Package 'sunburstR'

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Type Package

Title 'Htmlwidget' for 'Kerry Rodden' 'd3.js' Sequence and 'd2b' Sunburst

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Maintainer Kent Russell <kent.russell@timelyportfolio.com>

URL https://github.com/timelyportfolio/sunburstR

BugReports https://github.com/timelyportfolio/sunburstR/issues

Description Make interactive 'd3.js' sequence sunburst diagrams in R with the convenience and infrastructure of an 'htmlwidget'.

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LazyData TRUE

Imports d3r (>= 0.6.9), dplyr, htmlwidgets, htmltools

Suggests jsonlite, knitr, markdown, pipeR, testthat, tidyr (>= 0.7.0), rmarkdown

Enhances treemap

RoxygenNote 6.1.1

VignetteBuilder knitr

NeedsCompilation no

Author Mike Bostock [aut, cph] (d3.js library, http://d3js.org),
Kerry Rodden [aut, cph] (sequences library in htmlwidgets/lib, https://gist.github.com/kerryrodden/7090426),
Kevin Warne [aut, cph] (d2b sunburst library in htmlwidgets/lib, https://github.com/d2bjs/d2b),
Kent Russell [aut, cre] (R interface),
Florian Breitwieser [ctb] (R interface),
CJ Yetman [ctb] (R interface, <https://orcid.org/0000-0001-5099-9500>)

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R topics documented:

`add_shiny` *Add Shiny Events*

Description

Add Shiny Events

Usage

```
add_shiny(sunburst = NULL)
```

Arguments

`sunburst`	`sunburst` htmlwidget to which you would like to add event handling

Value

`sunburst` htmlwidget

Examples

```
## Not run:

library(shiny)
library(sunburstR)

sequences <- read.csv(
  system.file("examples/visit-sequences.csv",package="sunburstR")
  ,header=F
  ,stringsAsFactors = FALSE
)


server <- function(input,output,session){

  output$sunburst <- renderSunburst({
    #invalidateLater(1000, session)

    sequences <- sequences[sample(nrow(sequences),1000),]
```

```
    add_shiny(sunburst(sequences))
  })


  selection <- reactive({
    input$sunburst_mouseover
  })

  output$selection <- renderText(selection())
}


ui<-fluidPage(
  sidebarLayout(
    sidebarPanel(

    ),

    # plot sunburst
    mainPanel(
      sunburstOutput("sunburst"),
      textOutput("selection")
    )
  )
)

shinyApp(ui = ui, server = server)

# an example with d2b sunburst and Shiny
library(shiny)
library(sunburstR)

# use a sample of the sequences csv data
sequences <- read.csv(
  system.file("examples/visit-sequences.csv",package="sunburstR")
  ,header = FALSE
  ,stringsAsFactors = FALSE
)[1:200,]

# create a d2b sunburst
s2b <- sund2b(sequences)

options(shiny.trace=TRUE)
ui <- sund2bOutput("s2b")
server <- function(input, output, session) {
  output$s2b <- renderSund2b({
    add_shiny(s2b)
  })
}
shinyApp(ui, server)

## End(Not run)
```

d2b-shiny *Shiny bindings for d2b*

Description

Output and render functions for using d2b within Shiny applications and interactive Rmd documents.

Usage

```
sund2bOutput(outputId, width = "100%", height = "400px")

renderSund2b(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 d2b
`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.

sunburst *'d3.js' Sequence Sunburst Diagrams*

Description

Sequences sunburst diagrams provide an interactive method of exploring sequence data, such as website navigation paths.

Usage

```
sunburst(data = NULL, legendOrder = NULL, colors = NULL,
  valueField = "size", percent = TRUE, count = FALSE,
  explanation = NULL, breadcrumb = list(), legend = list(),
  sortFunction = NULL, sumNodes = TRUE, withD3 = FALSE,
  width = NULL, height = NULL, elementId = NULL,
  sizingPolicy = NULL, csvdata = NULL, jsondata = NULL)
```

Arguments

data	data in csv source,target form or in nested d3 JSON hierarchy with 'name:..., children:[];'. csvdata and jsondata arguments are now deprecated in favor of this single data argument. list, character, or connection data will be assumed to be JSON. data.frame data will be assumed to be csvdata and converted to JSON by sunburstR:::csv_to_hier().
legendOrder	string vector if you would like to manually order the legend. If legendOrder is not provided, then the legend will be in the descending order of the top level hierarchy.
colors	vector of strings representing colors as hexadecimal for manual colors. If you want precise control of colors, supply a list with range and/or domain. For advanced customization, supply a JavaScript function.
valueField	character for the field to use to calculate size. The default value is "size".
percent	logical to include percentage of total in the explanation.
count	logical to include count and total in the explanation.
explanation	JavaScript function to define a custom explanation for the center of the sunburst. Note, this will override percent and count.
breadcrumb	list to customize the breadcrumb trail. This argument should be in the form list(w =, h =, s =, t =) where w is the width, h is the height, s is the spacing, and t is the tail all in px. w is 0 by default for breadcrumbs widths based on text length.
legend	list to customize the legend or logical to disable the legend. The list argument should be in the form list(w =, h =, r =, s =) where w is the width, h is the height, s is the spacing, and r is the radius all in px.
sortFunction	JS function to sort the slices. The default sort is by size.
sumNodes	logical to sum non-leaf nodes. The default sumNodes = TRUE assumes that the user has not already calculated a sum.
withD3	logical to include d3 dependency from d3r. As of version 1.0, sunburst uses a standalone JavaScript build and will not include the entire d3 in the global/window namespace. To include d3.js in this way, use withD3=TRUE.
height, width	height and width of sunburst htmlwidget containing div specified in any valid CSS size unit.
elementId	string id as a valid CSS element id.
sizingPolicy	see sizingPolicy.
csvdata	deprecated use data argument instead; data in csv source,target form
jsondata	deprecated use data argument instead; data in nested d3 JSON hierarchy with 'name:..., children:[];'

Examples

```
library(sunburstR)

# read in sample visit-sequences.csv data provided in source
```

```
# only use first 100 rows to speed package build and check
#   https://gist.github.com/kerryrodden/7090426#file-visit-sequences-csv
sequences <- read.csv(
  system.file("examples/visit-sequences.csv",package="sunburstR")
  ,header = FALSE
  ,stringsAsFactors = FALSE
)[1:100,]

sunburst(sequences)

## Not run:

# explore some of the arguments
sunburst(
  sequences
  ,count = TRUE
)

sunburst(
  sequences
  # apply sort order to the legends
  ,legendOrder = unique(unlist(strsplit(sequences[,1],"-")))
  # just provide the name in the explanation in the center
  ,explanation = "function(d){return d.data.name}"
)


# try with json data
sequence_json <- jsonlite::fromJSON(
  system.file("examples/visit-sequences.json",package="sunburstR"),
  simplifyDataFrame = FALSE
)
sunburst(sequence_json)



# try with csv data from this fork
#  https://gist.github.com/mkajava/7515402
# great use for new breadbrumb wrapping
sunburst(
  csvdata = read.csv(
    file = paste0(
      "https://gist.githubusercontent.com/mkajava/",
      "7515402/raw/9f80d28094dc9dfed7090f8fb3376ef1539f4fd2/",
      "comment-sequences.csv"
    )
    ,header = TRUE
    ,stringsAsFactors = FALSE
  )
)


# try with csv data from this fork
```

```
#  https://gist.github.com/rileycrane/92a2c36eb932b4f99e51/
sunburst( csvdata = read.csv(
  file = paste0(
    "https://gist.githubusercontent.com/rileycrane/",
    "92a2c36eb932b4f99e51/raw/",
    "a0212b4ca8043af47ec82369aa5f023530279aa3/visit-sequences.csv"
  )
  ,header=FALSE
  ,stringsAsFactors = FALSE
))

## End(Not run)
## Not run:
#  use sunburst to analyze ngram data from Peter Norvig
#    http://norvig.com/mayzner.html

library(sunburstR)
library(pipeR)

#  read the csv data downloaded from the Google Fusion Table linked in the article
ngrams2 <- read.csv(
  system.file(
    "examples/ngrams2.csv"
    ,package="sunburstR"
  )
  , stringsAsFactors = FALSE
)

ngrams2 %>>%
  #  let's look at ngrams at the start of a word, so columns 1 and 3
  (.[,c(1,3)]) %>>%
  #  split the ngrams into a sequence by splitting each letter and adding -
  (
    data.frame(
      sequence = strsplit(.[,1],"") %>>%
        lapply( function(ng){ paste0(ng,collapse = "-") } ) %>>%
        unlist
      ,freq = .[,2]
      ,stringsAsFactors = FALSE
    )
  ) %>>%
  sunburst


library(htmltools)

ngrams2 %>>%
  (
    lapply(
      seq.int(3,ncol(.))
      ,function(letpos){
        (.[,c(1,letpos)]) %>>%
          #  split the ngrams into a sequence by splitting each letter and adding -
```

```
          (
            data.frame(
              sequence = strsplit(.[,1],"") %>>%
                lapply( function(ng){ paste0(ng,collapse = "-") } ) %>>%
                unlist
              ,freq = .[,2]
              ,stringsAsFactors = FALSE
            )
          ) %>>%
          ( tags$div(style="float:left;",sunburst( ., height = 300, width = 300 )) )
      }
    )
  ) %>>%
  tagList %>>%
  browsable

## End(Not run)
## Not run:
  library(treemap)
  library(sunburstR)
  library(d3r)

  # use example from ?treemap::treemap
  data(GNI2014)
  tm <- treemap(GNI2014,
          index=c("continent", "iso3"),
          vSize="population",
          vColor="continent",
          type="index")

  tm_nest <- d3_nest(
    tm$tm[,c("continent", "iso3", "vSize", "color")],
    value_cols = c("vSize", "color")
  )

  sunburst(
    data = tm_nest,
    valueField = "vSize",
    count = TRUE,
    # to avoid double counting with pre-summed trees
    # use sumNodes = FALSE
    sumNodes = FALSE,
    colors = htmlwidgets::JS("function(d){return d3.select(this).datum().data.color;}"),
    withD3 = TRUE
  )

## End(Not run)
# calendar sunburst example

library(sunburstR)

df <- data.frame(
  date = seq.Date(
```

```
    as.Date('2014-01-01'),
    as.Date('2016-12-31'),
    by = "days"
  ),
  stringsAsFactors = FALSE
)

df$year = format(df$date, "%Y")
df$quarter = paste0("Q", ceiling(as.numeric(format(df$date,"%m"))/3))
df$month = format(df$date, "%b")
df$path = paste(df$year, df$quarter, df$month, sep="-")
df$count = rep(1, nrow(df))

sunburst(
  data.frame(xtabs(count~path,df)),
  # added a degree of difficulty by providing
  #  not easily sortable names
  sortFunction = htmlwidgets::JS(
"
function(a,b){
  abb = {
    2014:-7,
    2015:-6,
    2016:-5,
    Q1:-4,
    Q2:-3,
    Q3:-2,
    Q4:-1,
    Jan:1,
    Feb:2,
    Mar:3,
    Apr:4,
    May:5,
    Jun:6,
    Jul:7,
    Aug:8,
    Sep:9,
    Oct:10,
    Nov:11,
    Dec:12
  }
  return abb[a.data.name] - abb[b.data.name];
}
"
  )
)
# sorting example: place data in order of occurence

library(sunburstR)

df <- data.frame(
  group = c("foo", "bar", "xyz"),
  value = c(1, 3, 2)
```

```
)

sunburst(df,
         # create a trivial sort function
         sortFunction = htmlwidgets::JS('function(x) {return x;}'))

new_order <- c(3,2,1)
sunburst(df[new_order,],
         sortFunction = htmlwidgets::JS('function(x) {return x;}'))
```

---

sunburst-shiny *Shiny bindings for sunburst*

Description

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

Usage

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

renderSunburst(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 sunburst
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.

---

sund2b *Sunburst Using 'd2b'*

Description

Create interactive sunburst chart with the 'd2b' charting library.

Usage

```
sund2b(data = NULL, colors = NULL, valueField = "size",
  width = NULL, height = NULL, elementId = NULL)
```

Arguments

data	data in csv source,target form or in nested d3 JSON hierarchy with 'name:..., children:[];'. list, character, or connection data will be assumed to be JSON. data.frame data will be assumed to be csvdata and converted to JSON by sunburstR:::csv_to_hier().
colors	vector of strings representing colors as hexadecimal for manual colors. If you want precise control of colors, supply a list with range and/or domain. For advanced customization, supply a JavaScript function.
valueField	character for the field to use to calculate size. The default value is "size".
height, width	height and width of sunburst htmlwidget containing div specified in any valid CSS size unit.
elementId	string id as a valid CSS element id.

Examples

```
## Not run:

# The sund2b() API mirrors sunburst() with fewer arguments.

library(sunburstR)

# use a sample of the sequences csv data
sequences <- read.csv(
  system.file("examples/visit-sequences.csv",package="sunburstR")
  ,header = FALSE
  ,stringsAsFactors = FALSE
)[1:200,]

# create a d2b sunburst
sund2b(sequences)

# change the colors
#   using d3.js categorical color scheme
sund2b(
  sequences,
  colors = htmlwidgets::JS("d3.scaleOrdinal(d3.schemeCategory20b)")
)
#  using RColorBrewer palette
sund2b(
  sequences,
  colors = list(range = RColorBrewer::brewer.pal(9, "Set3"))
)
#  using a color column from the R dataset
#  treemap has an amazing treecolors ability
library(treemap)
library(d3r)
rhd <- random.hierarchical.data()
tm <- treemap(
  rhd,
  index = paste0("index", 1:3),
```

```
  vSize = "x",
  draw = FALSE
)$tm
sund2b(
  d3_nest(tm, value_cols = colnames(tm)[-(1:3)]),
  colors = htmlwidgets::JS(
    # yes this is a little different, so please pay attention
    #  "function(d) {return d.color}" will not work
    "function(name, d){return d.color || '#ccc';}"
  ),
  valueField = "vSize"
)


# use sund2b in Shiny
library(shiny)
ui <- sund2bOutput("sun")
server <- function(input, output, session) {
  output$sun <- renderSund2b({
    sund2b(sequences)
  })
}
shinyApp(ui, server)


## End(Not run)
```

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