", plot_title = "Frequency vs Monetary")

rfm_rf_plot(rfm_table, point_color = "blue", xaxis_title = "Frequency",
  yaxis_title = "Recency", plot_title = "Recency vs Frequency")
```

Arguments

rfm_table	An object of class rfm_table.
point_color	Color of the scatter points.
xaxis_title	X axis title.
yaxis_title	Y axis title.
plot_title	Title of the plot.

Value

Scatter plot.

Examples

```
# rfm table
analysis_date <- lubridate::as_date('2006-12-31', tz = 'UTC')
rfm_result <- rfm_table_order(rfm_data_orders, customer_id, order_date,
revenue, analysis_date)

# monetary value vs recency
rfm_rm_plot(rfm_result)

# frequency vs monetary value
rfm_fm_plot(rfm_result)

# frequency vs recency
rfm_rf_plot(rfm_result)
```

`rfm_table_customer` *RFM table (customer data)*

Description

Recency, frequency, monetary and RFM score.

Usage

```
rfm_table_customer(data = NULL, customer_id = NULL, n_transactions = NULL,
  recency_days = NULL, total_revenue = NULL, analysis_date = NULL,
  recency_bins = 5, frequency_bins = 5, monetary_bins = 5, ...)
```

Arguments

`data`	A `data.frame` or `tibble`.
`customer_id`	Unique id of the customer.
`n_transactions`	Number of transactions/orders.
`recency_days`	Number of days since the last transaction.
`total_revenue`	Total revenue from the customer.
`analysis_date`	Date of analysis.
`recency_bins`	Number of bins for recency.
`frequency_bins`	Number of bins for frequency.
`monetary_bins`	Number of bins for monetary.
`...`	Other arguments.

Value

`rfm_table_customer` returns a tibble with the following columns:

`customer_id`	Unique id of the customer.
`recency_days`	Number of days since the most recent transaction.
`transaction_count`	Total number of transactions of the customer.
`amount`	Revenue from the customer.
`recency_score`	Recency score of the customer.
`frequency_score`	Frequency score of the customer.
`monetary_score`	Monetary score of the customer.
`rfm_score`	RFM score of the customer.

Examples

```
analysis_date <- lubridate::as_date('2007-01-01', tz = 'UTC')
rfm_table_customer(rfm_data_customer, customer_id, number_of_orders,
recency_days, revenue, analysis_date)
```

---

rfm_table_customer_2 *RFM table 2 (customer data)*

Description

Recency, frequency, monetary and RFM score.

Usage

```
rfm_table_customer_2(data = NULL, customer_id = NULL,
  n_transactions = NULL, latest_visit_date = NULL, total_revenue = NULL,
  analysis_date = NULL, recency_bins = 5, frequency_bins = 5,
  monetary_bins = 5, ...)
```

Arguments

data	A data.frame or tibble.
customer_id	Unique id of the customer.
n_transactions	Number of transactions/orders.
latest_visit_date	Date of the latest visit.
total_revenue	Total revenue from the customer.
analysis_date	Date of analysis.
recency_bins	Number of bins for recency.
frequency_bins	Number of bins for frequency.
monetary_bins	Number of bins for monetary.
...	Other arguments.

Value

rfm_table_customer_2 returns a tibble with the following columns:

customer_id	Unique id of the customer.
recency_days	Number of days since the most recent transaction.
transaction_count	Total number of transactions of the customer.
amount	Revenue from the customer.
recency_score	Recency score of the customer.

frequency_score	Frequency score of the customer.
monetary_score	Monetary score of the customer.
rfm_score	RFM score of the customer.

Examples

```
analysis_date <- lubridate::as_date('2007-01-01', tz = 'UTC')
rfm_table_customer_2(rfm_data_customer, customer_id, number_of_orders,
most_recent_visit, revenue, analysis_date)
```

---

rfm_table_order *RFM table (transaction data)*

Description

Recency, frequency, monetary and RFM score.

Usage

```
rfm_table_order(data = NULL, customer_id = NULL, order_date = NULL,
  revenue = NULL, analysis_date = NULL, recency_bins = 5,
  frequency_bins = 5, monetary_bins = 5, ...)
```

Arguments

data	A data.frame or tibble.
customer_id	Unique id of the customer.
order_date	Date of the transaction.
revenue	Revenue from the customer.
analysis_date	Date of analysis.
recency_bins	Number of bins for recency.
frequency_bins	Number of bins for frequency.
monetary_bins	Number of bins for monetary.
...	Other arguments.

Value

rfm_table_order returns a tibble with the following columns:

customer_id	Unique id of the customer.
date_most_recent	Date of the most recent transaction.
recency_days	Number of days since the most recent transaction.

transaction_count	Total number of transactions of the customer.
amount	Revenue from the customer.
recency_score	Recency score of the customer.
frequency_score	Frequency score of the customer.
monetary_score	Monetary score of the customer.
rfm_score	RFM score of the customer.

Examples

```
analysis_date <- lubridate::as_date('2006-12-31', tz = 'UTC')
rfm_table_order(rfm_data_orders, customer_id, order_date, revenue, analysis_date)
```

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