

Package ‘processmapR’

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Type Package

Title Construct Process Maps Using Event Data

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Description Visualize of process maps based on event logs, in the form of directed graphs. Part of the 'bupaR' framework.

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Author Gert Janssenswillen [aut, cre],
Benoît Depaire [ctb],
Felix Mannhardt [ctb],
Thijs Beuving [ctb]

Maintainer Gert Janssenswillen <gert.janssenswillen@uhasselt.be>

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custom	<i>Custom map profile</i>
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Description

Function to create a custom map profile based on some event log attribute.

Usage

```
custom(FUN = mean, attribute, units = "", color_scale = "PuBu")
```

Arguments

FUN	A summary function to be called on the provided event attribute, e.g. mean, median, min, max. na.rm = T by default.
attribute	The name of the case attribute to visualize (should be numeric)
units	Character to be placed after values (e.g. EUR for monetary euro values)
color_scale	Name of color scale to be used for nodes. Defaults to PuBu. See ‘Rcolor-brewer::brewer.pal.info()’ for all options.

Details

If used for edges, it will show the attribute values which related to the out-going node of the edge.#’

Examples

```
## Not run:
library(eventdataR)
library(processmapR)
data(traffic_fines)
# make sure the amount attribute is propagated forward in each trace
# using zoo::na.locf instead of tidyr::fill since it is much faster
# still the whole pre-processing is still very slow
library(zoo)

traffic_fines_prepared <- traffic_fines %>%
```

```

filter_trace_frequency(percentage = 0.8) %>%
group_by_case() %>%
mutate(amount = na.locf(amount, na.rm = F)) %>%
ungroup_eventlog()

process_map(traffic_fines_prepared, type_nodes = custom(attribute = "amount", units = "EUR"))

## End(Not run)

```

dotted_chart

Dotted chart

Description

Create a dotted chart to view all events in a glance

Usage

```

dotted_chart(eventlog, x, sort, color, units, ...)

## S3 method for class 'eventlog'
dotted_chart(eventlog, x = c("absolute", "relative",
  "relative_week", "relative_day"), sort = c("start", "end", "duration",
  "start_week", "start_day"), color = NULL, units = c("weeks", "days",
  "hours", "mins", "secs"), ...)

## S3 method for class 'grouped_eventlog'
dotted_chart(eventlog, x = c("absolute",
  "relative", "relative_week", "relative_day"), sort = c("start", "end",
  "duration", "start_week", "start_day"), color = NULL, units = c("weeks",
  "days", "hours", "mins", "secs"), ...)

idotted_chart(eventlog, plotly = FALSE)

iplotly_dotted_chart(eventlog)

plotly_dotted_chart(eventlog)

```

Arguments

eventlog	Eventlog object
x	Value for plot on x-axis: absolute time or relative time (since start, since start of week, since start of day)
sort	Ordering of the cases on y-axis: start, end or duration
color	Optional, variable to use for coloring dots. Default is the activity identifier. Use NA for no colors.

units	Time units to use on x-axis in case of relative time.
...	Deprecated arguments
plotly	Return plotly object

Methods (by class)

- `eventlog`: Dotted chart for event log
- `grouped_eventlog`: Dotted chart for grouped event log

frequency	<i>Frequency map profile</i>
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Description

Function to create a frequency profile for a process map.

Usage

```
frequency(value = c("absolute", "relative", "absolute_case", "relative_case"),
          color_scale = "PuBu")
```

Arguments

value	The type of frequency value to be used: absolute, relative (percentage of activity instances) or relative_case (percentage of cases the activity occurs in).
color_scale	Name of color scale to be used for nodes. Defaults to PuBu. See <code>'Rcolorbrewer::brewer.pal.info()'</code> for all options.

performance	<i>Performance map profile</i>
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Description

Function to create a performance map profile to be used as the type of a process map. It results in a process map describing process time.

Usage

```
performance(FUN = mean, units = "days", flow_time = c("idle_time",
              "inter_start_time"), color_scale = "Reds")
```

Arguments

<code>FUN</code>	A summary function to be called on the process time of a specific activity, e.g. mean, median, min, max
<code>units</code>	The time unit in which processing time should be presented (mins, hours, days, weeks)
<code>flow_time</code>	The time to depict on the flows: the inter start time is the time between the start timestamp of consecutive activity instances, the idle time is the time between the end and start time of consecutive activity instances.
<code>color_scale</code>	Name of color scale to be used for nodes. Defaults to Reds. See 'Rcolor-brewer::brewer.pal.info()' for all options.

```
plot.precedence_matrix
```

Precedence Matrix

Description

Visualize a precedence matrix. A generic plot function for precedences matrices.

Usage

```
## S3 method for class 'precedence_matrix'
plot(x, ...)
```

Arguments

<code>x</code>	Precedence matrix
<code>...</code>	Additional paramters

Value

A ggplot object, which can be customized further, if deemed necessary.

```
precedence_matrix
```

Precedence Matrix

Description

Construct a precedence matrix, showing how activities are followed by each other.

Usage

```
precedence_matrix(eventlog, type = c("absolute", "relative",
  "relative_antecedent", "relative_consequent", "relative_case"))
```

Arguments

eventlog	The event log object to be used
type	The type of precedence matrix, which can be absolute, relative, relative_antecedent or relative_consequent. Absolute will return a matrix with absolute frequencies, relative will return global relative frequencies for all antecedent-consequent pairs. Relative_antecedent will return relative frequencies within each antecedent, i.e. showing the relative proportion of consequents within each antecedent. Relative_consequent will do the reverse.

Examples

```
## Not run:
library(eventdataR)
data(patients)
precedence_matrix(patients)

## End(Not run)
```

processmapR	<i>processmapR - Process Maps in R</i>
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Description

This package provides several useful techniques process visualization.

process_map	<i>Process Map</i>
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Description

A function for creating a process map of an event log.

Usage

```
process_map(eventlog, type = frequency("absolute"), type_nodes = type,
  type_edges = type, rankdir = "LR", render = T, fixed_edge_width = F,
  ...)
```

Arguments

eventlog	The event log object for which to create a process map
type	A process map type, which can be created with the functions frequency and performance. The first type focusses on the frequency aspect of a process, while the second one focussed on processing time.
type_nodes	A process map type to be used for nodes only, which can be created with the functions frequency and performance. The first type focusses on the frequency aspect of a process, while the second one focussed on processing time.
type_edges	A process map type to be used for edges only, which can be created with the functions frequency and performance. The first type focusses on the frequency aspect of a process, while the second one focussed on processing time.
rankdir	The direction in which to layout the graph: "LR" (default), "TB", "BT", "RL", corresponding to directed graphs drawn from top to bottom, from left to right, from bottom to top, and from right to left, respectively.
render	Whether the map should be rendered immediately (default), or rather an object of type dgr_graph should be returned.
fixed_edge_width	If TRUE, don't vary the width of edges.
...	Deprecated arguments

Examples

```
## Not run:
library(eventdataR)
data(patients)
process_map(patients)

## End(Not run)
```

resource_map

Resource Map

Description

A function for creating a resource map of an event log based on handover of work.

Usage

```
resource_map(eventlog, type = frequency("absolute"), render = T, ...)
```

Arguments

eventlog	The event log object for which to create a resource map
type	A process map type, which can be created with the functions frequency and performance. The first type focusses on the frequency aspect of a process, while the second one focussed on processing time.
render	Whether the map should be rendered immediately (default), or rather an object of type dgr_graph should be returned.
...	Deprecated arguments

Examples

```
## Not run:
library(eventdataR)
data(patients)
resource_map(patients)

## End(Not run)
```

resource_matrix	<i>Resource Matrix</i>
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Description

Construct a resource matrix, showing how work is handed over

Usage

```
resource_matrix(eventlog, type = c("absolute", "relative",
  "relative_antecedent", "relative_consequent"))
```

Arguments

eventlog	The event log object to be used
type	The type of resource matrix, which can be absolute, relative, relative_antecedent or relative_consequent. Absolute will return a matrix with absolute frequencies, relative will return global relative frequencies for all antecedent-consequent pairs. Relative_antecedent will return relative frequencies within each antecedent, i.e. showing the relative proportion of consequents within each antecedent. Relative_consequent will do the reverse.

Examples

```
## Not run:
library(eventdataR)
data(patients)
precedence_matrix(patients)

## End(Not run)
```

trace_explorer	<i>Trace explorer</i>
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Description

Explore traces, ordered by relative trace frequency

Usage

```
trace_explorer(eventlog, coverage = 0.2, type = c("frequent", "infrequent"),  
  .abbreviate = T, scale_fill = scale_fill_discrete(h = c(0, 360) + 15, l =  
  40), raw_data = F)
```

Arguments

eventlog	Eventlog object
coverage	The percentage coverage of the trace to explore. Default is 20% most (in)frequent
type	Frequent or infrequent traces to explore
.abbreviate	If TRUE, abbreviate activity labels
scale_fill	Set color scale
raw_data	Return raw data

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