Package 'leafgl'

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Title High-Performance 'WebGl' Rendering for Package 'leaflet'

Version 0.2.2

Description Provides bindings to the 'Leaflet.glify' JavaScript library which extends the 'leaflet' JavaScript library to render large data in the browser using 'WebGl'.

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Encoding UTF-8

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Imports geojsonsf, htmltools, jsonify, leaflet, sf, grDevices

Suggests colourvalues, shiny, testthat (>= 2.1.0)

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BugReports https://github.com/r-spatial/leafgl/issues

NeedsCompilation no

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Contents

addGlPolylines 2
checkDim 5
checkDimPop 5
clearGlLayers 6
leafglOutput 6

makeColorMatrix 7
makePopup 9
removeGlPoints 9
removeGlPolygons 9
removeGlPolylines 10

Index **11**

`addGlPolylines` *add polylines to a leaflet map using Leaflet.glify*

Description

Leaflet.glify is a web gl renderer plugin for leaflet. See https://github.com/robertleeplummerjr/Leaflet.glify for details and documentation.

Usage

```
addGlPolylines(
  map,
  data,
  color = cbind(0, 0.2, 1),
  opacity = 0.6,
  group = "glpolylines",
  popup = NULL,
  label = NULL,
  weight = 1,
  layerId = NULL,
  src = FALSE,
  pane = "overlayPane",
  ...
)

addGlPoints(
  map,
  data,
  fillColor = "#0033ff",
  fillOpacity = 0.8,
  radius = 10,
  group = "glpoints",
  popup = NULL,
  label = NULL,
  layerId = NULL,
  src = FALSE,
  pane = "overlayPane",
  ...
)
```

```
addGlPolygons(
  map,
  data,
  color = cbind(0, 0.2, 1),
  fillColor = color,
  fillOpacity = 0.8,
  group = "glpolygons",
  popup = NULL,
  label = NULL,
  layerId = NULL,
  src = FALSE,
  pane = "overlayPane",
  ...
)
```

Arguments

map	a leaflet map to add points/polygons to.
data	sf/sp point/polygon data to add to the map.
color	Object representing the color. Can be of class integer, character with color names, HEX codes or random characters, factor, matrix, data.frame, list, json or formula. See the examples or makeColorMatrix for more information.
opacity	feature opacity. Numeric between 0 and 1. Note: expect funny results if you set this to < 1.
group	a group name for the feature layer.
popup	Object representing the popup. Can be of type character with column names, formula, logical, data.frame or matrix, Spatial, list or JSON. If the length does not match the number of rows in the dataset, the popup vector is repeated to match the dimension.
label	either a column name (currently only supported for polygons and polylines) or a character vector to be used as label.
weight	line width/thicknes in pixels for addGlPolylines.
layerId	the layer id
src	whether to pass data to the widget via file attachments.
pane	A string which defines the pane of the layer. The default is "overlayPane".
...	Used to pass additional named arguments to to_json & to pass additional arguments to the underlying JavaScript functions. Typical use-cases include setting 'digits' to round the point coordinates or to pass a different 'fragmentShaderSource' to control the shape of the points. Use 'point' (default) to render circles with a thin black outline, 'simpleCircle' for circles without outline or 'sqaure' for squares (without outline).
fillColor	fill color.
fillOpacity	fill opacity.
radius	point size in pixels.

Details

MULTILINESTRINGs are currently not supported! Make sure you cast your data to LINETSRING first (e.g. using `sf::st_cast(data, "LINESTRING")`.

MULTIPOLYGONs are currently not supported! Make sure you cast your data to POLYGON first (e.g. using `sf::st_cast(data, "POLYGON")`.

Functions

- `addGlPolylines()`: add polylines to a leaflet map using Leaflet.glify
- `addGlPoints()`: add points to a leaflet map using Leaflet.glify
- `addGlPolygons()`: add polygons to a leaflet map using Leaflet.glify

Examples

```
if (interactive()) {
library(leaflet)
library(leafgl)
library(sf)

storms = st_as_sf(atlStorms2005)

cols = heat.colors(nrow(storms))

leaflet() %>%
  addProviderTiles(provider = providers$CartoDB.Positron) %>%
  addGlPolylines(data = storms, color = cols, popup = TRUE, opacity = 1)
}

if (interactive()) {
library(leaflet)
library(leafgl)
library(sf)

n = 1e5

df1 = data.frame(id = 1:n,
                 x = rnorm(n, 10, 1),
                 y = rnorm(n, 49, 0.8))
pts = st_as_sf(df1, coords = c("x", "y"), crs = 4326)

cols = topo.colors(nrow(pts))

leaflet() %>%
  addProviderTiles(provider = providers$CartoDB.DarkMatter) %>%
  addGlPoints(data = pts, fillColor = cols, popup = TRUE)

}

if (interactive()) {
library(leaflet)
library(leafgl)
```

```
library(sf)

gadm = st_as_sf(gadmCHE)
gadm = st_cast(gadm, "POLYGON")
cols = grey.colors(nrow(gadm))

leaflet() %>%
  addProviderTiles(provider = providers$CartoDB.DarkMatter) %>%
  addGlPolygons(data = gadm, color = cols, popup = TRUE)
}
```

---

checkDim *checkDim*

Description

Check the length of the color vector. It must match the number of rows of the dataset.

Usage

```
checkDim(x, data)
```

Arguments

x	The color vector
data	The dataset

---

checkDimPop *checkDim*

Description

Check the length of the popup vector. It must match the number of rows of the dataset.

Usage

```
checkDimPop(x, data)
```

Arguments

x	The popup vector
data	The dataset

clearGlLayers *clearGlLayers*

Description

Clear all Glify features

Usage

```
clearGlLayers(map)
```

Arguments

map	The map widget

leafglOutput *Use leafgl in shiny*

Description

Use leafgl in shiny

Usage

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

renderLeafgl(expr, env = parent.frame(), quoted = TRUE)
```

Arguments

outputId	output variable to read from
width, height	the width and height of the map
expr	An expression that generates an HTML widget
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.

Details

See leaflet::leafletOutput for details. `renderLeafgl` is only exported for consistency. You can just as well use leaflet::renderLeaflet (see example). `leafglOutput` on the other hand is needed as it will attach all necessary dependencies.

Value

A UI for rendering leafgl

A server function for rendering leafgl

Examples

```
if (interactive()) {
library(shiny)
library(leaflet)
library(leafgl)
library(sf)

n = 1e4
df1 = data.frame(id = 1:n,
    x = rnorm(n, 10, 3),
    y = rnorm(n, 49, 1.8))
pts = st_as_sf(df1, coords = c("x", "y"), crs = 4326)

m = leaflet() %>%
 addProviderTiles(provider = providers$CartoDB.DarkMatter) %>%
 addGlPoints(data = pts, group = "pts") %>%
 setView(lng = 10.5, lat = 49.5, zoom = 6) %>%
 addLayersControl(overlayGroups = "pts")

ui <- fluidPage(
    leafglOutput("mymap")
)

server <- function(input, output, session) {
    output$mymap <- renderLeaflet(m)
}

shinyApp(ui, server)
}
```

`makeColorMatrix` *makeColorMatrix*

Description

Transform object to rgb color matrix

Usage

```
makeColorMatrix(x, data, palette, ...)
```

Arguments

x	Object representing the color. Can be of class integer, numeric, Date, POSIX*, character with color names or HEX codes, factor, matrix, data.frame, list, json or formula.
data	The dataset
palette	Name of a color palette. If colourvalues is installed, it is passed to colour_values_rgb. To see all available palettes, please use colour_palettes. If colourvalues is not installed, the palette is passed to colorNumeric.
...	Passed to colour_palettes or colorNumeric.

Examples

```
{
## For Integer/Numeric/Factor
makeColorMatrix(23L)
makeColorMatrix(23)
makeColorMatrix(as.factor(23))

## For POSIXt / Date
makeColorMatrix(as.POSIXlt(Sys.time(), "America/New_York"), NULL)
makeColorMatrix(Sys.time(), NULL)
makeColorMatrix(Sys.Date(), NULL)

## For matrix/data.frame
makeColorMatrix(cbind(130,1,1), NULL)
makeColorMatrix(matrix(1:99, ncol = 3, byrow = TRUE), data.frame(x=c(1:33)))
makeColorMatrix(data.frame(matrix(1:99, ncol = 3, byrow = TRUE)), data.frame(x=c(1:33)))

## For characters
testdf <- data.frame(
  texts = LETTERS[1:10],
  vals = 1:10,
  vals1 = 11:20
)
makeColorMatrix("red", testdf)
makeColorMatrix("val", testdf)

## For formulaes
makeColorMatrix(~vals, testdf)
makeColorMatrix(~vals1, testdf)

## For JSON
library(jsonify)
makeColorMatrix(jsonify::to_json(data.frame(r = 54, g = 186, b = 1)), NULL)

## For Lists
makeColorMatrix(list(1,2), data.frame(x=c(1,2)))
}
```

makePopup *makePopup*

Description

Transform object to popup

Usage

```
makePopup(x, data)
```

Arguments

x	Object representing the popup
data	The dataset

removeGlPoints *removeGlPoints*

Description

Remove points from a map, identified by layerId;

Usage

```
removeGlPoints(map, layerId)
```

Arguments

map	The map widget
layerId	The layerId to remove

removeGlPolygons *removeGlPolygons*

Description

Remove polygons from a map, identified by layerId;

Usage

```
removeGlPolygons(map, layerId)
```

Arguments

map	The map widget
layerId	The layerId to remove

removeGlPolylines *removeGlPolylines*

Description

Remove lines from a map, identified by layerId;

Usage

```
removeGlPolylines(map, layerId)
```

Arguments

map	The map widget
layerId	The layerId to remove

Index

addGlPoints *(*addGlPolylines*)*, 2
addGlPolygons *(*addGlPolylines*)*, 2
addGlPolylines, 2

checkDim, 5
checkDimPop, 5
clearGlLayers, 6
colorNumeric, *8*
colour_palettes, *8*
colour_values_rgb, *8*

leafglOutput, 6
leaflet::leafletOutput, *6*
leaflet::renderLeaflet, *6*

makeColorMatrix, *3*, 7
makePopup, 9

removeGlPoints, 9
removeGlPolygons, 9
removeGlPolylines, 10
renderLeafgl *(*leafglOutput*)*, 6

to_json, *3*