Package ‘bpmnR’

April 4, 2023

Type Package
Title Support for BPMN (Business Process Management Notation) Models
Version 0.1.0
Description Creating, rendering and writing BPMN diagrams <https://www.bpmn.org/>. Function-
alities can be used to visualize and export BPMN diagrams created using the 'pm4py' and 'bu-
paRminer' packages. Part of the 'bupaR' ecosystem.
License MIT + file LICENSE
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,
assertive, stringr, readr, xml2, glue
VignetteBuilder knitr
Suggests rmarkdown
NeedsCompilation no
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Repository CRAN
Date/Publication 2023-04-04 20:30:02 UTC

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calculate_CFC

calculate_CFC

control_flow_complexity

Control Flow Complexity (CFC)

Description
Control Flow Complexity (CFC)

Usage

calculate_CFC(bpmn)

Arguments

bpmn

bpmn-object.

Value

Control-Flow-Complexity. Numeric vector of length 1

Example

calculate_CFC(example_bpmn)

Usage

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Examples

```r
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  Create BPMN object.

Description

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

Usage

```r
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
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

```r
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)
```

**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

**Print xml part of bpmn**

**Description**

Print xml part of bpmn.

**Usage**

`print_bpmn(x, ...)`

**Arguments**

- `x` A bpmn object from create_bpmn function
- `...` Any additional arguments
render_bpmn

Value

No return value, only print model.

Author(s)

Alessio Nigro

render_bpmn Render BPMN diagram.

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.

Value

Rendered BPMN model in htmlwidget.

Author(s)

Alessio Nigro

Examples

```r
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")
render_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

Write XML or HTML to disk.

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

Value
Writes file to system.

Methods (by class)
- write_bpmn(bpmn): Write bpmn to .bpmn file

Author(s)
Alessio Nigro
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