Package ‘c3’

October 12, 2022

Type   Package
Title  'C3.js' Chart Library
Description  Create interactive charts with the 'C3.js' Charting library. All plot types in 'C3.js' are available and include line, bar, scatter, and mixed geometry plots. Plot annotations, labels and axis are highly adjustable. Interactive web based charts can be embedded in R Markdown documents or Shiny web applications.

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R topics documented:

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Description

An ‘R’ wrapper, or htmlwidget, for the c3 javascript charting library by Masayuki Tanaka.

Usage

c3(data, x = NULL, y = NULL, group = NULL, width = NULL, height = NULL, axes = NULL, labels = NULL, hide = NULL, onclick = NULL, onmouseover = NULL, onmouseout = NULL, ...)

Arguments

data data.frame or tibble
x character column name
y character column name
group character column name
width integer htmlwidget width (separate from plot width)
height integer htmlwidget height (separate from plot height)
```r
axes
labels
hide
onclick
onmouseover
onmouseout
... 
```

See Also

Other c3: RColorBrewer, grid, legend, region, subchart, tooltip, xAxis, zoom

Examples

```r
data <- data.frame(a = c(1,2,3,2), b = c(2,3,1,5))

data %>%
c3(onclick = htmlwidgets::JS("function(d, element){console.log(d)}"))

data %>%
c3(axes = list(a = 'y', 
b = 'y2')) %>%
y2Axis()

data.frame(sugar = 20, fat = 45, salt = 10) %>%
c3(onclick = htmlwidgets::JS("function(d, element){dp = d}")) %>%
c3_pie()
```

Description

Output and render functions for using c3 within Shiny applications and interactive Rmd documents.

Usage

```r
c3Output(outputId, width = "100%", height = "100%")

renderC3(expr, env = parent.frame(), quoted = FALSE)
```
c3_bar

Bar Plot

Description

Add bars to a C3 plot

Usage

c3_bar(c3, stacked = FALSE, rotated = FALSE, bar_width = 0.6, zerobased = TRUE)

Arguments

c3 c3 htmlwidget object
stacked boolean place bars on top of each other
rotated boolean use to make x-axis vertical
bar_width numeric pixel width of bars
zerobased boolean

Value

c3

Examples

data.frame(a=c(1,2,3,2),b=c(2,3,1,5)) %>%
c3() %>%
c3_bar(stacked = TRUE)
**c3\_chart\_size**

---

**Chart Size**

**Description**

Modify the size of the chart within the htmlwidget area. Generally charts size to the div in which they are placed. These options enable finer scale sizing with the div.

**Usage**

```r
c3\_chart\_size(c3, left = NULL, right = NULL, top = NULL, bottom = NULL, width = NULL, height = NULL, ...)
```

**Arguments**

- `c3`: c3 htmlwidget object
- `left`: integer padding pixels
- `right`: integer padding pixels
- `top`: integer padding pixels
- `bottom`: integer padding pixels
- `width`: integer pixels
- `height`: integer pixels
- `...`: additional options passed to the padding and size objects

**Value**

- `c3`

**Examples**

```r
data.frame(a = c(1,2,3,2), b = c(2,4,1,5)) %>%
c3() %>%
c3\_chart\_size(width = 600, height = 200)
```
c3_color

Description
Manually assign colors

Usage
c3_color(c3, colors)

Arguments
c3 c3 htmlwidget object
colors character vector of colors

Value
c3

Examples
data.frame(a = c(1,2,3,2), b = c(2,4,1,5)) %>%
c3() %>%
c3_color(c('red','black'))
c3_donut

Examples

data.frame(a = c(1,2,3,2), b = c(2,4,1,5)) %>%
c3() %>%
c3_colour(c('red','black'))

c3_donut

Donut Charts

Description

Create simple Donut charts

Usage

c3_donut(c3, expand = TRUE, title = NULL, width = NULL,
show = TRUE, threshold = NULL, format = NULL, ...)

Arguments

c3 c3 htmlwidget object
expand boolean expand segment on hover
title character
width integer pixels width of donut
show boolean show labels
threshold numeric proportion of segment to hide label
format character label js function, wrap character or character
vector in JS()
... additional values passed to the donut label object

Value

c3

Examples

data.frame(red=20,green=45,blue=10) %>%
c3() %>%
c3_donut(title = 'Colors')
c3_gauge  

Gauge Charts

Description

Create simple Gauge Charts

Usage

c3_gauge(c3, label = NULL, min = 0, max = 100, units = NULL, width = NULL, pattern = c("#FF0000", "#F97600", "#F6C600", "#60B044"), threshold = list(unit = "value", max = 100, values = c(30, 60, 90, 100)), height = NULL, ...)

Arguments

c3  c3 htmlwidget object
label list with options:
  • show: boolean
  • format: function, wrap in JS()
min numeric
max numeric
units character appended to numeric value
width integer pixel width of the arc
pattern character vector or palette of colors
threshold list with options:
  • unit: character one of 'percent', 'value'
  • max: numeric
  • values: numeric vector of threshold values for color change
height integer pixel height of the chart. Proportion of gauge never changes so height scales with width despite this setting.
...
  additional values passed to the gauge, color and size objects

Value

c3

Examples

data.frame(data=10) %>%
c3() %>%
c3_gauge(title = 'Colors')
Description

Add lines to a C3 plot

Usage

c3_line(c3, type, stacked = FALSE, connectNull = FALSE, step_type = NULL)

Arguments

c3 c3 htmlwidget object

- type character type of line plot. Must be one of:
  - line
  - spline
  - step
  - area
  - area-step

- stacked boolean

- connectNull boolean connect null (missing) data points

- step_type character, one of:
  - step
  - step-after
  - step-before

Value

c3

Examples

data.frame(a=c(1,2,3,2),b=c(2,3,1,5)) %>%
c3() %>%
c3_line('spline')
c3_mixedGeom  Mixed Geometry Plots

Description
Use multiple geometry types in a single plot

Usage
```r
c3_mixedGeom(c3, types, type = "line", stacked = NULL)
```

Arguments
- `c3`: c3 htmlwidget object
- `types`: list containing key value pairs of column header and plot type
- `type`: character default plot type where not defined
- `stacked`: character vector of column headers to stack

Value
`c3`

Examples
```r
data <- data.frame(a = abs(rnorm(20) * 10),
b = abs(rnorm(20) * 10),
c = abs(rnorm(20) * 10),
d = abs(rnorm(20) * 10))
data %>%
c3() %>%
c3_mixedGeom(type = 'bar',
stacked = c('b','d'),
types = list(a='area',
c='spline'))
```

c3_pie  Pie Charts

Description
C3 Pie Charts

Usage
```r
c3_pie(c3, show = TRUE, threshold = NULL, format = NULL,
expand = TRUE, ...)
```
c3_scatter

Arguments

- c3: c3 htmlwidget object
- show: boolean show labels
- threshold: numeric proportion of segment to hide label
- format: character label js function, wrap character or character vector in JS()
- expand: boolean expand segment on hover
- ...: additional values passed to the pie label object

Value

c3

Examples

data.frame(red = 20, green = 45, blue = 10) %>%
c3() %>%
c3_pie()

---

c3_scatter

Description

For scatter plots options are defined in the 'c3' function. Options are limited to x, y and groups

Usage

c3_scatter(c3)

Arguments

- c3: c3 htmlwidget object

Value

c3

Examples

iris %>%
c3(x = 'Sepal_Length',
   y = 'Sepal_Width',
   group = 'Species') %>%
c3_scatter()
c3_selection

Data Select

Description
Define options for selecting data within the plot area

Usage
c3_selection(c3, enabled = FALSE, grouped = FALSE, multiple = FALSE, 
draggable = FALSE, isselectable = JS("function () { return true; }"), 
...)

Arguments
c3  c3 htmlwidget object
enabled  boolean
grouped  boolean
multiple  boolean
draggable  boolean
isselectable  character js function, wrap character or character vector in JS()
...  additional options passed to data selection object

Value
c3

Examples
data.frame(a = c(1,2,3,2), b = c(2,3,1,5)) %>%
c3() %>%
c3_selection(enabled = TRUE, 
multiple = TRUE)

c3_viridis

Viridis Palette

Description
Use Viridis palette options

Usage
c3_viridis(c3, pal = "D")
Arguments

- `c3` c3 htmlwidget object
- `pal` character palette options

Value

c3

Examples

data.frame(a = c(1,2,3,2), b = c(2,4,1,5)) %>%
c3() %>%
c3_viridis()
grid

C3 Grid

Description

Modify grid and line elements on both x and y axis

Usage

grid(c3, axis, show = TRUE, lines = NULL, ticks = NULL, ...)

## S3 method for class 'c3'
grid(c3, axis, show = TRUE, lines = NULL, ticks = NULL, ...)

Arguments

- **c3**: c3 htmlwidget object
- **axis**: character 'x' or 'y'
- **show**: boolean
- **lines**: dataframe with options:
  - value: numeric, character or date depending on axis
  - text: character (optional)
  - class: character css class (optional)
  - position: character one of 'start', 'middle', 'end' (optional)
- **ticks**: boolean placeholder. Not yet implemented in C3.js
- **...**: additional options passed to the grid object

Value

c3

See Also

Other c3: RColorBrewer, c3, legend, region, subchart, tooltip, xAxis, zoom

Examples

iris %>%
c3(x = 'Sepal_Length', y = 'Sepal_Width', group = 'Species') %>%
c3_scatter() %>%
grid('y') %>%
grid('x', show = FALSE, lines = data.frame(value=c(5, 6),
  text= c('Line 1', 'Line 2')))
### legend

**C3 Legend Options**

**Description**

Modify plot elements that relate to the legend. The c3 legend is on by default, this function allows the legend to be removed, or other legend attributes to be set.

**Usage**

```r
legend(c3, hide = FALSE, position = NULL, inset = NULL, item = NULL, ...)
```

```r
## S3 method for class 'c3'
legend(c3, hide = FALSE, position = NULL, inset = NULL, item = NULL, ...)
```

**Arguments**

- `c3`: c3 htmlwidget object
- `hide`: boolean or character of parameters to hide
- `position`: character one of 'bottom', 'right', 'inset
- `inset`: list with options:
  - `anchor`: character one of 'top-left', 'top-right', 'bottom-left', 'bottom-right'
  - `x`: integer pixels
  - `y`: integer pixels
  - `step`: numeric
- `item`: list with options:
  - `onclick`: character js function, wrap character or character vector in JS()
  - `onmouseover`: character js function, wrap character or character vector in JS()
  - `onmouseout`: character js function, wrap character or character vector in JS()
  - ... additional options passed to the legend object

**Value**

- `c3`

**See Also**

Other c3: `RColorBrewer, c3, grid, region, subchart, tooltip, xAxis, zoom`
Examples

```r
iris %>%
c3(x='Sepal.Length', y='Sepal.Width', group = 'Species') %>%
c3_scatter() %>%
legend(position = 'right')
```

---

<table>
<thead>
<tr>
<th>point_options</th>
<th>Point Options</th>
</tr>
</thead>
</table>

Description

Modify point options

Usage

```r
point_options(c3, show = TRUE, r = 2.5, expand = TRUE, expand.r = 1.75, select.r = 4)
```

Arguments

- **c3**: c3 htmlwidget object
- **show**: boolean
- **r**: numeric radius of point
- **expand**: boolean
- **expand.r**: numeric multiplier for radius expansion
- **select.r**: numeric multiplier for radius expansion

Value

- **c3**

Examples

```r
data.frame(a = c(1,2,3,2), b = c(2,4,1,5)) %>%
c3() %>%
point_options(r = 5, expand.r = 2)
```
RColorBrewer

Description
Use RColorBrewer palettes

Usage
RColorBrewer(c3, pal = "Spectral")

## S3 method for class 'c3'
RColorBrewer(c3, pal = "Spectral")

Arguments
c3 c3 htmlwidget object
pal character palette must match ‘RColorBrewer::brewer.pal.info’

Value
c3

See Also
Other c3: c3, grid, legend, region, subchart, tooltip, xAxis, zoom

Examples
data.frame(a = c(1,2,3,2), b = c(2,4,1,5), c = c(5,3,4,1)) %>%
c3() %>%
RColorBrewer()

region Modify region elements on both x and y axis

Description
Regions are defined in multiple axis by passing a single ‘data.frame’

Usage
region(c3, regions)

## S3 method for class 'c3'
region(c3, regions)
Arguments

- **c3**: c3 htmlwidget object
- **regions**: data.frame with columns listed below. Any columns can be missing but results may be unexpected.
  - **axis**: character one of 'x', 'y', 'y2'
  - **start**: numeric but must match defined axis type
  - **end**: numeric but must match defined axis type
  - **class**: character css class

Value

c3

See Also

Other c3: RColorBrewer, c3, grid, legend, subchart, tooltip, xAxis, zoom

Examples

```r
iris %>%
c3(x = 'Sepal_Length', y = 'Sepal_Width', group = 'Species') %>%
c3_scatter() %>%
region(data.frame(axis = 'x',
  start = 5,
  end = 6))
```

Description

Subcharts are defined in multiple axis by passing a single 'data.frame'. Subcharts are listed as an experimental feature in the C3 documentation.

Usage

```r
subchart(c3, height = 20, onbrush = NULL)
```

## S3 method for class 'c3'
subchart(c3, height = 20, onbrush = NULL)

Arguments

- **c3**: c3 htmlwidget object
- **height**: integer pixels
- **onbrush**: character js function, wrap character or character vector in JS()
tickAxis

Value

c3

See Also

Other c3: RColorBrewer, c3, grid, legend, region, tooltip, xAxis, zoom

Examples

data.frame(a = abs(rnorm(20) * 10),
           b = abs(rnorm(20) * 10),
           date = seq(as.Date("2014-01-01"), by = "month", length.out = 20)) %>%
c3(x = 'date', y = 'Var') %>%
subchart(height = 20, onbrush = 'function (domain) { console.log(domain) }')

Description

Modify axis tick formatting options

Usage

tickAxis(c3, axis = NULL, centered = TRUE, format = NULL, culling = NULL,
         count = NULL, fit = TRUE, values = NULL, rotate = 0,
         outer = TRUE, ...)

Arguments

c3 c3 htmlwidget object
axis character 'x', 'y' or 'y2' axis
centered boolean (x-axis only)
format character js function, wrap character or character vector in JS()
culling boolean or list defining number of ticks 'list(max = 5)' this option effects tick labels (x-axis only)
count integer number of ticks to display. This effects tick lines and labels
fit boolean position ticks evenly or set to values (x-axis only)
values vector. Must match axis format type
rotate integer degrees to rotate labels (x-axis only)
outer boolean show axis outer tick
... additional options passed to axis tick object
Value

c3

Examples

data.frame(a = c(1,2,3,2), b = c(2,4,1,5)) %>%
c3() %>%
tickAxis('y', values = c(1,3))

Description

Modify plot elements that relate to tooltips. C3.js documentation contains an extended example.

Usage

tooltip(c3, show = TRUE, grouped = TRUE, format = NULL,
position = NULL, contents = NULL, ...)

## S3 method for class 'c3'
tooltip(c3, show = TRUE, grouped = TRUE, format = NULL,
position = NULL, contents = NULL, ...)

Arguments

c3 c3 htmlwidget object
show boolean show or hide tooltips
grouped boolean
format list with options:
  • title: character js function, wrap character or character vector in JS()
  • name: character js function, wrap character or character vector in JS()
  • value: character js function, wrap character or character vector in JS()
position character js function, wrap character or character vector in JS()
contents character js function, wrap character or character vector in JS()
... addition options passed to the tooltip object

Value

c3

See Also

Other c3: RColorBrewer, c3, grid, legend, region, subchart, xAxis, zoom
Examples

```r
data <- data.frame(a = abs(rnorm(20) * 10),
                   b = abs(rnorm(20) * 10),
                   c = abs(rnorm(20) * 10),
                   d = abs(rnorm(20) * 10))

data %>%
c3() %>%
tooltip(format = list(title = htmlwidgets::JS("function (x) { return 'Data ' + x; }"))),
         name = htmlwidgets::JS('function (name, ratio, id, index)',
                        '{ return name; }'),
         value = htmlwidgets::JS('function (value, ratio, id, index)',
                        '{ return ratio; }'))
```

---

**xAxis**

*C3 Axis*

**Description**

Modify plot elements that relate to the axis.

**Usage**

```r
xAxis(c3, show = TRUE, type = "indexed", localtime = NULL,
      categories = NULL, max = NULL, min = NULL, padding = list(),
      height = NULL, extent = NULL, label = NULL, ...)
```

```r
yAxis(c3, show = TRUE, inner = NULL, max = NULL, min = NULL,
      padding = NULL, inverted = NULL, center = NULL, label = NULL, ...)
```

```r
y2Axis(c3, show = TRUE, inner = NULL, max = NULL, min = NULL,
       padding = NULL, inverted = NULL, center = NULL, label = NULL, ...)
```

```r
xAxis(c3, show = TRUE, type = "indexed",
      localtime = NULL, categories = NULL, max = NULL, min = NULL,
      padding = list(), height = NULL, extent = NULL, label = NULL, ...)
```

```r
yAxis(c3, show = TRUE, inner = NULL, max = NULL, min = NULL,
      padding = NULL, inverted = NULL, center = NULL, label = NULL, ...)
```

```r
y2Axis(c3, show = TRUE, inner = NULL, max = NULL, min = NULL,
       padding = NULL, inverted = NULL, center = NULL, label = NULL, ...)
```
min = NULL, padding = NULL, inverted = NULL, center = NULL, label = NULL, ...)

Arguments

c3 c3 htmlwidget object
show boolean
type character on of ‘indexed’, timeseries’ or ‘category’
localtime boolean
categories character vector. Can be used to modify axis labels. Not needed if already defined in data
max numeric set value of axis range
min numeric set value of axis range
padding list with options:
  • left: numeric pixels
  • right: numeric pixels
height integer pixels to set height of axis
extent vector or character function (wrapped in JS()) that returns a vector of values
label can be character or list with options (see c3 axis-x-label):
  • text: character
  • position: character
label position options for horizontal axis are:
  • inner-right
  • inner-center
  • inner-left
  • outer-right
  • outer-center
  • outer-left
label position options for vertical axis are:
  • inner-top
  • inner-middle
  • inner-bottom
  • outer-top
  • outer-middle
  • outer-bottom
...
additional options passed to the axis object
inner boolean show axis inside chart (Y and Y2 axis only)
inverted boolean TRUE will reverse the direction of the axis (Y and Y2 axis only)
center integer or numeric value for center line (Y and Y2 axis only)
Value
c3

See Also
Other c3: RColorBrewer, c3, grid, legend, region, subchart, tooltip, zoom

Examples
data.frame(a=c(1,2,3,2),b=c(2,3,1,5)) %>%
c3(axes = list(a = 'y',
        b = 'y2')) %>%
xAxis(label = list(text = 'testing',
            position = 'inner-center')) %>%
y2Axis()

Description
Enable chart Zoom.

Usage
zoom(c3, enabled = TRUE, rescale = NULL, extent = NULL,
onzoom = NULL, onzoomstart = NULL, onzoomend = NULL, ...)

## S3 method for class 'c3'
zoom(c3, enabled = TRUE, rescale = NULL, extent = NULL,
onzoom = NULL, onzoomstart = NULL, onzoomend = NULL, ...)

Arguments
c3 c3 htmlwidget object
enabled boolean default is TRUE
rescale boolean rescale axis when zooming
extent numeric vector
onzoom character js function, wrap character or character vector in JS()
onzoomstart character js function, wrap character or character vector in JS()
onzoomend character js function, wrap character or character vector in JS()
... additional options passed to the zoom object

Value
c3
See Also

Other c3: RColorBrewer, c3.grid.legend, region, subchart, tooltip, xAxis

Examples

data.frame(a = abs(rnorm(20) * 10),
           b = abs(rnorm(20) * 10)) %>%
c3() %>%
zoom()

data.frame(a=c(1,2,3,2),b=c(2,3,1,5)) %>%
c3()
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