

Package ‘bpmnR’

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Type Package

Title Support for BPMN (Business Process Management Notation) Models

Version 0.1.1

Description Creating, rendering and writing BPMN diagrams <<https://www.bpmn.org/>>. Functionalities can be used to visualize and export BPMN diagrams created using the 'pm4py' and 'bupaRminer' packages. Part of the 'bupaR' ecosystem.

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Encoding UTF-8

LazyData true

RoxygenNote 7.2.3

Depends R(>= 3.0.0)

Imports DiagrammeR, DiagrammeRsvg, dplyr, htmltools, htmlwidgets, purrr, rvest, tidyr, uuid, DT, rlang, knitr, huxtable, stringr, readr, xml2, glue

VignetteBuilder knitr

Suggests rmarkdown

NeedsCompilation no

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bpmnR	<i>bpmnR</i>
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Description

Support for BPMN models

Author(s)

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calculate_CFC	<i>Control Flow Complexity (CFC)</i> —————
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Description

Control Flow Complexity (CFC) —————

Usage

calculate_CFC(bpmn)

Arguments

bpmn bpmn-object.

Value

Control-Flow-Complexity. Numeric vector of length 1

Examples

```
library(dplyr)
nodes <- tibble(id = "task", name = "Task name", objectType = "task",
  gatewayDirection = NA)
events <- tibble(id = c("start","end"), name = c("Start event","End event"),
  objectType = c("startEvent","endEvent"))
flows <- tibble(id = c("flow1","flow2"), name = c("flow1","flow2"),
  sourceRef = c("start","task"), targetRef = c("task","end"),
  objectType = c("sequenceFlow","sequenceFlow"))
model <- create_bpmn(nodes, flows, events)
calculate_CFC(model)
```

create_bpmn	<i>Create BPMN object.</i>
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Description

This creates a BPMN object by specifying a set of tasks, sequence flows, gateways, and a start and end event.

Usage

```
create_bpmn(nodes, flows, events)
```

Arguments

nodes	A data.frame of all nodes, with minimal columns id, name, objectType, gatewayDirection
flows	A data.frame of all flows, with minimal columns id, sourceRef, targetRef and objectType
events	A data.frame of all events, with minimal columns id, name, objectType

Value

A BPMN object as a list of data.frames for the BPMN elements and an XML document for the XML-based interchange format for the BPMN process.

Author(s)

Alessio Nigro

Examples

```
library(dplyr)
nodes <- tibble(id = "task", name = "Task name",
  objectType = "task", gatewayDirection = NA)
events <- tibble(id = c("start","end"), name = c("Start event","End event"),
  objectType = c("startEvent","endEvent"))
flows <- tibble(id = c("flow1","flow2"), name = c("flow1","flow2"),
  sourceRef = c("start","task"), targetRef = c("task","end"),
  objectType = c("sequenceFlow","sequenceFlow"))
create_bpmn(nodes, flows, events)
```

create_xml

Create XML document from BPMN object.

Description

This creates an XML document based on a BPMN object.

Usage

```
create_xml(bpmn, ...)

## S3 method for class 'bpmn'
create_xml(bpmn, ...)
```

Arguments

bpmn A BPMN object as a list of data.frames for the BPMN elements.
... Additional arguments passed to methods.

Value

An XML document for the XML-based interchange format for the BPMN process.

Methods (by class)

- create_xml(bpmn): Create xml

Author(s)

Alessio Nigro

Examples

```
library(dplyr)
nodes <- tibble(id = "task", name = "Task name", objectType = "task",
gatewayDirection = NA)
events <- tibble(id = c("start","end"), name = c("Start event","End event"),
objectType = c("startEvent","endEvent"))
flows <- tibble(id = c("flow1","flow2"), name = c("flow1","flow2"),
sourceRef = c("start","task"), targetRef = c("task","end"),
objectType = c("sequenceFlow","sequenceFlow"))
model <- create_bpmn(nodes, flows, events)
create_xml(model)
```

example_bpmn	<i>Example bpmn input for create_bp</i>
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Description

Contains 5 attributes (tasks, sequenceFlows, gateways, startEvent, endEvent) each one as a dataframe

Usage

```
bpmn_instance
```

Format

Eventlog containing 500 patient cases

print_bpmn	<i>Print xml part of bpmn</i>
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Description

Print xml part of bpmn

Usage

```
print_bpmn(x, ...)
```

Arguments

x	A bpmn object from create_bpmn function
...	Any additional arguments

Value

No return value, only print model.

Author(s)

Alessio Nigro

render_bpmn	<i>Render BPMN diagram.</i>
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Description

This renders a BPMN diagram based on a BPMN object.

Usage

```
render_bpmn(
  bpmn,
  viewer.suppress = FALSE,
  width = NULL,
  height = NULL,
  elementId = NULL,
  xml_version_number = "1.0",
  xml_encoding_declaration = "UTF-8",
  ...
)
```

```
## S3 method for class 'bpmn'
render_bpmn(
  bpmn,
  viewer.suppress = FALSE,
  width = NULL,
  height = NULL,
  elementId = NULL,
  xml_version_number = "1.0",
  xml_encoding_declaration = "UTF-8",
  ...
)
```

Arguments

bpmn	A BPMN object as a list of data.frames for the BPMN elements and an XML document for the XML-based interchange format for the BPMN process.
viewer.suppress	Never display the widget within the RStudio Viewer (useful for widgets that require a large amount of space for rendering). Defaults to FALSE.

width	Fixed width for widget (in css units). The default is NULL, which results in intelligent automatic sizing based on the widget's container.
height	Fixed height for widget (in css units). The default is NULL, which results in intelligent automatic sizing based on the widget's container.
elementId	Use an explicit element ID for the widget (rather than an automatically generated one). Useful if you have other JavaScript that needs to explicitly discover and interact with a specific widget instance.
xml_version_number	The version of the XML standard used.
xml_encoding_declaration	The character encoding used in the XML declaration. 'UTF-8' is the default encoding used.
...	Additional arguments passed to methods.

Value

Rendered BPMN model in htmlwidget.

Author(s)

Alessio Nigro

Examples

```
library(dplyr)
nodes <- tibble(id = "task", name = "Task name",
  objectType = "task", gatewayDirection = NA)
events <- tibble(id = c("start","end"), name = c("Start event","End event"),
  objectType = c("startEvent","endEvent"))
flows <- tibble(id = c("flow1","flow2"), name = c("flow1","flow2"),
  sourceRef = c("start","task"), targetRef = c("task","end"),
  objectType = c("sequenceFlow","sequenceFlow"))
model <- create_bpmn(nodes, flows, events)
render_bpmn(model)
```

Description

Output and render functions for using render_bpmn within Shiny applications and interactive Rmd documents.

Usage

```
render_bpmnOutput(outputId, width = "100%", height = "400px")

renderRender_bpmn(expr, env = parent.frame(), quoted = FALSE)
```

Arguments

outputId	output variable to read from
width, height	Must be a valid CSS unit (like '100%', '400px', 'auto') or a number, which will be coerced to a string and have 'px' appended.
expr	An expression that generates a render_bpmn
env	The environment in which to evaluate expr.
quoted	Is expr a quoted expression (with quote())? This is useful if you want to save an expression in a variable.

Value

Rendered BPMN model in Shiny widget.
Rendered BPMN model in Shiny widget.

Author(s)

Alessio Nigro

write_bpmn	<i>Write XML or HTML to disk.</i>
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Description

This writes out both XML and normalised HTML. The default behavior will output the same format which was read. If you want to force output pass 'option = "as_xml"' or 'option = "as_html"' respectively.

Usage

```
write_bpmn(bpmn, file, ...)

## S3 method for class 'bpmn'
write_bpmn(bpmn, file, ...)
```

Arguments

bpmn	A BPMN object as a list of data.frames for the BPMN elements and an XML document for the XML-based interchange format for the BPMN process.
file	Path to file or connection to write to.
...	Additional arguments passed to methods.

write_bpmn

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Value

Writes file to system.

Methods (by class)

- `write_bpmn(bpmn)`: Write bpmn to .bpmn file

Author(s)

Alessio Nigro

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