

Package ‘voronoiTreemap’

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Type Package

Title Voronoi Treemaps with Added Interactivity by Shiny

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Description The d3.js framework with the plugins d3-voronoi-map, d3-voronoi-treemap and d3-weighted-voronoi are used to generate Voronoi treemaps in R and in a shiny application. The computation of the Voronoi treemaps are based on Nocaj and Brandes (2012) <[doi:10.1111/j.1467-8659.2012.03078.x](https://doi.org/10.1111/j.1467-8659.2012.03078.x)>.

URL <https://github.com/uRosConf/voronoiTreemap>

License GPL-3

Imports data.tree, rlang, htmlwidgets, shiny, shinyjs, DT

Encoding UTF-8

LazyData true

RoxygenNote 6.1.1

Suggests rmarkdown, scales, testthat

NeedsCompilation no

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canada	<i>canada</i>
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Description

An example data.frame using Canadian Consumer Price Index (CPI) to demonstrate the voronoiTree package

Usage

```
data(canada)
```

Format

A data frame with 247 rows and 5 variables:

- h1** Name of first-level (region)
- h2** Leaf names of second-level (elementary_aggregate)
- h3** Leaf names of third-level values (intermediate_aggregate)
- color** colors in which the plot-regions will be filled
- weight** CPI in percent of the overall total
- codes** NAs

Examples

```
data("canada")
head(canada)
```

 ExampleGDP

ExampleGDP

Description

An example data.frame using GDP data to demonstrate the voronoiTree package

Usage

```
data(ExampleGDP)
```

Format

A data frame with 42 rows and 6 variables:

h1 Name of first-level (redundant)

h2 Leaf names of second-level (continents)

h3 Leaf names of third-level values (countries)

color colors in which the plot-regions will be filled

weight GDP values in percent of the overall total

codes short labels used for overlays in plotting

Examples

```
data("ExampleGDP")
head(ExampleGDP)
```

 vt_add_nodes

vt_add_nodes

Description

add (sub)nodes to a node generated by [vt_create_node](#) or returned from [vt_add_nodes](#)

Usage

```
vt_add_nodes(node, refnode, node_names, colors = NULL, weights = NULL,
             codes = NULL)
```

Arguments

node	a node object
refnode	name of the reference node
node_names	new node names
colors	optionally a vector of colors matching the length of node_names
weights	optionally a vector of weights matching the length of node_names
codes	optionally a vector of short labels matching the length of node_names

Value

a Node object

Examples

```
n <- vt_create_node("Total")
n <- vt_add_nodes(n, refnode="Total", node_names=c("Asia", "Europe"), colors=c("red", "blue"))
n <- vt_add_nodes(n, refnode="Asia", node_names=c("China", "Thailand"),
  weights=c(0.5, 0.8), codes=c("CN", "TH"))
n <- vt_add_nodes(n, refnode="Europe", node_names=c("Netherlands", "Austria"),
  weights=c(0.9, 1.1), codes=c("NL", "AT"))
print(n, "weight", "code", "color")
```

vt_app

vt_app

Description

starts the graphical user interface developed with *shiny*.

Usage

```
vt_app(maxRequestSize = 50, ...)
```

Arguments

`maxRequestSize` (numeric) number defining the maximum allowed filesize (in megabytes) for uploaded files, defaults to 50MB

`...` arguments (e.g host) that are passed through `vt_app` when starting the shiny application

Value

starts the interactive graphical user interface which may be used to perform the anonymisation process.

Examples

```
## Not run:
vt_app()

## End(Not run)
```

vt_create_node	<i>vt_create_node</i>
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Description

vt_create_node

Usage

```
vt_create_node(total_lab = "Total")
```

Arguments

total_lab name of the total level

Value

a Node

Examples

```
vt_create_node("Total")
```

vt_d3	<i>Voronoi Treemap in an htmlwidget</i>
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Description

Function to generate an htmlwidget with a voronoi treemap

Usage

```
vt_d3(data, elementId = NULL, width = NULL, height = NULL,  
      seed = NULL, title = NULL, legend = FALSE, legend_title = NULL,  
      footer = NULL, label = TRUE, color_circle = "#aaaaaa",  
      color_border = "#ffffff", color_label = "#000000",  
      size_border = "1px", size_border_hover = "3px",  
      size_circle = "2px")
```

Arguments

data	a correct json data object
elementId	optional a custom elementId to be returned
width	width of the widget
height	height of the widget
seed	if defined, the plot is fixed
title	NULL or a string for the title
legend	TRUE/FALSE if a legend should be printed
legend_title	NULL or a string for the title of the legend
footer	NULL or a string for the footer text
label	TRUE/FALSE if the labels should be printed
color_circle	color for the outer circle
color_border	color for the inner lines
color_label	color for the label in the plot
size_border	thickness of the borders in css style, e.g. '1px'
size_border_hover	thickness of the borders when hovering in css style, e.g. '3px'
size_circle	thickness of the circle in css style, e.g. '2px'

Note

The JavaScript library d3-voronoi treemap can be found here <https://github.com/Kcнарf/d3-voronoi-treemap> and the example is based on the remake of HowMuch.net's article 'The Global Economy by GDP' by _Kcнарf <https://b1.ocks.org/Kcнарf/fa95aa7b076f537c00aed614c29bb568>.

References

Arlind Nocaj and Ulrik Brandes. (2012). Computing Voronoi Treemaps: Faster, Simpler and Resolution-independent. Computer Graphics Forum. Vol.31. 855-864.

Examples

```
vt_d3(vt_export_json(vt_testdata()))
data(ExampleGDP)
gdp_json <- vt_export_json(vt_input_from_df(ExampleGDP))
vt_d3(gdp_json)
data(canada)
canada$codes <- canada$h3
canada <- canada[canada$h1=="Canada",]
canadaH <- vt_input_from_df(canada,scaleToPerc = FALSE)
vt_d3(vt_export_json(canadaH))
#without label
vt_d3(vt_export_json(canadaH), label=FALSE)
#Example with coloring from scales package
library(scales)
```

```
canada$color <- seq_gradient_pal()(exp(canada$weight)/500)
canadaH <- vt_input_from_df(canada, scaleToPerc = FALSE)
vt_d3(vt_export_json(canadaH))
```

vt_d3-shiny

Shiny bindings for d3vt

Description

Output and render functions for using d3vt within Shiny applications and interactive Rmd documents.

Usage

```
vt_d3_output(outputId, width = "100%", height = "400px")
```

```
render_vt_d3(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 d3vt
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.

vt_export_json

vt_export_json

Description

exports a node to suitable json required by voronoi javascript function

Usage

```
vt_export_json(node, file = NULL)
```

Arguments

node	a Node object generated by vt_create_node or returned from vt_add_nodes
file	path where the json should be written to, if NULL, the json is returned as a character

Value

NULL or a character vector

See Also

vt_create_node vt_add_nodes

Examples

```
n <- vt_testdata()
vt_export_json(n)
vt_export_json(n, file=tempfile())
```

vt_input_from_df *vt_input_from_df*

Description

create a tree-structure from a data.frame

Usage

```
vt_input_from_df(inp, scaleToPerc = FALSE)
```

Arguments

inp a data.frame with specific format
scaleToPerc (logical) scale to percent

Value

a Node that can be written to json using [vt_export_json](#)

Examples

```
## non yet
```

`vt_testdata`*vt_testdata*

Description`vt_testdata`**Usage**`vt_testdata()`**Value**

returns a json-string as in the example from <https://bl.ocks.org/Kcnarf/fa95aa7b076f537c00aed614c29bb568>

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