

Package ‘brinton’

July 17, 2022

Type Package

Version 0.2.6

Title A Graphical EDA Tool

Description An automated graphical exploratory data analysis (EDA) tool that introduces:

- a.) wideplot graphics for exploring the structure of a dataset through a grid of variables and graphic types.
- b.) longplot graphics, which present the entire catalog of available graphics for representing a particular variable using a grid of graphic types and variations on these types.
- c.) plotup function, which presents a particular graphic for a specific variable of a dataset. The plotup() function also makes it possible to obtain the code used to generate the graphic, meaning that the user can adjust its properties as needed.
- d.) matrixplot graphics that is a grid of a particular graphic showing bivariate relationships between all pairs of variables of a certain(s) type(s) in a multivariate data set.

License GPL-3

Encoding UTF-8

LazyData false

Imports ggplot2, gridExtra, rmarkdown, glue, pander, lubridate, tibble, sm, RColorBrewer, forcats, GGally

Suggests knitr, MASS, hexbin, testthat (>= 2.1.0)

VignetteBuilder knitr

RoxygenNote 7.1.1

SystemRequirements Pandoc (>= 1.12.3), web browser

URL <https://sciencegraph.github.io/brinton/>,
<https://github.com/sciencegraph/brinton>

BugReports <https://github.com/sciencegraph/brinton/issues>

NeedsCompilation no

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longplot	<i>Displays a longplot in a html file.</i>
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Description

A longplot is a range of suitable graphics that represent the relationship within the values of one, or a limited number, of variables in a dataset. Each graphic relates the values of all the selected variables and eventually the row number in which they appear.

Usage

```
longplot(data, vars, label = TRUE, dir = tempdir())
```

Arguments

data	Data.frame. Default dataset to use for plot. If not already a data.frame, it should be first coerced to by [as.data.frame()].
vars	Character. A specific variable within the dataset.
label	Logical. If 'TRUE' the output includes labels that show the names of the graphics that are being displayed.
dir	Directory in which the files are stored.

Details

In order to present the range of graphics, the user must define a dataset and select at least one variable within it. Future work will include graphics that can combine up to three variables.

Value

Cause the side-effect of creating and displaying a temporary html file that includes a range of graphics suitable for this particular combination of variables.

Examples

```
if (interactive()) {
  longplot(esoph, "tobgp")
}
```

matrixplot	<i>Displays a matrix of a particular graphic for bivariate data in a html file.</i>
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Description

A matrixplot is a grid of a particular graphic showing bivariate relationships between all pairs of variables of a certain(s) type(s) in a multivariate data set.

Usage

```
matrixplot(data, dataclass = NULL, diagram = NULL, dir = tempdir())
```

Arguments

data	Data.frame. Default dataset to use for plot. Unquoted. If not already a data.frame, it should be first coerced to by <i>as.data.frame()</i> .
dataclass	Character vector. The types of data to be considered among the following: <ul style="list-style-type: none">• <i>'logical'</i>• <i>'ordered'</i>• <i>'factor'</i>• <i>'numeric'</i>• <i>'datetime'</i>• <i>'character'</i>
diagram	Character. A specific graphic to be presented within the ones considered in the 2 input variables specimen available at https://sciencegraph.github.io/brinton/articles/specimen2.html .
dir	Directory in which the files are stored.

Value

Cause the side-effect of creating and displaying a temporary html file that includes a grid of graphics. The variables of a dataset are first grouped by the type of data, then, the variables matching the classes specified in the dataclass parameter, are represented in each row and/or column of the matrix.

Examples

```
if (interactive()) {  
  matrixplot(iris, dataclass = c("numeric", "numeric"),  
            diagram="bw contour plot with data points")  
}
```

plotup

Returns a ggplot object of a specific graphic explicitly called by name.

Description

In order to present the graphic, the user must define a dataset, at least one variable within this dataset and a compatible type of graphic. Future work will include graphics that can combine up to three variables.

Usage

```
plotup(data, vars, diagram, output = "plots pane", dir = tempdir())
```

Arguments

data	Data.frame. Default dataset to use for plot. If not already a data.frame, it should be first coerced to by [as.data.frame()].
vars	Character. A variable within the dataset.
diagram	Character. A specific graphic to be presented within the ones considered by the 'logical', 'ordered', 'factor', 'character', 'datetime' and 'numeric' arguments of the 'wideplot()' function.
output	Character. Type of output. <ul style="list-style-type: none">• 'html': Creates and displays a html file with the specific graphic.• 'plots pane': Default output, a ggplot2 object in RStudio's plots pane.• 'console': Prints the code that produces the specific graphic.
dir	Directory in which the files are stored.

Value

This function returns a c('gg', 'ggplot') object, but if the 'output' argument is set to it 'html' or 'console', the function cause a side-effect: either creating and displaying a temporary html file, or printing the ggplot2 code to the console.

Examples

```
plotup(iris, "Petal.Width", "color heatmap")
plotup(iris, "Petal.Width", "color heatmap", output = "console")
if (interactive()) {
  plotup(iris, "Petal.Width", "color heatmap", output = "html")
}
```

wideplot	<i>Displays a wideplot in a html file.</i>
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Description

A wideplot is a grid of graphics where the graphics within each row corresponds to graphical representations of each one of the variables considered within a given dataset.

Usage

```
wideplot(  
  data,  
  dataclass = NULL,  
  logical = NULL,  
  ordered = NULL,  
  factor = NULL,  
  character = NULL,  
  datetime = NULL,  
  numeric = NULL,  
  group = NULL,  
  ncol = 7,  
  label = "FALSE",  
  dir = tempdir()  
)
```

Arguments

data	Data.frame. Default dataset to use for plot. Unquoted. If not already a data.frame, it should be first coerced to by <i>as.data.frame()</i> .
dataclass	Character vector. The types of data to be considered among the following: <ul style="list-style-type: none">• <i>'logical'</i>• <i>'ordered'</i>• <i>'factor'</i>• <i>'numeric'</i>• <i>'datetime'</i>• <i>'character'</i>
logical	Character vector. Graphics for logical variables among the following: <ul style="list-style-type: none">• <i>'blank'</i>• <i>'line graph'</i>• <i>'tile plot'</i>• <i>'point graph'</i>• <i>'point-to-point graph'</i>• <i>'linerange graph'</i>• <i>'bar graph'</i>

- *'bw bar graph'*
- *'color bar graph'*
- *'binned heatmap'*
- *'bw binned heatmap'*
- *'color binned heatmap'*

ordered Character vector. Graphics for ordered factor variables among the following:

- *'blank'*
- *'line graph'*
- *'tile plot'*
- *'point graph'*
- *'point-to-point graph'*
- *'linerange graph'*
- *'bar graph'*
- *'bw bar graph'*
- *'color bar graph'*
- *'binned heatmap'*
- *'bw binned heatmap'*
- *'color binned heatmap'*

factor Character vector. Graphics for Character variables among the following:

- *'blank'*
- *'line graph'*
- *'freq. reordered line graph'*
- *'alphab. reordered line graph'*
- *'tile plot'*
- *'freq. reordered tile plot'*
- *'alphab. reordered tile plot'*
- *'point graph'*
- *'freq. reordered point graph'*
- *'alphab. reordered point graph'*
- *'binned heatmap'*
- *'bw binned heatmap'*
- *'color binned heatmap'*
- *'freq. reordered binned heatmap'*
- *'bw freq. reordered binned heatmap'*
- *'color freq. reordered binned heatmap'*
- *'alphab. reordered binned heatmap'*
- *'bw alphab. reordered binned heatmap'*
- *'color alphab. reordered binned heatmap'*
- *'point-to-point graph'*
- *'freq. reordered point-to-point graph'*
- *'alphab. reordered point-to-point graph'*

- *'linerange graph'*
- *'freq. reordered linerange graph'*
- *'alphab. reordered linerange graph'*
- *'bar graph'*
- *'bw bar graph'*
- *'color bar graph'*
- *'freq. reordered bar graph'*
- *'bw freq. reordered bar graph'*
- *'color freq. reordered bar graph'*
- *'alphab. reordered bar graph'*
- *'bw alphab. reordered bar graph'*
- *'color alphab. reordered bar graph'*

character

Character vector. Graphics for character variables among the following:

- *'blank'*
- *'line graph'*
- *'freq. reordered line graph'*
- *'alphab. reordered line graph'*
- *'tile plot'*
- *'freq. reordered tile plot'*
- *'alphab. reordered tile plot'*
- *'point graph'*
- *'freq. reordered point graph'*
- *'alphab. reordered point graph'*
- *'binned heatmap'*
- *'bw binned heatmap'*
- *'color binned heatmap'*
- *'freq. reordered binned heatmap'*
- *'bw freq. reordered binned heatmap'*
- *'color freq. reordered binned heatmap'*
- *'alphab. reordered binned heatmap'*
- *'bw alphab. reordered binned heatmap'*
- *'color alphab. reordered binned heatmap'*
- *'point-to-point graph'*
- *'freq. reordered point-to-point graph'*
- *'alphab. reordered point-to-point graph'*
- *'linerange graph'*
- *'freq. reordered linerange graph'*
- *'alphab. reordered linerange graph'*
- *'bar graph'*
- *'bw bar graph'*
- *'color bar graph'*
- *'freq. reordered bar graph'*

- *'bw freq. reordered bar graph'*
- *'color freq. reordered bar graph'*
- *'alphab. reordered bar graph'*
- *'bw alphab. reordered bar graph'*
- *'color alphab. reordered bar graph'*

datetime

Character vector. Graphics for datetime variables among the following:

- *'blank'*
- *'line graph'*
- *'stepped line graph'*
- *'point graph'*
- *'point-to-point graph'*
- *'stepped point-to-point graph'*
- *'binned heatmap'*
- *'bw binned heatmap'*
- *'color binned heatmap'*
- *'bw heatmap'*
- *'color heatmap'*

numeric

Character vector. Graphics for numeric variables among the following:

- *'blank'*
- *'area graph'*
- *'stepped area graph'*
- *'bw stepped area graph'*
- *'color stepped area graph'*
- *'seq. stripe graph'*
- *'bw seq. stripe graph'*
- *'color seq. stripe graph'*
- *'line graph'*
- *'stepped line graph'*
- *'stripe graph'*
- *'bw stripe graph'*
- *'color stripe graph'*
- *'binned stripe graph'*
- *'bw binned stripe graph'*
- *'color binned stripe graph'*
- *'point graph'*
- *'bw point graph'*
- *'color point graph'*
- *'point graph with trend line'*
- *'bw point graph with trend line'*
- *'color point graph with trend line'*
- *'binned heatmap'*

- *'bw binned heatmap'*
- *'color binned heatmap'*
- *'bw heatmap'*
- *'color heatmap'*
- *'binned point graph'*
- *'bw binned point graph'*
- *'color binned point graph'*
- *'point-to-point graph'*
- *'stepped point-to-point graph'*
- *'bar graph'*
- *'bw bar graph'*
- *'color bar graph'*
- *'histogram'*
- *'bw histogram'*
- *'color histogram'*
- *'density plot'*
- *'filled density plot'*
- *'violin plot'*
- *'filled violin plot'*
- *'box plot'*
- *'3 uniaxial'*
- *'normal qq plot'*
- *'ecdf plot'*
- *'dotted ecdf plot'*
- *'stepped ecdf plot'*

group	Quoted character. Group of prestablished graphics which marks represent: <ul style="list-style-type: none"> • <i>'sequence'</i>: the row number of the observations. • <i>'scatter'</i>: graphics which marks represent individual observations. • <i>'bin'</i>: observations into a series of intervals. • <i>'model'</i>: a model built from the observations. • <i>'symbol'</i>: different statistics through symbols. • <i>'GOF'</i>: the goodness of fit of a statistical model. • <i>'random'</i>: random graphics.
ncol	Numeric. Number of columns. An integer between 3 and 7. The fewer columns displayed, the larger the size of the resulting graphics, a feature that is especially useful if the scale labels dwarf the graphics area.
label	Logical. If 'TRUE' the output includes labels that show the names of the graphics that are being displayed.
dir	Directory in which the files are stored.

Value

Cause the side-effect of creating and displaying a temporary html file that includes a grid of graphics. The variables of a dataset are first grouped by the type of data, then, each variable is graphically represented into a range of different graphics in one row of the matrix.

Examples

```
if (interactive()) {  
  wideplot(sleep, dataclass = c("factor"),  
  factor=c("point graph", "line graph", "tile plot"),  
  numeric = c("point graph", "line graph", "stepped line graph"))  
}
```

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