

Package ‘ezplot’

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Type Package

Title Functions for Common Chart Types

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Description Wrapper for the 'ggplot2' package that creates a variety of common charts (e.g. bar, line, area, ROC, waterfall, pie) while aiming to reduce typing.

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agg_data

Aggregates data

Description

Aggregates data

Usage

```
agg_data(
  data,
  cols = names(data),
  group_by = NULL,
  agg_fun = function(x) sum(x, na.rm = TRUE),
  group_by2 = NULL,
  env = parent.frame()
)
```

Arguments

<code>data</code>	A data.frame.
<code>cols</code>	Named character vector of column names.
<code>group_by</code>	Vector of grouping columns.
<code>agg_fun</code>	Function to use for aggregating.
<code>group_by2</code>	Vector of grouping column names to use for delayed (post aggregation) calculation.
<code>env</code>	Environment for extra variables.

Value

An aggregated data.frame.

Examples

```
suppressPackageStartupMessages(library(tsibble))
library(tsibbledata)
agg_data(ansest, c("Passengers", count = "1"))
agg_data(ansest["Class"])
agg_data(ansest[c("Class", "Passengers")])
agg_data(ansest, "Passengers", "Class")
agg_data(ansest, "Passengers", c("Class", "Airports"))
agg_data(ansest, c(x = "Airports", y = "Passengers"), c(x = "Airports"))
agg_data(ansest, c(x = "Class", y = "1", group = "Airports"), c(x = "Class", group = "Airports"))
```

area_plot

area_plot

Description

Aggregates a data.frame and creates a stacked area chart.

Usage

```

area_plot(
  data,
  x,
  y = "1",
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  size = 11,
  reorder = c("group", "facet_x", "facet_y"),
  palette = ez_col,
  labels_y = if (position == "fill") {
    function(x) ez_labels(100 * x, append =
      "%")
  } else {
    ez_labels
  },
  labels_x = NULL,
  use_theme = theme_ez,
  position = c("stack", "fill"),
  facet_scales = "fixed",
  facet_ncol = NULL,
  legend_ncol = NULL,
  env = parent.frame()
)

```

Arguments

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>y</code>	A named character value. Evaluates to a column.
<code>group</code>	A character value. Evaluates to a column.
<code>facet_x</code>	A character value. Evaluates to a column.
<code>facet_y</code>	A character. Evaluates to a column.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>reorder</code>	A character vector specifying the group variables to reorder. Default is <code>c("group", "facet_x", "facet_y")</code> .
<code>palette</code>	Colour function.
<code>labels_y</code>	label formatting function
<code>labels_x</code>	label formatting function
<code>use_theme</code>	ggplot theme function
<code>position</code>	Either "stack" (default) or "fill"
<code>facet_scales</code>	Option passed to scales argument in <code>facet_wrap</code> or <code>facet_grid</code> . Default is "fixed".

facet_ncol	Option passed to ncol argument in facet_wrap or facet_grid. Default is NULL.
legend_ncol	Number of columns in legend.
env	environment for evaluating expressions.

Value

A ggplot object.

Examples

```
library(tsibble)
library(tsibbledata)
area_plot(ansestt, x = "as.Date(Week)", y = "Passengers")
area_plot(ansestt,
  x = "as.Date(Week)", y = c("Weekly Passengers" = "Passengers"), "Class")
area_plot(ansestt, "as.Date(Week)",
  y = c("Weekly Passengers" = "Passengers"),
  group = "substr(Airports, 5, 7)",
  facet_x = "substr(Airports, 1, 3)",
  facet_y = "Class",
  facet_scales = "free_y")
```

bar_plot	<i>bar_plot</i>
----------	-----------------

Description

bar_plot

Usage

```
bar_plot(
  data,
  x,
  y = "1",
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  size = 11,
  width = NULL,
  reorder = c("group", "facet_x", "facet_y"),
  palette = ez_col,
  labels_y = if (position == "fill") {
    function(x) ez_labels(100 * x, append =
      "%")
  } else {
    ez_labels
```

```

},
  labels_x = identity,
  label_pos = c("auto", "inside", "top", "both", "none"),
  label_inside = c("y", "absolute", "share", "percent", "both"),
  rescale_y = 1.1,
  label_cutoff = 0.12,
  use_theme = theme_ez,
  position = "stack",
  facet_scales = "fixed",
  legend_ncol = NULL,
  coord_flip = FALSE,
  angle = 0,
  repel = FALSE
)

```

Arguments

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>y</code>	A named character value. Evaluates to a column.
<code>group</code>	A character value. Evaluates to a column.
<code>facet_x</code>	A character value. Evaluates to a column.
<code>facet_y</code>	A character. Evaluates to a column.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>width</code>	Width of bar.
<code>reorder</code>	A character vector specifying the group variables to reorder. Default is <code>c("group", "facet_x", "facet_y")</code> .
<code>palette</code>	Colour function.
<code>labels_y</code>	label formatting function
<code>labels_x</code>	label formatting function
<code>label_pos</code>	Position of labels. Can be "auto", "inside", "top", "both" or "none".
<code>label_inside</code>	Value to display inside bar segments. Options are "y", "absolute", "percent", "share" or "both".
<code>rescale_y</code>	Rescaling factor for y-axis limits
<code>label_cutoff</code>	Cutoff size (proportion of y data range) for excluding labels
<code>use_theme</code>	ggplot theme function
<code>position</code>	Either "stack" (default), "fill" or "dodge"
<code>facet_scales</code>	Option passed to scales argument in <code>facet_wrap</code> or <code>facet_grid</code> . Default is "fixed".
<code>legend_ncol</code>	Number of columns in legend.
<code>coord_flip</code>	logical (default is FALSE). If TRUE, flips the x and y coordinate using <code>ggplot2::coord_flip()</code>
<code>angle</code>	angle for <code>geom_text(_repel)</code>
<code>repel</code>	logical (default if FALSE). If TRUE, uses <code>ggrepel</code> for <code>geom_text</code>

Value

A ggplot object.

Examples

```
library(tsibble)
library(tsibbledata)
library(lubridate)

bar_plot(ansett, "year(Week)", "Passengers")
bar_plot(ansett, "year(Week)", "Passengers", "Class", label_pos = "both")
bar_plot(ansett, "year(Week)", "Passengers", "Class", label_pos = "both", label_inside = "both")
bar_plot(ansett, "year(Week)", "Passengers", "Class", coord_flip = TRUE)
```

calendar_plot	<i>calendar_plot</i>
---------------	----------------------

Description

calendar_plot

Usage

```
calendar_plot(data, x, y, ...)
```

Arguments

- data A data.frame.
- x date column
- y A named character value. Evaluates to a column.
- ... additional arguments for tile_plot

Examples

```
library(tsibbledata)
calendar_plot(vic_elec, "Time", "Demand", zlim = c(NA, NA))
```

density_plot	<i>density_plot</i>
--------------	---------------------

Description

creates a density plot

Usage

```
density_plot(
  data,
  x,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  adjust = 1,
  alpha = 0.5,
  facet_scales = "fixed",
  facet_ncol = NULL,
  legend_ncol = NULL,
  env = parent.frame()
)
```

Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
adjust	multiply bandwidth adjustment
alpha	alpha
facet_scales	Option passed to scales argument in facet_wrap or facet_grid. Default is "fixed".
facet_ncol	Option passed to ncol argument in facet_wrap or facet_grid. Default is NULL.
legend_ncol	Number of columns in legend.
env	environment for evaluating expressions.

Examples

```
library(tsibbledata)
density_plot(mtcars, "wt", "cyl")
density_plot(subset(tsibbledata::olympic_running, Length == 100 & Year >= 1980),
  "Time", "Year - Year %% 10", "Sex", facet_scales = "free", facet_ncol = 1, adjust = 2)
```

distribution_plot	<i>distribution_plot</i>
-------------------	--------------------------

Description

distribution_plot

Usage

```
distribution_plot(  
  data,  
  x,  
  facet_x = NULL,  
  nbins = 20,  
  use_theme = theme_ez,  
  size = 11,  
  env = parent.frame()  
)
```

Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
nbins	Number of bins for histogram. Default is 20.
use_theme	ggplot theme function
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

Examples

```
n = 100  
df = data.frame(residuals = rnorm(n),  
                group1 = sample(c("a", "b"), n, replace = TRUE))  
distribution_plot(df, "residuals")  
distribution_plot(df, "residuals", "group1")
```

ez_app	<i>ez_app</i>
--------	---------------

Description

ez_app

Usage

ez_app(data = NULL)

Arguments

data A data frame

Examples

```
## Not run:
library(tsibble)
library(tsibbledata)
ez_app(ansest)

## End(Not run)
```

ez_col	<i>Color palette interpolation</i>
--------	------------------------------------

Description

Color palette interpolation

Usage

ez_col(n = 50, palette = NULL)

Arguments

n number of colours
palette palette to interpolate from

Value

rgb

Examples

```
ez_col(15)
ez_col(2, c("blue", "red"))
ez_col(3, c("blue", "red"))
```

`ez_jet`*ez_jet*

Description

color palette for

Usage

```
ez_jet(  
  n = 100,  
  palette = c("dodgerblue4", "steelblue2", "olivedrab3", "darkgoldenrod1", "brown")  
)
```

Arguments

<code>n</code>	Number of colours to return.
<code>palette</code>	Vector of colours.

Examples

```
ez_jet(100)  
ez_jet(1)
```

`ez_labels`*Function for formatting numeric labels*

Description

Function for formatting numeric labels

Usage

```
ez_labels(  
  x,  
  prepend = "",  
  append = "",  
  as_factor = FALSE,  
  round = Inf,  
  signif = Inf  
)
```

Arguments

x	numeric
prepend	character
append	character
as_factor	logical
round	numeric passed to round()
signif	numeric passed to signif()

Value

y

Examples

```
ez_labels(10^(0:10))
ez_labels(2000, append = " apples")
ez_labels(0:10, append = " apples", as_factor = TRUE)
ez_labels(c(0, 0.1, 0.01, 0.001, 0.0001))
```

ez_png

ez_png

Description

Saves ggplot or ezplot objects to png (with useful defaults).

Usage

```
ez_png(
  g,
  file,
  width = 1200,
  height = 600,
  res = 72,
  resx = 1,
  ...,
  vp = NULL,
  dir.create = FALSE,
  check = TRUE
)
```

Arguments

g	A ggplot or ezplot object.
file	A png file path.
width	Image width (in pixels). Default is 1200.
height	Image height (in pixels). Default is 600.
res	Resolution (PPI) of output image. Default is 72.
resx	Resolution multiplier. Default is 1.
...	Further arguments to pass to png().
vp	A viewport object created with grid::viewport.
dir.create	Logical. If TRUE, creates the directory to save into. Default is FALSE.
check	Logical. If TRUE, opens png file after saving. Default is TRUE.

ez_server	<i>ez_server</i>
-----------	------------------

Description

ez_server

Usage

ez_server(data)

Arguments

data	A data frame
------	--------------

ez_ui	<i>ez_ui</i>
-------	--------------

Description

ez_ui

Usage

ez_ui(data)

Arguments

data	A data frame
------	--------------

get_incr

get_incr

Description

returns the minimum increment between sorted unique values of a vector

Usage

```
get_incr(x)
```

Arguments

x A numeric or date vector

histogram_plot

histogram_plot

Description

creates a histogram plot

Usage

```
histogram_plot(
  data,
  x,
  y = "count",
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  position = "stack",
  bins = 30,
  alpha = 0.5,
  facet_scales = "fixed",
  facet_ncol = NULL,
  legend_ncol = NULL,
  env = parent.frame()
)
```

Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
position	Either "stack" (default) or "fill"
bins	number of bins
alpha	fill alpha
facet_scales	Option passed to scales argument in facet_wrap or facet_grid. Default is "fixed".
facet_ncol	Option passed to ncol argument in facet_wrap or facet_grid. Default is NULL.
legend_ncol	Number of columns in legend.
env	environment for evaluating expressions.

Examples

```
histogram_plot(airquality, "Wind", group = "Month")
histogram_plot(airquality, "Wind", "density", facet_x = "Month")
```

ks_plot	ks_plot
---------	---------

Description

ks plot

Usage

```
ks_plot(
  data,
  fitted,
  actual,
  palette = ez_col,
  size_line = 1,
  size = 11,
  env = parent.frame()
)
```

Arguments

data	A data.frame.
fitted	Vector of fitted values
actual	Vector of actual values
palette	Colour function.
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

Examples

```
ks_plot(mtcars, "-disp", "am")
x = c(rnorm(100), rnorm(100) + 2)
label = c(rep('low', 100), rep('high', 100))
ks_plot(data.frame(x, label), "x", "label")
ks_plot(data.frame(x, label = factor(label, c('low', 'high'))), "x", "label")
```

lift_plot	<i>lift_plot</i>
-----------	------------------

Description

precision-recall plot

Usage

```
lift_plot(
  data,
  fitted,
  actual,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  size_line = 1,
  size = 11,
  env = parent.frame()
)
```

Arguments

data	A data.frame.
fitted	Vector of fitted values
actual	Vector of actual values
group	A character value. Evaluates to a column.

facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

Examples

```
library(ggplot2)
n = 1000
df = data.frame(actual = sample(c(FALSE, TRUE), n, replace = TRUE),
                 runif = runif(n))
df[["fitted"]] = runif(n) ^ ifelse(df[["actual"]] == 1, 0.5, 2)

density_plot(df, "fitted", "actual")

lift_plot(df, "fitted", "actual")
lift_plot(df, "fitted", "actual") + scale_y_log10()
lift_plot(df, "runif", "actual", size_line = 0.5)

library(dplyr, warn.conflicts = FALSE)
lift_plot(df, "fitted", "actual", "sample(c(1, 2), n(), TRUE)")

lift_plot(df, "fitted", "actual",
          "sample(c(1, 2), n(), TRUE)",
          "sample(c(3, 4), n(), TRUE)")

lift_plot(df, "fitted", "actual",
          "sample(c(1, 2), n(), TRUE)",
          "sample(c(3, 4), n(), TRUE)",
          "sample(c(5, 6), n(), TRUE)")
```

line_plot

line_plot

Description

Creates line plots.

Usage

```
line_plot(
  data,
  x,
  y = "1",
  group = NULL,
```

```

facet_x = NULL,
facet_y = NULL,
yoy = FALSE,
size_line = 1,
points = FALSE,
size = 11,
reorder = c("group", "facet_x", "facet_y"),
palette = ez_col,
labels_y = ez_labels,
limits_y = c(NA, NA),
use_theme = theme_ez,
facet_scales = "fixed",
na.rm = FALSE,
legend_ncol = NULL
)

```

Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
yoy	Logical used to indicate whether a YOY grouping should be created. Default is FALSE.
size_line	width of line for geom_line(). Default is 1.
points	logical. Option to include points
size	theme size for use_theme(). Default is 14.
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y").
palette	Colour function.
labels_y	label formatting function
limits_y	vector of c(min, max) y-axis limits
use_theme	ggplot theme function
facet_scales	Option passed to scales argument in facet_wrap or facet_grid. Default is "fixed".
na.rm	logical. Option to exclude NAs
legend_ncol	Number of columns in legend.

Value

A ggplot object.

Examples

```
suppressPackageStartupMessages(library(tsibble))
library(tsibbledata)
line_plot(pelt, "Year", c("Hare", "Lynx"), points = TRUE, limits_y = c(0, NA))
```

`model_plot`*model_plot*

Description`model_plot`**Usage**

```
model_plot(
  data,
  x,
  actual,
  fitted,
  facet_x = NULL,
  point_size = 2,
  res_bins = NA_real_,
  size = 11
)
```

Arguments

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>actual</code>	A character value. Evaluates to a logical or binary column.
<code>fitted</code>	A character value. Evaluates to a numeric column.
<code>facet_x</code>	A character value. Evaluates to a column.
<code>point_size</code>	Numeric. Default is 2.
<code>res_bins</code>	Number of bins in the residual distribution. Default value (NA) doesn't show the distribution.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.

Value

A ggplot object.

Examples

```
y = rnorm(26)
df = data.frame(ID = 1:26, actual = y + rnorm(26), fitted = y, id = letters)
model_plot(df, "ID", "actual", "fitted")
model_plot(df, "id", "actual", "fitted")
model_plot(df, "ID", "actual", "fitted", res_bins = 10)
model_plot(df, "id", "actual", "fitted", res_bins = 10)
```

nameifnot	<i>nameifnot</i>
-----------	------------------

Description

Names unnamed elements of a character vector.

Usage

```
nameifnot(x, make.names = FALSE)
```

Arguments

x	A character vector.
make.names	Logical. Whether to force names of x to be valid variable names. Default is FALSE.

Value

A named vector.

na_plot	<i>na_plot</i>
---------	----------------

Description

Visual representation of the NAs in a data.frame

Usage

```
na_plot(data, palette = ez_col)
```

Arguments

data	A data.frame.
palette	Colour function.

Value

A ggplot object.

Examples

```
na_plot(airquality)
```

not_numeric	<i>not_numeric</i>
-------------	--------------------

Description

Returns names of non-numeric columns.

Usage

```
not_numeric(x)
```

Arguments

x A data.frame.

Value

A character vector.

no_null	<i>no_null</i>
---------	----------------

Description

Converts "NULL" character to NULL.

Usage

```
no_null(x)
```

Arguments

x A character vector.

Value

y

Examples

```
no_null(NULL)
no_null("NULL")
no_null("NOPE")
```

perf	<i>perf</i>
------	-------------

Description

Precision recall calculation

Usage

```
perf(fitted, actual, x_measure, y_measure)
```

Arguments

fitted	Vector with values between 0 and 1
actual	Vector with two levels
x_measure	metric for ROCR::performance
y_measure	metric for ROCR::performance

Examples

```
ezplot::perf(runif(1), sample(c(TRUE, FALSE), 1, replace = TRUE), "rpp", "lift")
ezplot::perf(runif(10), sample(c(TRUE, FALSE), 10, replace = TRUE), "rpp", "lift")
ezplot::perf(runif(5), sample(c(TRUE, FALSE), 5, replace = TRUE), "rec", "prec")
ezplot::perf(runif(5), sample(c(TRUE, FALSE), 5, replace = TRUE), "fpr", "tpr")
ezplot::perf(runif(5), sample(c(TRUE, FALSE), 5, replace = TRUE), "cutoff", "tpr")
```

performance_plot	<i>performance_plot</i>
------------------	-------------------------

Description

plots binary classification performance metrics

Usage

```
performance_plot(
  data,
  fitted,
  actual,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  x = "fpr",
  y = "tpr",
  auc = c("title", "group"),
  size_line = 1,
  size = 11,
  env = parent.frame()
)
```

Arguments

data	A data.frame.
fitted	A character value. Evaluates to a numeric column.
actual	A character value. Evaluates to a logical or binary column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
x	ROCR::performance() measure
y	ROCR::performance() measure
auc	character vector indicating which AUC values should be displayed. Options are 'title' and 'group'
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

Examples

```
performance_plot(mtcars, "-disp", "am")
performance_plot(mtcars, "-disp", "am", "cyl")
performance_plot(mtcars, "-disp", "am", "cyl", x = "rec", y = "prec")
performance_plot(mtcars, "-disp", "am", x = "rpp", y = "gain")
performance_plot(mtcars, "-disp", "am", x = "rpp", y = "lift")
performance_plot(mtcars, "-disp", "am", x = "cutoff", y = "tpr")
```

perf_df

*perf_df***Description**

shows classification performance statistics as a table

Usage

```
perf_df(fitted, actual, quantiles = NULL)
```

Arguments

fitted	A character value. Evaluates to a numeric column.
actual	A character value. Evaluates to a logical or binary column.
quantiles	Number of quantiles to show. If NULL, uses distinct values of fitted for the cutoffs rather than showing quantiles.

Value

A data.frame summarizing binary classification performance:

- quantile: fitted value quantile (only if !is.null(quantile))
- cutoff: fitted value cutoff
- fp: false positives
- tp: true positives
- tn: true negatives
- fn: false negatives
- pp: positive predictions
- np: negative predictions
- ipp: group positive predictions
- ifp: group false positives
- itp: group true positives
- rpp: rate of positive predictions
- acc: accuracy
- fpr: false positive rate
- tpr: true positive rate
- fnr: false negative rate
- tnr: true negative rate
- prec: precision
- clift: lift

- ilift: group lift
- f1: f1 measure
- ks: Kolmogorov-Smirnov statistic
- auc: area under ROC curve
- aucpr: area under PR curve

Examples

```
perf_df(mtcars$mpg, mtcars$am)
perf_df(mtcars$mpg, mtcars$am, quantiles = 4)
perf_df(mtcars$mpg, mtcars$am, quantiles = 8)
perf_df(mtcars$mpg, mtcars$am, quantiles = 10)
perf_df(mtcars$wt, mtcars$am==0)
```

pie_plot

pie_plot

Description

Creates pie charts.

Usage

```
pie_plot(
  data,
  x,
  y = "1",
  facet_x = NULL,
  facet_y = NULL,
  labels_y = function(x) ez_labels(x * 100, append = "%", round = round, signif =
    signif),
  size = 11,
  label_cutoff = 0.04,
  round = Inf,
  signif = 3,
  palette = ez_col,
  reorder = c("x", "facet_x", "facet_y"),
  label_x = 0.8,
  legend_ncol = NULL
)
```

Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.

facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
labels_y	label formatting function
size	theme size for use_theme(). Default is 14.
label_cutoff	Cutoff size (proportion of y data range) for excluding labels
round	Option for rounding label.
signif	Option for retaining significant figures in label.
palette	Colour function.
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y").
label_x	Position of label from centre of pie. 0 is the centre of the pie and 1 is the outer edge.
legend_ncol	Number of columns in legend.

Value

ggplot object

Examples

```
suppressPackageStartupMessages(library(tsibble))
library(tsibbledata)
pie_plot(ansett, "Class", "Passengers")
pie_plot(ansett, "Class", "Passengers", reorder = NULL, label_x = 0.5)
pie_plot(ansett, "Class", "Passengers", "Airports", reorder = NULL, label_x = 0.5)
```

prec_rec	<i>prec_rec</i>
----------	-----------------

Description

Precision recall calculation

Usage

```
prec_rec(fitted, actual)
```

Arguments

fitted	Vector with values between 0 and 1
actual	Vector with two levels

Examples

```
ezplot::prec_rec(runif(1), sample(c(TRUE, FALSE), 1, replace = TRUE))
ezplot::prec_rec(runif(5), sample(c(TRUE, FALSE), 5, replace = TRUE))
```

pr_plot

*pr_plot***Description**

precision-recall plot

Usage

```
pr_plot(
  data,
  fitted,
  actual,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  size_line = 1,
  size = 11,
  labs = "short",
  env = parent.frame()
)
```

Arguments

data	A data.frame.
fitted	Vector of fitted values
actual	Vector of actual values
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
labs	'short' or 'long'
env	environment for evaluating expressions.

Examples

```
library(ggplot2)
n = 1000
df = data.frame(actual = sample(c(FALSE, TRUE), n, replace = TRUE),
  runif = runif(n))
df[["fitted"]] = runif(n) ^ ifelse(df[["actual"]] == 1, 0.5, 2)
```

```
density_plot(df, "fitted", "actual")

pr_plot(df, "fitted", "actual")
pr_plot(df, "runif", "actual", size_line = 0.5)

library(dplyr, warn.conflicts = FALSE)
pr_plot(df, "fitted", "actual", "sample(c(1, 2), n(), TRUE)")

pr_plot(df, "fitted", "actual",
        "sample(c(1, 2), n(), TRUE)",
        "sample(c(3, 4), n(), TRUE)")

pr_plot(df, "fitted", "actual",
        "sample(c(1, 2), n(), TRUE)",
        "sample(c(3, 4), n(), TRUE)",
        "sample(c(5, 6), n(), TRUE)")
```

quick_facet	<i>Quick facet</i>
-------------	--------------------

Description

Applies faceting to ggplot objects when g[["data"]] has a facet_x or facet_y column.

Usage

```
quick_facet(g, ncol = NULL, ...)
```

Arguments

- g A ggplot object.
- ncol Number of facet columns.
- ... Arguments to pass to facet_grid or facet_wrap.

reorder_levels	<i>Order levels of factor columns using fct_reorder</i>
----------------	---

Description

Order levels of factor columns using fct_reorder

Usage

```
reorder_levels(
  data,
  cols = c("group", "facet_x", "facet_y"),
  y = "y",
  .desc = rep(TRUE, length(cols))
)
```

Arguments

<code>data</code>	A data.frame.
<code>cols</code>	Names of columns to reorder.
<code>y</code>	Numeric column for order priority.
<code>.desc</code>	A logical vector of length 1 or <code>ncol(data)</code> . Default is TRUE for all columns in <code>cols</code> .

Value

A data.frame.

Examples

```
str(ezplot::reorder_levels(mtcars, "cyl", "1"))
str(ezplot::reorder_levels(mtcars, "cyl", "1", FALSE))
str(ezplot::reorder_levels(mtcars, "cyl", "mpg"))
```

 roc

 roc

Description

Calculates ROC and AUC

Usage

```
roc(fitted, actual)
```

Arguments

<code>fitted</code>	Vector with values between 0 and 1
<code>actual</code>	Vector with two levels

Examples

```
ezplot::roc(runif(1), sample(c(TRUE, FALSE), 1, replace = TRUE))
ezplot::roc(runif(3), sample(c(TRUE, FALSE), 3, replace = TRUE))
```

roc_plot

*roc_plot***Description**

roc_plot

Usage

```
roc_plot(
  data,
  fitted,
  actual,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  size_line = 1,
  size = 11,
  env = parent.frame()
)
```

Arguments

data	A data.frame.
fitted	Vector of fitted values
actual	Vector of actual values
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

Examples

```
library(ggplot2)
n = 1000
df = data.frame(actual = sample(c(FALSE, TRUE), n, replace = TRUE),
                 runif = runif(n))
df[["fitted"]] = runif(n) ^ ifelse(df[["actual"]] == 1, 0.5, 2)

ggplot(df) +
  geom_density(aes(fitted, fill = actual), alpha = 0.5)
```

```

roc_plot(df, "actual", "actual")
roc_plot(df, "fitted", "actual")
roc_plot(df, "runif", "actual", size_line = 0.5)

library(dplyr, warn.conflicts = FALSE)
roc_plot(df, "fitted", "actual", "sample(c(1, 2), n(), TRUE)")

roc_plot(df, "fitted", "actual",
         "sample(c(1, 2), n(), TRUE)",
         "sample(c(3, 4), n(), TRUE)")

roc_plot(df, "fitted", "actual",
         "sample(c(1, 2), n(), TRUE)",
         "sample(c(3, 4), n(), TRUE)",
         "sample(c(5, 6), n(), TRUE)")

```

save_png

save_png

Description

Saves ggplot or ezplot objects to png.

Usage

```
save_png(g, file, width, height, res, ..., vp = NULL)
```

Arguments

<code>g</code>	A ggplot or ezplot object.
<code>file</code>	A png file path.
<code>width</code>	Width of output image.
<code>height</code>	Height of output image.
<code>res</code>	Resolution of output image.
<code>...</code>	Further arguments to pass to <code>png()</code> .
<code>vp</code>	A viewport object created with <code>grid::viewport</code> .

`scatter_plot`*scatter plot*

Description

create a scatter plot

Usage

```
scatter_plot(  
  data,  
  x,  
  y,  
  group = NULL,  
  palette = ez_col,  
  size = 11,  
  point_size = 2.5,  
  smooth = FALSE,  
  env = parent.frame()  
)
```

Arguments

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>y</code>	A named character value. Evaluates to a column.
<code>group</code>	A character value. Evaluates to a column.
<code>palette</code>	Colour function.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>point_size</code>	Numeric. Default is 2.
<code>smooth</code>	logical. If TRUE, adds <code>geom_smooth()</code> .
<code>env</code>	environment for evaluating expressions.

Examples

```
scatter_plot(mtcars, "wt", "hp")  
scatter_plot(mtcars, "wt", "hp", "factor(cyl)")  
scatter_plot(mtcars, "factor(cyl)", "hp")
```

secondary_plot	<i>secondary_plot creates a plot with a secondary y-axis</i>
----------------	--

Description

secondary_plot creates a plot with a secondary y-axis

Usage

```
secondary_plot(
  data,
  x,
  y1 = "1",
  y2 = "1",
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  size_line = 1,
  labels_y1 = ez_labels,
  labels_y2 = ez_labels,
  ylim1 = NULL,
  ylim2 = NULL,
  reorder = c("facet_x", "facet_y"),
  size = 11
)
```

Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y1	Variable to plot on the left-hand axis
y2	Variable to plot on the right-hand axis
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
size_line	line size
labels_y1	label formatting function
labels_y2	label formatting function
ylim1	(optional) left axis limits
ylim2	(optional) right axis limits
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y").
size	theme size for use_theme(). Default is 14.

Value

A ggplot object.

Examples

```
suppressPackageStartupMessages(library(tsibble))
library(tsibbledata)
secondary_plot(pelt, "Year", "Hare", "Lynx")
secondary_plot(pelt, "Year", c("Hare Population" = "Hare"), c("Lynx Population" = "Lynx"))
secondary_plot(aus_production, "Quarter",
               c("Quarterly Beer Production (megalitres)" = "Beer"),
               c("Quarterly Cement Production (tonnes)" = "Cement"),
               "lubridate::quarter(Quarter)",
               ylim1 = c(0, 600), ylim2 = c(0, 3000),
               size = 10)
```

side_plot	<i>side_plot</i>
-----------	------------------

Description

side_plot

Usage

```
side_plot(
  data,
  x,
  y = "1",
  labels_y = ez_labels,
  size = 11,
  palette = ez_col,
  signif = 3,
  reorder = TRUE,
  rescale_y = 1.25
)
```

Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
labels_y	label formatting function
size	theme size for use_theme(). Default is 14.
palette	Colour function.
signif	Number of significant digits.

reorder	A character vector specifying the group variables to reorder. Default is <code>c("group", "facet_x", "facet_y")</code> .
rescale_y	Rescaling factor for y-axis limits

Examples

```
side_plot(mtcars, "gear", "1", rescale_y = 4/3)
side_plot(mtcars, "cyl", c("Cars with <120 HP" = "hp < 120"))
side_plot(mtcars, "cyl", c(count = "ifelse(cyl == 4, 1, -1)", "hp <= 120"))
side_plot(mtcars, "cyl", c("hp <= 120", "~ - wt / cyl"), rescale_y = 1.5)
side_plot(mtcars, "cyl", c("1", "-1"))
```

text_contrast	<i>text_contrast</i>
---------------	----------------------

Description

text_contrast

Usage

```
text_contrast(x)
```

Arguments

x Vector of colours.

Value

Vector indicating whether black or white should be used for text overlayed on x.

Examples

```
text_contrast("#000000")
text_contrast("black")
```

theme_ez	<i>Default theme</i>
----------	----------------------

Description

Default theme

Usage

```
theme_ez(base_size = 11, base_family = "")
```

Arguments

- base_size base font size
- base_family base fond family

Value

theme

Examples

```
library(ggplot2)
ggplot(mtcars) + geom_point(aes(cyl, mpg)) + theme_ez()
```

tile_plot	<i>tile_plot</i>
-----------	------------------

Description

Creates tile plots.

Usage

```
tile_plot(
  data,
  x,
  y,
  z = c(Count = "1"),
  facet_x = NULL,
  facet_y = NULL,
  size = 11,
  facet_ncol = NULL,
  labels_x = NULL,
  labels_y = NULL,
  labels_z = ez_labels,
```

```

  zlim = function(x) c(pmin(0, x[1]), pmax(0, x[2])),
  palette = ez_jet,
  reorder = c("facet_x", "facet_y")
)

```

Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
z	A named character. Evaluates to a column and is mapped to the fill colour of the tiles.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
size	theme size for use_theme(). Default is 14.
facet_ncol	Option passed to ncol argument in facet_wrap or facet_grid. Default is NULL.
labels_x	label formatting function
labels_y	label formatting function
labels_z	label formatting function
zlim	argument for scale_fill_gradientn(limits = zlim)
palette	Colour function.
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y").

Examples

```

## Not run:
library(tsibbledata)
library(dplyr)
nyc_bikes %>%
  mutate(duration = as.numeric(stop_time - start_time)) %>%
  filter(between(duration, 0, 16)) %>%
  tile_plot(c("Hour of Day" = "lubridate::hour(start_time) + 0.5"),
            c("Ride Duration (min)" = "duration - duration %% 2 + 1"))

## End(Not run)

```

unpack_cols	<i>Unpack cols argument to agg_data</i>
-------------	---

Description

Unpack cols argument to agg_data

Usage

unpack_cols(x)

Arguments

x cols

Value

list

Examples

```
ezplot::unpack_cols("x")
ezplot::unpack_cols(c(x = "x", y = "x + y", expr = "~ x + y"))
```

variable_plot	<i>variable_plot</i>
---------------	----------------------

Description

Plots variables (multiple "y" values) broken out as vertical facets.

Usage

```
variable_plot(
  data,
  x,
  y,
  group = NULL,
  facet_x = NULL,
  palette = ez_col,
  size = 14,
  labels_y = ez_labels,
  geom = "line",
  size_line = 1,
  legend_ncol = NULL,
  ylab = NULL,
```

```

    yoy = FALSE,
    switch = "y",
    rescale_y = 1
  )

```

Arguments

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>y</code>	A named character value. Evaluates to a column.
<code>group</code>	A character value. Evaluates to a column.
<code>facet_x</code>	A character value. Evaluates to a column.
<code>palette</code>	Colour function.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>labels_y</code>	label formatting function
<code>geom</code>	Either "line", "col" or "bar". Default is "line"
<code>size_line</code>	width of line for <code>geom_line()</code> . Default is 1.
<code>legend_ncol</code>	Number of columns in legend.
<code>ylab</code>	y label text
<code>yoy</code>	Logical used to indicate whether a YOY grouping should be created. Default is FALSE.
<code>switch</code>	Option to switch location of variable (facet) labels. Default is 'y' (yes) which shows facet strips on left side of panels.
<code>rescale_y</code>	Rescaling factor for y-axis limits

Examples

```

suppressPackageStartupMessages(library(tsibble))
library(tsibbledata)
variable_plot(ansett, "Week", "Passengers", facet_x = "Class", yoy = TRUE)
variable_plot(pelt, "Year", c("Lynx", "Hare"), "round(Year, -1)")

```

waterfall_plot

waterfall_plot

Description

function for creating waterfall charts

Usage

```
waterfall_plot(
  data,
  x,
  y,
  group,
  size = 11,
  labels = ez_labels,
  label_rescale = 1,
  y_min = "auto",
  rescale_y = 1.1,
  n_signif = 3,
  rotate_xlabel = FALSE,
  bottom_label = TRUE,
  ingroup_label = FALSE,
  n_x = 2,
  env = parent.frame()
)
```

Arguments

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>y</code>	A named character value. Evaluates to a column.
<code>group</code>	A character value. Evaluates to a column.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>labels</code>	Function for formatting labels.
<code>label_rescale</code>	Scaling factor for chart labels (relative to axis labels).
<code>y_min</code>	Minimum limit of y axis.
<code>rescale_y</code>	Rescaling factor for y-axis limits
<code>n_signif</code>	Number of significant figures in labels.
<code>rotate_xlabel</code>	Logical.
<code>bottom_label</code>	Logical.
<code>ingroup_label</code>	Logical. Shows in-group percentage change.
<code>n_x</code>	Number of x levels to show in chart.
<code>env</code>	environment for evaluating expressions.

Examples

```
library(tsibbledata)
waterfall_plot(aus_retail,
  "lubridate::year(Month)",
  "Turnover",
  "sub(' Territory', '\nTerritory', State)",
```

```
        rotate_xlabel = TRUE)
waterfall_plot(aus_retail,
               "lubridate::year(Month)",
               "Turnover",
               "sub(' Territory', '\\nTerritory', State)",
               rotate_xlabel = TRUE,
               label_rescale = 0.5,
               ingroup_label = TRUE,
               bottom_label = FALSE,
               n_x = 3,
               size = 20,
               y_min = 0)
```

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