

Package ‘Rbearcat’

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Type Package

Title University of Cincinnati Themes and Utilities for Econometrics
and Data Science

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Description Provides plotting helpers, table-formatting utilities, and report templates for econometrics, model development, and applied data analysis. Includes University of Cincinnati branded themes for 'ggplot2', 'modelsummary', 'flextable', 'rmarkdown', 'bookdown', and 'quarto'.

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URL <https://github.com/saannidhya/Rbearcat>

BugReports <https://github.com/saannidhya/Rbearcat/issues>

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Imports knitr, kableExtra, magrittr, flextable, purrr, officer, colorspace, ggplot2, scales, bookdown, forcats, dplyr, lubridate, stringr, usethis, readr, rmarkdown, xaringan, git2r, gert, modelsummary, broom, patchwork, lmtest, data.table, tools, rlang

Suggests testthat (>= 2.1.0), tibble, gapminder, ggrepel, gt, reactable, RColorBrewer, fivethirtyeight, gcookbook, haven, here, tidyverse, viridis, fixest, plm, ivreg, forecast, xts, zoo, car, janitor, ssh, askpass, crayon, rstudioapi, ragg, systemfonts

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Contents

bcat_beamer	3
bcat_cor_table	3
bcat_extract_metadata	5
bcat_fmt_comma	6
bcat_fmt_date	6
bcat_fmt_dollar	7
bcat_fmt_percent	8
bcat_fmt_pvalue	9
bcat_fmt_scientific	10
bcat_fmt_style_table	10
bcat_gitbook	12
bcat_import_data	13
bcat_new_quarto	14
bcat_pdf_book	15
bcat_plt_area	15
bcat_plt_bar	18
bcat_plt_box	21
bcat_plt_coef	23
bcat_plt_diag	25
bcat_plt_hist	26
bcat_plt_line	28
bcat_plt_point	30
bcat_plt_ts	34
bcat_reg_table	36
bcat_setup_rmd	37
bcat_source_rmd	38
bcat_sum_table	39
bcat_xaringan	40
palette_OkabeIto	41
palette_UC	41
scale_OkabeIto	42
scale_UC	43
scale_x_dt	44
set_UC_geoms	45
theme_UC	45
UC_html_document	47
UC_pdf_document	48
UC_word_document	49
util_git_check_uncommitted	49
util_git_commit_id	50

Index

51

bcat_beamer	<i>UC Beamer presentation</i>
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Description

An R Markdown output format for Beamer presentations (PDF).

Usage

```
bcat_beamer(in_header = NULL, ...)
```

Arguments

<code>in_header</code>	relative path to a tex formatting document included in the preamble. If NULL (default), function will use the <code>preamble.tex</code> file included with the package.
<code>...</code>	other options passed to <code>rmarkdown::beamer_presentation</code>

Value

An `rmarkdown::output_format` object for rendering Beamer presentations.

Author(s)

Saannidhya Rawat

bcat_cor_table	<i>UC-branded correlation matrix</i>
----------------	--------------------------------------

Description

Produce a formatted correlation matrix with significance stars and UC styling. By default shows only the lower triangle.

Usage

```
bcat_cor_table(  
  df,  
  method = c("pearson", "spearman", "kendall"),  
  full_matrix = FALSE,  
  digits = 2,  
  stars = TRUE,  
  p_threshold = c(0.01, 0.05, 0.1),  
  caption = NULL,  
  font_size = 12,  
  header_bg_color = palette_UC[["UC Red"]],  
  header_txt_color = palette_UC[["White"]],  
)
```

```

    striped = TRUE,
    doc_type = NULL,
    ...
)

```

Arguments

df	A data frame of numeric columns.
method	Character. Correlation method: "pearson" (default), "spearman", or "kendall".
full_matrix	Logical. Show full matrix? Default is FALSE (lower triangle only).
digits	Integer. Decimal places. Default is 2.
stars	Logical. Show significance stars? Default is TRUE.
p_threshold	Numeric vector of p-value thresholds for stars. Default: c(0.01, 0.05, 0.1).
caption	Character. Table caption.
font_size	Numeric. Font size. Default is 12.
header_bg_color	Background color for header.
header_txt_color	Text color for header.
striped	Logical. Zebra striping?
doc_type	Character. Force output format. Auto-detected if NULL.
...	Additional arguments passed to table formatting.

Value

A formatted table object.

Author(s)

Saannidhya Rawat

See Also

Other tables: [bcat_fmt_style_table\(\)](#), [bcat_reg_table\(\)](#), [bcat_sum_table\(\)](#)

Examples

```

bcat_cor_table(mtcars[, c("mpg", "wt", "hp", "disp")])
bcat_cor_table(mtcars[, c("mpg", "wt", "hp")], method = "spearman")

```

bcat_extract_metadata *Extract metadata*

Description

This utility function is useful for extracting column values that will be used for inline text by saving metadata column values in a nested (named) list.

Usage

```
bcat_extract_metadata(df, id_col)
```

Arguments

df	input data
id_col	ID column used identify observations

Value

A named list. Each top-level element corresponds to a metadata column in df, and each nested element is named by id_col values and stores the matching column value.

Author(s)

Saannidhya Rawat

See Also

Other utilities: [bcat_import_data\(\)](#), [bcat_new_quarto\(\)](#), [bcat_setup_rmd\(\)](#), [bcat_source_rmd\(\)](#)

Examples

```
library(Rbearthcat)
library(tibble)

lob_df <- tibble(lob = c("drl", "mla", "rac"),
                 balance = bcat_fmt_dollar(c(11, 26, 7)),
                 nco = bcat_fmt_dollar(c(80, 45, 800)))

# extract metadata from each column and save to list
lob_meta <- bcat_extract_metadata(lob_df, lob)

# extract individual values from list
lob_meta$balance$mla
lob_meta$nco$rac
```

bcat_fmt_comma	<i>Label numbers in decimal format</i>
----------------	--

Description

A wrapper for `scales::label_comma` to format a numeric vector to force decimal display of numbers with comma separators.

Usage

```
bcat_fmt_comma(x, accuracy = NULL, scale = 1, ...)
```

Arguments

<code>x</code>	a numeric vector
<code>accuracy</code>	A number to round to. Use (e.g.) <code>0.01</code> to show 2 decimal places of precision. If <code>NULL</code> , the default, uses a heuristic that should ensure breaks have the minimum number of digits needed to show the difference between adjacent values.
<code>scale</code>	A scaling factor: <code>x</code> will be multiplied by <code>scale</code> before formatting.
<code>...</code>	other arguments passed to label_comma

Value

A character vector of formatted decimal labels with the same length as `x`.

See Also

Other formatting: [bcat_fmt_date\(\)](#), [bcat_fmt_dollar\(\)](#), [bcat_fmt_percent\(\)](#), [bcat_fmt_pvalue\(\)](#), [bcat_fmt_scientific\(\)](#)

Examples

```
bcat_fmt_comma(c(5000, 10000, 8000))
bcat_fmt_comma(c(5000, 10000, 8000), scale = 10e-4, accuracy = 1, suffix = "K")
```

bcat_fmt_date	<i>Label dates/times</i>
---------------	--------------------------

Description

A wrapper for `base::format` to convert character or date vector to specified date/time format.

Usage

```
bcat_fmt_date(x, format = "%B %e, %Y", ...)
```

Arguments

x a character or date/datetime vector
 format a date/time format string using standard POSIX specification
 ... other arguments passed to [format](#)

Value

A character vector of formatted date or datetime labels with the same length as x.

See Also

Other formatting: [bcat_fmt_comma\(\)](#), [bcat_fmt_dollar\(\)](#), [bcat_fmt_percent\(\)](#), [bcat_fmt_pvalue\(\)](#), [bcat_fmt_scientific\(\)](#)

Examples

```
bcat_fmt_date(Sys.Date())
bcat_fmt_date(c("2019-12-03", "2020-05-22"))
```

bcat_fmt_dollar	<i>Label currencies</i>
-----------------	-------------------------

Description

A wrapper for `scales::label_dollar` to format a numeric vector to dollars and cents.

Usage

```
bcat_fmt_dollar(
  x,
  accuracy = NULL,
  scale = 1,
  largest_with_cents = 1e+05,
  style_negative = c("hyphen", "parens"),
  ...
)
```

Arguments

x a numeric vector
 accuracy Number to round to. If NULL, the default, values will be rounded to the nearest integer
 scale A scaling factor: x will be multiplied by scale before formatting.
 largest_with_cents largest numeric value for which cents will be displayed
 style_negative Character. How to display negative values: "hyphen" (default) or "parens".
 ... other arguments passed on to [label_dollar](#)

Value

A character vector of formatted currency labels with the same length as `x`.

See Also

Other formatting: [bcat_fmt_comma\(\)](#), [bcat_fmt_date\(\)](#), [bcat_fmt_percent\(\)](#), [bcat_fmt_pvalue\(\)](#), [bcat_fmt_scientific\(\)](#)

Examples

```
bcat_fmt_dollar(1:4)
bcat_fmt_dollar(c(-20, -10, 10, 20))
bcat_fmt_dollar(c(-20, -10, 10, 20), style_negative = "parens")
```

bcat_fmt_percent	<i>Label percentages</i>
------------------	--------------------------

Description

A wrapper for `scales::label_percent` to format a numeric vector to percentages.

Usage

```
bcat_fmt_percent(x, accuracy = NULL, scale = 100, ...)
```

Arguments

<code>x</code>	a numeric vector
<code>accuracy</code>	A number to round to. Use (e.g.) <code>0.01</code> to show 2 decimal places of precision. If <code>NULL</code> , the default, uses a heuristic that should ensure breaks have the minimum number of digits needed to show the difference between adjacent values.
<code>scale</code>	A scaling factor: <code>x</code> will be multiplied by <code>scale</code> before formatting.
<code>...</code>	other arguments passed to label_percent

Value

A character vector of formatted percentage labels with the same length as `x`.

See Also

Other formatting: [bcat_fmt_comma\(\)](#), [bcat_fmt_date\(\)](#), [bcat_fmt_dollar\(\)](#), [bcat_fmt_pvalue\(\)](#), [bcat_fmt_scientific\(\)](#)

Examples

```
bcat_fmt_percent(c(0.01, 0.05, 0.02))
bcat_fmt_percent(c(0.0151321, 0.090115, 0.022141))
bcat_fmt_percent(c(0.0151321, 0.090115, 0.022141), accuracy = 0.001)
bcat_fmt_percent(c(1.31, 2.44, 3.0), scale = 1)
```

bcat_fmt_pvalue	<i>Label p-values</i>
-----------------	-----------------------

Description

A wrapper for `scales::label_pvalue` to format a numeric vector to p-values, using "<" and ">" for p-values close to 0 and 1.

Usage

```
bcat_fmt_pvalue(x, accuracy = 0.001, add_p = FALSE, ...)
```

Arguments

x	a numeric vector
accuracy	A number to round to. Use (e.g.) 0.01 to show 2 decimal places of precision. If NULL, the default, uses a heuristic that should ensure breaks have the minimum number of digits needed to show the difference between adjacent values.
add_p	logical. Add "p=" before the value?
...	other arguments passed to label_pvalue

Value

A character vector of formatted p-value labels with the same length as x.

See Also

Other formatting: [bcat_fmt_comma\(\)](#), [bcat_fmt_date\(\)](#), [bcat_fmt_dollar\(\)](#), [bcat_fmt_percent\(\)](#), [bcat_fmt_scientific\(\)](#)

Examples

```
bcat_fmt_pvalue(c(0.01, 0.05, 0.02))  
bcat_fmt_pvalue(c(0.000001, 0.999115, 0.022141))  
bcat_fmt_pvalue(c(0.000001, 0.999115, 0.022141), add_p = TRUE)
```

bcat_fmt_scientific *Label numbers with scientific notation*

Description

A wrapper for `scales::label_scientific` to format a numeric vector to scientific notation.

Usage

```
bcat_fmt_scientific(x, digits = 3, scale = 1, ...)
```

Arguments

<code>x</code>	a numeric vector
<code>digits</code>	number of digits to show before exponent.
<code>scale</code>	A scaling factor: <code>x</code> will be multiplied by <code>scale</code> before formatting.
<code>...</code>	other arguments passed to label_scientific

Value

A character vector of scientific-notation labels with the same length as `x`.

See Also

Other formatting: [bcat_fmt_comma\(\)](#), [bcat_fmt_date\(\)](#), [bcat_fmt_dollar\(\)](#), [bcat_fmt_percent\(\)](#), [bcat_fmt_pvalue\(\)](#)

Examples

```
bcat_fmt_scientific(c(1:10)*10e5)
```

bcat_fmt_style_table *UC table formatting*

Description

Format tables for output to final documentation. Automatically detects output format (HTML, PDF, Word, PPTX) and applies UC styling.

Usage

```

bcat_fmt_style_table(
  df,
  caption = NULL,
  footer = NULL,
  header = NULL,
  header_bg_color = palette_UC[["UC Red"]],
  header_txt_color = palette_UC[["White"]],
  align,
  font_size = 12,
  striped = TRUE,
  full_width = FALSE,
  scale_down = FALSE,
  longtable = FALSE,
  col_names = NA,
  threeparttable = FALSE,
  doc_type = c(knitr::opts_knit$get("rmarkdown.pandoc.to"), "html", "pdf", "docx",
    "pptx"),
  ...
)

```

Arguments

<code>df</code>	Data frame to format.
<code>caption</code>	Character. Table caption.
<code>footer</code>	Character. Table footnote.
<code>header</code>	Character. Spanning header text above all columns.
<code>header_bg_color</code>	Background fill color for header. Default is UC Red.
<code>header_txt_color</code>	Text color for header. Default is white.
<code>align</code>	Character vector of column alignments: 'l' (left), 'c' (center), 'r' (right).
<code>font_size</code>	Numeric. Font size for table. Default is 12.
<code>striped</code>	Logical. Enable zebra striping? Default is TRUE.
<code>full_width</code>	Logical. Should HTML table be full width? Default is FALSE.
<code>scale_down</code>	Logical. Scale LaTeX table to fit page? Default is FALSE.
<code>longtable</code>	Logical. Use longtable for multi-page PDF tables? Default is FALSE.
<code>col_names</code>	Character vector of column names. Set to NULL to remove header row.
<code>threeparttable</code>	Logical. Use LaTeX threeparttable for footnotes? Default is FALSE.
<code>doc_type</code>	Manually set document type. Auto-detected if not specified.
<code>...</code>	Additional arguments passed to <code>knitr::kable</code> .

Value

A formatted table object (`kableExtra` for HTML/PDF, `flextable` for Word/PPTX).

Author(s)

Saannidhya Rawat

See Also

Other tables: [bcat_cor_table\(\)](#), [bcat_reg_table\(\)](#), [bcat_sum_table\(\)](#)

Examples

```
bcat_fmt_style_table(iris[1:10, ])
bcat_fmt_style_table(iris[1:5, ], caption = "Iris Sample", striped = TRUE)
```

bcat_gitbook

Rbearcat Gitbook

Description

An R Markdown output format for the Gitbook format (HTML).

Usage

```
bcat_gitbook(css = NULL, after_body = NULL, collapse = "subsection", ...)
```

Arguments

css	relative path to a css formatting document. If NULL (default), function will use the style.css file included with the package.
after_body	relative path to HTML file to include after body of each chapter. If NULL (default), function will use the footer.html file included with the package.
collapse	specify level at which to collapse the table of contents.
...	other options passed to <code>bookdown::gitbook</code>

Value

An `rmarkdown::output_format` object for rendering Gitbook output.

Author(s)

Saannidhya Rawat

bcat_import_data	<i>Import data</i>
------------------	--------------------

Description

Utility to import multiple data sets from a directory into a named list.

Usage

```
bcat_import_data(location, extension, import_function, recursive = TRUE)
```

Arguments

location	Character. Directory from which to import data.
extension	Character. File extension to match (without ".").
import_function	Function used to read each file (e.g., <code>readr::read_csv</code>).
recursive	Logical. Search subdirectories? Default is TRUE.

Value

A named list of imported objects. Names are derived from filenames without their extensions, and each element contains the result returned by `import_function()` for one matching file.

Author(s)

Saannidhya Rawat

See Also

Other utilities: [bcat_extract_metadata\(\)](#), [bcat_new_quarto\(\)](#), [bcat_setup_rmd\(\)](#), [bcat_source_rmd\(\)](#)

Examples

```
tmp_dir <- tempfile("rbearcat-data-")
dir.create(tmp_dir)
csv_path <- file.path(tmp_dir, "example.csv")
utils::write.csv(data.frame(x = 1:3, y = letters[1:3]), csv_path, row.names = FALSE)

datasets <- bcat_import_data(tmp_dir, "csv", utils::read.csv)
names(datasets)
datasets$example

unlink(tmp_dir, recursive = TRUE)
```

bcat_new_quarto	<i>Create a UC-branded Quarto document</i>
-----------------	--

Description

Copies a UC Quarto template into the specified directory, ready to edit and render.

Usage

```
bcat_new_quarto(  
  type = c("html", "pdf", "revealjs"),  
  path = getwd(),  
  overwrite = FALSE  
)
```

Arguments

type	Character. Template type: "html", "pdf", or "revealjs".
path	Character. Directory to copy the template into. Default is current working directory.
overwrite	Logical. Overwrite existing files? Default is FALSE.

Value

An invisible character scalar giving the path to the created `template.qmd` file.

Author(s)

Saannidhya Rawat

See Also

Other utilities: [bcat_extract_metadata\(\)](#), [bcat_import_data\(\)](#), [bcat_setup_rmd\(\)](#), [bcat_source_rmd\(\)](#)

Examples

```
out_dir <- file.path(tempdir(), "uc-quarto")  
created <- bcat_new_quarto("html", path = out_dir)  
basename(created)  
unlink(out_dir, recursive = TRUE)
```

bcat_pdf_book	<i>Rbearcat PDF Book</i>
---------------	--------------------------

Description

An R Markdown output format for the PDF books.

Usage

```
bcat_pdf_book(in_header = NULL, before_body = NULL, toc_depth = 4, ...)
```

Arguments

<code>in_header</code>	relative path to a tex formatting document included in the preamble. If NULL (default), function will use the <code>preamble.tex</code> file included with the package.
<code>before_body</code>	relative path to a tex document included in before the body of the document. If NULL (default), function will use the <code>before_body.tex</code> file included with the package.
<code>toc_depth</code>	depth of headers to include in table of contents
<code>...</code>	other options passed to <code>bookdown::pdf_book</code>

Value

An `rmarkdown::output_format` object for rendering PDF books.

Author(s)

Saannidhya Rawat

bcat_plt_area	<i>Area plot utility</i>
---------------	--------------------------

Description

Create an area plot using `ggplot2` graphics. This function is a wrapper to create commonly used styles of area plots. Additional layers can be added to this plot as needed. More complicated plots can be creating using individual `ggplot2` layers.

Usage

```

bcat_plt_area(
  df,
  x = NULL,
  y = NULL,
  fill = NULL,
  facet = NULL,
  position = c("stack", "fill"),
  x_lab = ggplot2::waiver(),
  y_lab = ggplot2::waiver(),
  title = ggplot2::waiver(),
  subtitle = ggplot2::waiver(),
  caption = ggplot2::waiver(),
  legend_lab = ggplot2::waiver(),
  legend_position = "right",
  legend_hide = FALSE,
  x_scale = NULL,
  y_scale = NULL,
  fill_scale = Rbearth::scale_fill_UC(),
  facet_scale = c("fixed", "free_y", "free_x", "free"),
  nrow = NULL,
  ncol = NULL,
  x_refline = NULL,
  y_refline = NULL
)

```

Arguments

df	The data to be displayed
x	variable to map to the x-axis
y	Variable to map to the y-axis
fill	Variable to map to the fill aesthetic
facet	Facetting variable(s). Note: must wrap in vars, e.g, facet = vars(var1, var2)
position	Either stack values in cumulative fashion (position = "stack") or stack such that proportions at each value of x sum to 1 (position = "fill").
x_lab	Label for x-axis
y_lab	Label for y-axis
title	Plot title
subtitle	Plot subtitle
caption	Plot caption
legend_lab	Legend title
legend_position	legend position. "bottom" or "right"
legend_hide	Set to TRUE to hide the legend

x_scale	scale_x_ function to apply to x-axis. If position = "fill", it is recommended to use the expand = c(0, 0) option in the x_scale.
y_scale	scale_y_ function to apply to y-axis. If position = "fill", it is recommended to use the expand = c(0, 0) option in the y_scale.
fill_scale	scale_fill_ function to apply to colors.
facet_scale	Should facet scales be fixed ("fixed", the default), free ("free"), or free in one dimension ("free_x", "free_y")
nrow	Number of facet rows
ncol	Number of facet columns
x_refline	Vector of x-values at which to draw vertical reference lines
y_refline	Vector of y-values at which to draw horizontal reference lines

Value

A ggplot2 plot object.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_bar\(\)](#), [bcat_plt_box\(\)](#), [bcat_plt_coef\(\)](#), [bcat_plt_diag\(\)](#), [bcat_plt_hist\(\)](#), [bcat_plt_line\(\)](#), [bcat_plt_point\(\)](#), [bcat_plt_ts\(\)](#)

Examples

```
set.seed(1234)

d <- data.frame(t=rep(0:23,each=4),var=rep(LETTERS[1:4],4),val=round(runif(4*24,0,50)))

# stacked area plot
bcat_plt_area(df = d, x = t, y = val, fill = var,
             position = "stack",
             fill_scale = ggplot2::scale_fill_viridis_d(),
             legend_lab = NULL)

# filled area plot
bcat_plt_area(df = d, x = t, y = val, fill = var,
             position = "fill",
             fill_scale = ggplot2::scale_fill_viridis_d(),
             legend_lab = NULL)
```

bcat_plt_bar

*Bar plot utility***Description**

Create a bar plot using ggplot2 graphics. This function is a wrapper to create commonly used styles of bar plots. Additional layers can be added to this plot as needed. More complicated plots can be creating using individual ggplot2 layers.

Usage

```
bcat_plt_bar(
  df,
  x = NULL,
  y = NULL,
  fill = NULL,
  facet = NULL,
  stat = c("freq", "identity", "sum", "mean", "median"),
  position = c("stack", "dodge", "fill"),
  x_lab = ggplot2::waiver(),
  y_lab = ggplot2::waiver(),
  title = ggplot2::waiver(),
  subtitle = ggplot2::waiver(),
  caption = ggplot2::waiver(),
  legend_lab = ggplot2::waiver(),
  legend_position = "bottom",
  legend_hide = FALSE,
  x_scale = NULL,
  y_scale = NULL,
  fill_scale = Rbearth::scale_fill_UC(),
  facet_scale = c("fixed", "free_y", "free_x", "free"),
  nrow = NULL,
  ncol = NULL,
  x_refline = NULL,
  y_refline = NULL,
  coord_flip = FALSE,
  order = FALSE
)
```

Arguments

df	The data to be displayed
x	Categorical variable to map to the x-axis
y	Variable to map to the y-axis. Only applicable if stat = "identity"
fill	Variable to map to the fill aesthetic

facet	Facetting variable(s). Note: must wrap in vars(), e.g, facet = vars(var1, var2)
stat	Statistic to map to y-axis. Default ("freq") calculates frequencies, "identity" plots the data as-is. "sum", "mean", and "median" calculate and display the respective summary stats Must specify y if using "identity".
position	For grouped data, either stack bars (position = "stack"), place bars side-by-side (position = "dodge"), or stack such that relative proportions within each group sum to 1 (position = "fill").
x_lab	Label for x-axis
y_lab	Label for y-axis
title	Plot title
subtitle	Plot subtitle
caption	Plot caption
legend_lab	Legend title
legend_position	legend position. "bottom" or "right"
legend_hide	Set to TRUE to hide the legend
x_scale	scale_x_ function to apply to x-axis.
y_scale	scale_y_ function to apply to y-axis.
fill_scale	scale_fill_ function to apply to colors.
facet_scale	Shoud facet scales be fixed ("fixed", the default), free ("free"), or free in one dimension ("free_x", "free_y")?
nrow	Number of facet rows
ncol	Number of facet columns
x_refline	Vector of x-values at which to draw vertical reference lines
y_refline	Vector of y-values at which to draw horizontal reference lines
coord_flip	Set to TRUE to flip x and y-axis. Useful if levels of x have long names.
order	Set to TRUE to arrange bars by frequency (if stat = "freq"), values of y (if stat = "identity"), or by other provided stat. Use if levels of x do not have a natural ordering.

Value

A ggplot2 plot object.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_area\(\)](#), [bcat_plt_box\(\)](#), [bcat_plt_coef\(\)](#), [bcat_plt_diag\(\)](#), [bcat_plt_hist\(\)](#), [bcat_plt_line\(\)](#), [bcat_plt_point\(\)](#), [bcat_plt_ts\(\)](#)

Examples

```

library(ggplot2)
library(dplyr)
library(scales)

# basic plot of frequencies
bcat_plt_bar(df = mpg,
            x = toupper(class),
            order = TRUE,
            x_lab = NULL,
            y_lab = NULL,
            title = "Number of Vehicles by Class and Drive Type",
            legend_lab = "Drive Type")

# can plot relative frequencies for each `x` by `fill` using `position = "fill"`
bcat_plt_bar(df = mpg,
            x = toupper(class),
            fill = drv,
            position = "fill",
            x_lab = NULL,
            y_lab = NULL,
            y_scale = scale_y_continuous(labels = percent_format()),
            title = "Percent of Vehicle Class for Each Drive Type",
            legend_lab = "Drive Type")

# use `stat` to compute and plot other statistics of interest
bcat_plt_bar(mpg,
            x = toupper(class),
            y = hwy,
            fill = factor(year),
            stat = "mean",
            order = TRUE,
            position = "dodge",
            y_refline = round(mean(mpg$hwy), 2),
            coord_flip = TRUE,
            x_lab = NULL,
            y_lab = "Highway MPG",
            title = "Average Highway MPG by Vehicle Class",
            legend_lab = NULL)

# use `stat = "identity"` to plot data directly from data set
mpg %>%
  group_by(year, class) %>%
  summarise(hwy = mean(hwy)) %>%
  bcat_plt_bar(x = toupper(class),
              y = hwy,
              fill = factor(year),
              stat = "identity",
              order = TRUE,
              position = "dodge",
              y_refline = round(mean(mpg$hwy), 2),
              coord_flip = TRUE,

```

```
x_lab = NULL,  
y_lab = "Highway MPG",  
title = "Average Highway MPG by Vehicle Class",  
legend_lab = NULL)
```

bcat_plt_box

Box plot / violin plot utility

Description

Create a box plot or violin plot with UC styling. Includes optional jittered point overlay and outlier highlighting.

Usage

```
bcat_plt_box(  
  df,  
  x,  
  y,  
  fill = NULL,  
  facet = NULL,  
  violin = FALSE,  
  jitter = TRUE,  
  jitter_width = 0.2,  
  notch = FALSE,  
  order = FALSE,  
  coord_flip = FALSE,  
  alpha = 0.3,  
  x_lab = ggplot2::waiver(),  
  y_lab = ggplot2::waiver(),  
  title = ggplot2::waiver(),  
  subtitle = ggplot2::waiver(),  
  caption = ggplot2::waiver(),  
  legend_lab = ggplot2::waiver(),  
  legend_position = "bottom",  
  legend_hide = FALSE,  
  x_scale = NULL,  
  y_scale = NULL,  
  fill_scale = scale_fill_UC(),  
  facet_scale = c("fixed", "free_y", "free_x", "free"),  
  nrow = NULL,  
  ncol = NULL,  
  x_refline = NULL,  
  y_refline = NULL  
)
```

Arguments

<code>df</code>	The data to be displayed.
<code>x</code>	Categorical variable for the x-axis.
<code>y</code>	Numeric variable for the y-axis.
<code>fill</code>	Variable to map to fill aesthetic. If NULL, uses x for coloring.
<code>facet</code>	Facetting variable(s). Wrap in <code>vars()</code> .
<code>violin</code>	Logical. Use violin plot instead of box plot? Default is FALSE.
<code>jitter</code>	Logical. Overlay jittered points? Default is TRUE.
<code>jitter_width</code>	Jitter width. Default is 0.2.
<code>notch</code>	Logical. Add notches? Default is FALSE.
<code>order</code>	Logical. Reorder x by median of y? Default is FALSE.
<code>coord_flip</code>	Logical. Flip coordinates? Default is FALSE.
<code>alpha</code>	Point transparency. Default is 0.3.
<code>x_lab</code>	Label for x-axis.
<code>y_lab</code>	Label for y-axis.
<code>title</code>	Plot title.
<code>subtitle</code>	Plot subtitle.
<code>caption</code>	Plot caption.
<code>legend_lab</code>	Legend title.
<code>legend_position</code>	Legend position.
<code>legend_hide</code>	Logical. Hide legend?
<code>x_scale</code>	<code>scale_x_</code> function.
<code>y_scale</code>	<code>scale_y_</code> function.
<code>fill_scale</code>	<code>scale_fill_</code> function.
<code>facet_scale</code>	Facet scales.
<code>nrow</code>	Number of facet rows.
<code>ncol</code>	Number of facet columns.
<code>x_refline</code>	Vertical reference lines.
<code>y_refline</code>	Horizontal reference lines.

Value

A ggplot object.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_area\(\)](#), [bcat_plt_bar\(\)](#), [bcat_plt_coef\(\)](#), [bcat_plt_diag\(\)](#), [bcat_plt_hist\(\)](#), [bcat_plt_line\(\)](#), [bcat_plt_point\(\)](#), [bcat_plt_ts\(\)](#)

Examples

```
library(ggplot2)

# Basic box plot
bcat_plt_box(mtcars, x = factor(cyl), y = mpg)

# Violin plot
bcat_plt_box(mtcars, x = factor(cyl), y = mpg, violin = TRUE)

# Ordered and flipped
bcat_plt_box(mtcars, x = factor(cyl), y = mpg, order = TRUE, coord_flip = TRUE)
```

bcat_plt_coef	<i>Coefficient plot (forest plot)</i>
---------------	---------------------------------------

Description

Visualize regression coefficients and confidence intervals for one or more models. Uses `broom::tidy()` to extract estimates.

Usage

```
bcat_plt_coef(
  models,
  conf_level = 0.95,
  intercept = FALSE,
  coef_rename = NULL,
  highlight = NULL,
  dodge_width = 0.4,
  x_lab = "Estimate",
  y_lab = ggplot2::waiver(),
  title = ggplot2::waiver(),
  subtitle = ggplot2::waiver(),
  caption = ggplot2::waiver(),
  legend_lab = "Model",
  legend_position = "bottom",
  legend_hide = FALSE,
  color_scale = scale_colour_UC()
)
```

Arguments

<code>models</code>	A model object or a named list of model objects.
<code>conf_level</code>	Numeric. Confidence level. Default is 0.95.
<code>intercept</code>	Logical. Include intercept? Default is FALSE.
<code>coef_rename</code>	Named character vector to rename coefficients. If NULL (default), auto-cleans names to Title Case.
<code>highlight</code>	Character vector of term names to highlight in UC Red.
<code>dodge_width</code>	Numeric. Dodge width for multi-model comparison. Default is 0.4.
<code>x_lab</code>	Label for x-axis (coefficient values).
<code>y_lab</code>	Label for y-axis (term names).
<code>title</code>	Plot title.
<code>subtitle</code>	Plot subtitle.
<code>caption</code>	Plot caption.
<code>legend_lab</code>	Legend title.
<code>legend_position</code>	Legend position.
<code>legend_hide</code>	Logical. Hide legend?
<code>color_scale</code>	<code>scale_color_</code> function.

Value

A ggplot object.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_area\(\)](#), [bcat_plt_bar\(\)](#), [bcat_plt_box\(\)](#), [bcat_plt_diag\(\)](#), [bcat_plt_hist\(\)](#), [bcat_plt_line\(\)](#), [bcat_plt_point\(\)](#), [bcat_plt_ts\(\)](#)

Examples

```
library(ggplot2)

m <- lm(mpg ~ wt + hp + cyl, data = mtcars)
bcat_plt_coef(m)

m1 <- lm(mpg ~ wt + hp, data = mtcars)
m2 <- lm(mpg ~ wt + hp + cyl + disp, data = mtcars)
bcat_plt_coef(list("Base" = m1, "Full" = m2))
```

bcat_plt_diag	<i>Regression diagnostic dashboard</i>
---------------	--

Description

Produce a multi-panel diagnostic plot for a fitted model with UC styling. Optionally prints assumption test results (Breusch-Pagan, Shapiro-Wilk, Durbin-Watson) to the console.

Usage

```
bcat_plt_diag(  
  model,  
  which = c(1, 2, 3, 4),  
  labels = TRUE,  
  n_labels = 3,  
  tests = TRUE,  
  nrow = NULL,  
  ncol = NULL  
)
```

Arguments

model	A fitted model object (e.g., <code>lm</code> , <code>glm</code>).
which	Integer vector specifying which panels to include: 1 = Residuals vs Fitted, 2 = Q-Q Plot, 3 = Scale-Location, 4 = Residuals vs Leverage. Default: <code>c(1, 2, 3, 4)</code> .
labels	Logical. Label influential observations? Default is <code>TRUE</code> .
n_labels	Integer. Number of extreme observations to label. Default is 3.
tests	Logical. Print assumption test results to console? Default is <code>TRUE</code> .
nrow	Number of panel rows.
ncol	Number of panel columns.

Value

A patchwork object combining the diagnostic panels.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_area\(\)](#), [bcat_plt_bar\(\)](#), [bcat_plt_box\(\)](#), [bcat_plt_coef\(\)](#), [bcat_plt_hist\(\)](#), [bcat_plt_line\(\)](#), [bcat_plt_point\(\)](#), [bcat_plt_ts\(\)](#)

Examples

```
m <- lm(mpg ~ wt + hp + cyl, data = mtcars)
bcat_plt_diag(m)
bcat_plt_diag(m, which = c(1, 2))
```

bcat_plt_hist	<i>Histogram utility</i>
---------------	--------------------------

Description

Create a histogram using ggplot2 graphics with UC styling. Includes optional density curve overlay and mean reference line.

Usage

```
bcat_plt_hist(
  df,
  x,
  bins = NULL,
  fill = palette_UC[["Steger Silver"]],
  facet = NULL,
  density = FALSE,
  mean_line = TRUE,
  rug = FALSE,
  x_lab = ggplot2::waiver(),
  y_lab = ggplot2::waiver(),
  title = ggplot2::waiver(),
  subtitle = ggplot2::waiver(),
  caption = ggplot2::waiver(),
  legend_position = "bottom",
  legend_hide = FALSE,
  x_scale = NULL,
  y_scale = NULL,
  facet_scale = c("fixed", "free_y", "free_x", "free"),
  nrow = NULL,
  ncol = NULL,
  x_refline = NULL,
  y_refline = NULL
)
```

Arguments

df	The data to be displayed.
x	Variable to map to the x-axis.
bins	Number of bins. If NULL (default), uses ggplot2's automatic selection.
fill	Fill color for bars. Default is UC Steger Silver.

facet	Facetting variable(s). Wrap in vars().
density	Logical. Overlay density curve? Default is FALSE.
mean_line	Logical. Draw dashed vertical line at mean? Default is TRUE.
rug	Logical. Add rug plot at bottom? Default is FALSE.
x_lab	Label for x-axis.
y_lab	Label for y-axis.
title	Plot title.
subtitle	Plot subtitle.
caption	Plot caption.
legend_position	Legend position: "bottom" or "right".
legend_hide	Logical. Hide legend?
x_scale	scale_x_ function.
y_scale	scale_y_ function.
facet_scale	Facet scales: "fixed", "free", "free_x", "free_y".
nrow	Number of facet rows.
ncol	Number of facet columns.
x_refline	Vector of x-values for vertical reference lines.
y_refline	Vector of y-values for horizontal reference lines.

Value

A ggplot object.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_area\(\)](#), [bcat_plt_bar\(\)](#), [bcat_plt_box\(\)](#), [bcat_plt_coef\(\)](#), [bcat_plt_diag\(\)](#), [bcat_plt_line\(\)](#), [bcat_plt_point\(\)](#), [bcat_plt_ts\(\)](#)

Examples

```
library(ggplot2)

# Basic histogram
bcat_plt_hist(mtcars, x = mpg)

# With density curve and mean line
bcat_plt_hist(mtcars, x = mpg, density = TRUE, mean_line = TRUE)

# Faceted by cylinders
bcat_plt_hist(mtcars, x = mpg, facet = vars(cyl), facet_scale = "free_x")
```

`bcat_plt_line`*Line plot utility*

Description

Create a line plot using ggplot2 graphics. This function is a wrapper to create commonly used styles of line plots. Additional layers can be added to this plot as needed. More complicated plots can be creating using individual ggplot2 layers.

Usage

```
bcat_plt_line(  
  df,  
  x,  
  y,  
  color = NULL,  
  linetype = NULL,  
  facet = NULL,  
  x_lab = ggplot2::waiver(),  
  y_lab = ggplot2::waiver(),  
  title = ggplot2::waiver(),  
  subtitle = ggplot2::waiver(),  
  caption = ggplot2::waiver(),  
  legend_lab = ggplot2::waiver(),  
  legend_position = "bottom",  
  legend_hide = FALSE,  
  x_scale = NULL,  
  y_scale = NULL,  
  color_scale = Rbearcat::scale_colour_UC(),  
  facet_scale = c("fixed", "free_y", "free_x", "free"),  
  nrow = NULL,  
  ncol = NULL,  
  layer_points = FALSE,  
  x_refline = NULL,  
  y_refline = NULL,  
  x_highlight_min = NULL,  
  x_highlight_max = NULL,  
  y_highlight_min = NULL,  
  y_highlight_max = NULL,  
  y_ribbon_min = NULL,  
  y_ribbon_max = NULL,  
  y_error_min = NULL,  
  y_error_max = NULL,  
  y_error_width = 1  
)
```

Arguments

df	The data to be displayed
x	Variable to map to the x-axis
y	Variable to map to the y-axis
color	Variable to map to the color aesthetic
linetype	Variable to map to the linetype aesthetic
facet	Facetting variable(s). Note: must wrap in vars(), e.g, facet = vars(var1, var2)
x_lab	Label for x-axis
y_lab	Label for y-axis
title	Plot title
subtitle	Plot subtitle
caption	Plot caption
legend_lab	Legend title
legend_position	legend position. "bottom" or "right"
legend_hide	Set to TRUE to hide the legend
x_scale	scale_x_ function to apply to x-axis.
y_scale	scale_y_ function to apply to y-axis.
color_scale	scale_color_ function to apply to colors.
facet_scale	Shoud facet scales be fixed ("fixed", the default), free ("free"), or free in one dimension ("free_x", "free_y")?
nrow	Number of facet rows
ncol	Number of facet columns
layer_points	Set to TRUE to plot points
x_refline	Vector of x-values at which to draw vertical reference lines
y_refline	Vector of y-values at which to draw horizontal reference lines
x_highlight_min	Vector of min x-values at which to start draw rectangle annotation
x_highlight_max	Vector of max x-values at which to end rectangle annotation
y_highlight_min	Vector of min y-values at which to start draw rectangle annotation
y_highlight_max	Vector of max y-values at which to end rectangle annotation
y_ribbon_min	Variable to use as minimum values for ribbon around y at each value of x
y_ribbon_max	Variable to use as maximum values for ribbon around y at each value of x
y_error_min	Variable to use as minimum values for error bars around y at each value of x
y_error_max	Variable to use as maximum values for error bars around y at each value of x
y_error_width	Width of error bars

Value

A ggplot2 plot object.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_area\(\)](#), [bcat_plt_bar\(\)](#), [bcat_plt_box\(\)](#), [bcat_plt_coef\(\)](#), [bcat_plt_diag\(\)](#), [bcat_plt_hist\(\)](#), [bcat_plt_point\(\)](#), [bcat_plt_ts\(\)](#)

Examples

```
library(ggplot2)
library(scales)

# basic time series plot with a reference line
bcat_plt_line(df = economics,
             x = date,
             y = unemploy,
             y_scale = scale_y_continuous(labels = comma_format()),
             y_refline = 10000)

# line plot with facets and highlight periods
bcat_plt_line(df = economics_long,
             x = date,
             y = value,
             color = variable,
             facet = vars(variable),
             x_lab = "Decade",
             y_lab = "Value",
             legend_lab = NULL,
             facet_scale = "free_y",
             x_highlight_min = as.Date(c("2000-01-01", "2008-01-01")),
             x_highlight_max = as.Date(c("2002-01-01", "2010-01-01")),
             ncol = 1)
```

bcat_plt_point

Scatter plot utility

Description

Create a scatter plot using ggplot2 graphics. This function is a wrapper to create commonly used styles of scatter plots. Additional layers can be added to this plot as needed. More complicated scatter plots can be creating using individual ggplot2 layers.

Usage

```
bcat_plt_point(  
  df,  
  x,  
  y,  
  color = NULL,  
  size = NULL,  
  facet = NULL,  
  jitter = FALSE,  
  jitter_width = NULL,  
  smooth = FALSE,  
  method = "lm",  
  se = TRUE,  
  x_lab = ggplot2::waiver(),  
  y_lab = ggplot2::waiver(),  
  title = ggplot2::waiver(),  
  subtitle = ggplot2::waiver(),  
  caption = ggplot2::waiver(),  
  legend_lab = ggplot2::waiver(),  
  legend_position = "bottom",  
  legend_hide = FALSE,  
  x_scale = NULL,  
  y_scale = NULL,  
  color_scale = Rbearcat::scale_colour_UC(),  
  fill_scale = Rbearcat::scale_fill_UC(),  
  facet_scale = c("fixed", "free_y", "free_x", "free"),  
  alpha = 0.6,  
  nrow = NULL,  
  ncol = NULL,  
  x_refline = NULL,  
  y_refline = NULL,  
  identity_line = FALSE,  
  x_highlight_min = NULL,  
  x_highlight_max = NULL,  
  y_highlight_min = NULL,  
  y_highlight_max = NULL,  
  y_error_min = NULL,  
  y_error_max = NULL,  
  y_error_width = 1  
)
```

Arguments

df	The data to be displayed
x	Variable to map to the x-axis
y	Variable to map to the y-axis
color	Variable to map to the color aesthetic

<code>size</code>	Variable to map to the size aesthetic
<code>facet</code>	Facetting variable(s). Note: must wrap in <code>vars()</code> , e.g, <code>facet = vars(var1, var2)</code>
<code>jitter</code>	Set to TRUE to enable jittering.
<code>jitter_width</code>	Set the jitter width. Leave as NULL to use the default <code>ggplot2</code> settings
<code>smooth</code>	Add fit line to plot
<code>method</code>	Method to use for fit line. "lm" is default
<code>se</code>	Set to FALSE to remove standard error band around fit line
<code>x_lab</code>	Label for x-axis
<code>y_lab</code>	Label for y-axis
<code>title</code>	Plot title
<code>subtitle</code>	Plot subtitle
<code>caption</code>	Plot caption
<code>legend_lab</code>	Legend title
<code>legend_position</code>	legend position. "bottom" or "right"
<code>legend_hide</code>	Set to TRUE to hide the legend
<code>x_scale</code>	<code>scale_x_</code> function to apply to x-axis.
<code>y_scale</code>	<code>scale_y_</code> function to apply to y-axis.
<code>color_scale</code>	<code>scale_color_</code> function to apply to colors.
<code>fill_scale</code>	<code>scale_fill_</code> function to apply to colors. only applicable if <code>smooth = TRUE</code>
<code>facet_scale</code>	Should facet scales be fixed ("fixed", the default), free ("free"), or free in one dimension ("free_x", "free_y")?
<code>alpha</code>	level of point transparency. lower alpha leads to more transparency.
<code>nrow</code>	Number of facet rows
<code>ncol</code>	Number of facet columns
<code>x_refline</code>	Vector of x-values at which to draw vertical reference lines
<code>y_refline</code>	Vector of y-values at which to draw horizontal reference lines
<code>identity_line</code>	Set to TRUE to draw 45 degree identity line
<code>x_highlight_min</code>	Vector of min x-values at which to start draw rectangle annotation
<code>x_highlight_max</code>	Vector of max x-values at which to end rectangle annotation
<code>y_highlight_min</code>	Vector of min y-values at which to start draw rectangle annotation
<code>y_highlight_max</code>	Vector of max y-values at which to end rectangle annotation
<code>y_error_min</code>	Variable to use as minimum values for error bars around y at each value of x
<code>y_error_max</code>	Variable to use as maximum values for error bars around y at each value of x
<code>y_error_width</code>	Width of error bars

Value

A ggplot2 plot object.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_area\(\)](#), [bcat_plt_bar\(\)](#), [bcat_plt_box\(\)](#), [bcat_plt_coef\(\)](#), [bcat_plt_diag\(\)](#), [bcat_plt_hist\(\)](#), [bcat_plt_line\(\)](#), [bcat_plt_ts\(\)](#)

Examples

```
library(ggplot2)

# basic scatter plot
bcat_plt_point(df = iris,
              x = Sepal.Length,
              y = Sepal.Width,
              x_lab = "Length",
              y_lab = "Width",
              title = "Sepal Width vs Length")

# scatter plot with LOESS fit line
bcat_plt_point(df = iris,
              x = Sepal.Length,
              y = Sepal.Width,
              x_lab = "Length",
              y_lab = "Width",
              smooth = TRUE,
              method = "loess",
              title = "Sepal Width vs Length",
              subtitle = "Loess Fit")

# scatter plot with faceting and LM fit lines
bcat_plt_point(df = iris,
              x = Sepal.Length,
              y = Sepal.Width,
              color = Species,
              facet = vars(Species),
              smooth = TRUE,
              x_lab = "Length",
              y_lab = "Width",
              legend_lab = NULL,
              title = "Sepal Width vs Length by Species",
              subtitle = "Linear Fit",
              nrow = 1)
```

bcat_plt_ts

*Time series plot utility***Description**

Create a time series visualization with UC styling. Supports decomposition into trend/seasonal/remainder, ACF/PACF display, and recession shading.

Usage

```
bcat_plt_ts(
  df,
  x = NULL,
  y = NULL,
  color = NULL,
  decompose = FALSE,
  acf = FALSE,
  recession_bars = NULL,
  x_lab = ggplot2::waiver(),
  y_lab = ggplot2::waiver(),
  title = ggplot2::waiver(),
  subtitle = ggplot2::waiver(),
  caption = ggplot2::waiver(),
  legend_lab = ggplot2::waiver(),
  legend_position = "bottom",
  legend_hide = FALSE,
  x_scale = NULL,
  y_scale = NULL,
  color_scale = scale_colour_UC(),
  layer_points = FALSE,
  x_highlight_min = NULL,
  x_highlight_max = NULL,
  y_refline = NULL
)
```

Arguments

df	A data frame with date and value columns.
x	Date column.
y	Value column.
color	Variable for color aesthetic.
decompose	Logical. Show 4-panel decomposition? Default is FALSE.
acf	Logical. Show ACF/PACF side-by-side? Default is FALSE.
recession_bars	Data frame with start and end date columns. Default is NULL.
x_lab	Label for x-axis.

y_lab	Label for y-axis.
title	Plot title.
subtitle	Plot subtitle.
caption	Plot caption.
legend_lab	Legend title.
legend_position	Legend position.
legend_hide	Logical. Hide legend?
x_scale	scale_x_ function.
y_scale	scale_y_ function.
color_scale	scale_color_ function.
layer_points	Logical. Show points on line? Default is FALSE.
x_highlight_min	Date(s) at which to start highlight region(s).
x_highlight_max	Date(s) at which to end highlight region(s).
y_refline	Horizontal reference line(s).

Value

A ggplot or patchwork object.

Author(s)

Saannidhya Rawat

See Also

Other plots: [bcat_plt_area\(\)](#), [bcat_plt_bar\(\)](#), [bcat_plt_box\(\)](#), [bcat_plt_coef\(\)](#), [bcat_plt_diag\(\)](#), [bcat_plt_hist\(\)](#), [bcat_plt_line\(\)](#), [bcat_plt_point\(\)](#)

Examples

```
library(ggplot2)
library(scales)

bcat_plt_ts(economics, x = date, y = unemploy,
            y_scale = scale_y_continuous(labels = comma_format()))
```

bcat_reg_table	<i>UC-branded regression table</i>
----------------	------------------------------------

Description

Produce publication-quality regression tables with UC styling. Wraps `modelsummary::modelsummary()` with UC defaults for formatting, colors, and statistical conventions.

Usage

```
bcat_reg_table(
  models,
  stars = c(`*` = 0.1, `**` = 0.05, `***` = 0.01),
  se_type = "default",
  coef_rename = NULL,
  gof_map = c("nobs", "r.squared", "adj.r.squared", "statistic"),
  caption = NULL,
  footer = NULL,
  font_size = 12,
  header_bg_color = palette_UC[["UC Red"]],
  header_txt_color = palette_UC[["White"]],
  striped = TRUE,
  doc_type = NULL,
  ...
)
```

Arguments

<code>models</code>	A model object, or a list of model objects. Supports <code>lm</code> , <code>glm</code> , <code>fixest::feols</code> , <code>plm</code> , <code>ivreg</code> , and any model supported by <code>broom::tidy()</code> .
<code>stars</code>	Named numeric vector for significance stars. Set to <code>FALSE</code> to suppress stars. Default: <code>c("*" = 0.1, "**" = 0.05, "***" = 0.01)</code> .
<code>se_type</code>	Character. Standard error type passed to <code>modelsummary</code> 's <code>vcov</code> argument. Options: <code>"default"</code> , <code>"HC1"</code> , <code>"HC3"</code> , or a function/named list. Default is <code>"default"</code> .
<code>coef_rename</code>	Named character vector to rename coefficients. If <code>NULL</code> (default), coefficients are auto-cleaned to Title Case.
<code>gof_map</code>	Character vector of goodness-of-fit statistics to include. Default: <code>c("nobs", "r.squared", "adj.r.squared", "statistic")</code> .
<code>caption</code>	Character. Table caption.
<code>footer</code>	Character. Table footnote.
<code>font_size</code>	Numeric. Font size. Default is 12.
<code>header_bg_color</code>	Background color for header. Default is UC Red.
<code>header_txt_color</code>	Text color for header. Default is white.

striped	Logical. Zebra striping? Default is TRUE.
doc_type	Character. Force output format. Auto-detected if NULL.
...	Additional arguments passed to <code>modelsummary::modelsummary()</code> .

Value

A formatted table object.

Author(s)

Saannidhya Rawat

See Also

Other tables: [bcat_cor_table\(\)](#), [bcat_fmt_style_table\(\)](#), [bcat_sum_table\(\)](#)

Examples

```
# Single model
m1 <- lm(mpg ~ wt + hp, data = mtcars)
bcat_reg_table(m1)

# Compare models side-by-side
m2 <- lm(mpg ~ wt + hp + cyl, data = mtcars)
bcat_reg_table(list("Base" = m1, "Extended" = m2))
```

bcat_setup_rmd	<i>Defaults for Rmd Setup Chunk</i>
----------------	-------------------------------------

Description

Sets default code chunk options and configures options for kable tables. Call at the start of Rmd file in "setup" chunk.

Usage

```
bcat_setup_rmd()
```

Value

No return value, called for side effects on knitr chunk defaults and table-related options.

Author(s)

Saannidhya Rawat

See Also

Other utilities: [bcat_extract_metadata\(\)](#), [bcat_import_data\(\)](#), [bcat_new_quarto\(\)](#), [bcat_source_rmd\(\)](#)

Examples

```
# Call in your Rmd setup chunk:  
bcat_setup_rmd()
```

bcat_source_rmd	<i>Source Rmd Files</i>
-----------------	-------------------------

Description

Utility function to run all code chunks in an Rmd file.

Usage

```
bcat_source_rmd(rmd)
```

Arguments

rmd character. Rmd file from which to run all code chunks.

Value

An invisible list, as returned by `base::source()`, containing the value of the last evaluated expression and whether it was visible.

Author(s)

Saannidhya Rawat

Source

<https://stackoverflow.com/questions/10966109/how-to-source-r-markdown-file-like-sourcemyfile-r>

See Also

Other utilities: [bcat_extract_metadata\(\)](#), [bcat_import_data\(\)](#), [bcat_new_quarto\(\)](#), [bcat_setup_rmd\(\)](#)

bcat_sum_table	<i>UC-branded summary statistics table</i>
----------------	--

Description

Produce a descriptive statistics table with UC styling. Displays mean, SD, min, median, max, N, and percent missing for numeric columns.

Usage

```
bcat_sum_table(
  df,
  by = NULL,
  stats = c("mean", "sd", "min", "median", "max", "n", "pct_missing"),
  digits = 2,
  caption = NULL,
  footer = NULL,
  font_size = 12,
  header_bg_color = palette_UC[["UC Red"]],
  header_txt_color = palette_UC[["White"]],
  striped = TRUE,
  doc_type = NULL,
  ...
)
```

Arguments

<code>df</code>	A data frame, tibble, or data.table.
<code>by</code>	Character. Column name for grouped summaries. Default is NULL.
<code>stats</code>	Character vector of statistics to compute. Default includes all.
<code>digits</code>	Integer. Number of decimal places. Default is 2.
<code>caption</code>	Character. Table caption.
<code>footer</code>	Character. Table footnote.
<code>font_size</code>	Numeric. Font size. Default is 12.
<code>header_bg_color</code>	Background color for header. Default is UC Red.
<code>header_txt_color</code>	Text color for header. Default is white.
<code>striped</code>	Logical. Zebra striping? Default is TRUE.
<code>doc_type</code>	Character. Force output format. Auto-detected if NULL.
<code>...</code>	Additional arguments passed to table formatting.

Value

A formatted table object.

Author(s)

Saannidhya Rawat

See Also

Other tables: [bcat_cor_table\(\)](#), [bcat_fmt_style_table\(\)](#), [bcat_reg_table\(\)](#)

Examples

```
bcat_sum_table(mtcars[, c("mpg", "wt", "hp")])  
bcat_sum_table(mtcars[, c("mpg", "wt", "cyl")], by = "cyl")
```

bcat_xaringan

UC Xaringan presentation

Description

An R Markdown output format for remark.js slides (HTML).

Usage

```
bcat_xaringan(css = NULL, after_body = NULL, ...)
```

Arguments

css	A vector of CSS file paths. If NULL (default), function will use the css files included with the package.
after_body	relative path to HTML document to include after body of each slide. If NULL (default), function will use the insert-logo.html file included with the package.
...	arguments passed to <code>xaringan::moon_reader</code>

Value

An `rmarkdown::output_format` object for rendering Xaringan presentations.

Author(s)

Saannidhya Rawat

palette_OkabeIto	<i>Color palette proposed by Okabe and Ito & UC</i>
------------------	---

Description

Two color palettes taken from the article "Color Universal Design" by Okabe and Ito. The variant palette_OkabeIto contains a gray color, while palette_OkabeIto_black contains black instead. palette_OkabeIto_light contains a lightened version of the palette_OkabeIto colors. Note: To extract hex colors, convert palette using `as.vector`.

Usage

```
palette_OkabeIto
```

```
palette_OkabeIto_black
```

```
palette_OkabeIto_light
```

Format

An object of class character of length 8.

An object of class character of length 8.

An object of class character of length 8.

Value

A named character vector of hexadecimal color values. The exported objects provide the standard, black-substituted, and lightened Okabe-Ito variants, respectively.

See Also

Other palettes: [palette_UC](#), [scale_OkabeIto\(\)](#), [scale_UC\(\)](#)

palette_UC	<i>UC Color Palette</i>
------------	-------------------------

Description

Official University of Cincinnati brand colors.

Usage

```
palette_UC
```

Format

An object of class character of length 17.

Details

The palette combines the current primary colors from UC's visual identity system with the expanded palette recommended for data visualization. Canonical brand names are included alongside a small set of legacy aliases used by earlier versions of this package. Note: To extract hex colors, convert palette using `as.vector`.

Value

A named character vector of hexadecimal University of Cincinnati brand colors.

See Also

Other palettes: [palette_OkabeIto](#), [scale_OkabeIto\(\)](#), [scale_UC\(\)](#)

<code>scale_OkabeIto</code>	<i>Okabe-Ito color scale</i>
-----------------------------	------------------------------

Description

This is a color-blind friendly, qualitative scale with eight different colors from the `colorblindr` package (<https://github.com/claustwilke/colorblindr>).

Arguments

<code>use_black</code>	If TRUE, scale includes black, otherwise includes gray.
<code>order</code>	Numeric vector listing the order in which the colors should be used. Default is 1:8.
<code>darken</code>	Relative amount by which the scale should be darkened (for positive values) or lightened (for negative values).
<code>alpha</code>	Alpha transparency level of the color. Default is no transparency.
<code>...</code>	common discrete scale parameters: <code>name</code> , <code>breaks</code> , <code>labels</code> , <code>na.value</code> , <code>limits</code> , <code>guide</code> , and <code>aesthetics</code> . see <code>ggplot2::discrete_scale</code> for more details.

Value

A discrete `ggplot2` scale object. The helper aliases return the same scale with `aesthetics` preset for colour or fill mappings.

See Also

Other palettes: [palette_OkabeIto](#), [palette_UC](#), [scale_UC\(\)](#)

Examples

```
library(ggplot2)
ggplot(iris, aes(Sepal.Length, Sepal.Width, color = Species)) +
  geom_point() + scale_color_OkabeIto()
ggplot(iris, aes(Sepal.Length, fill = Species)) +
  geom_density(alpha = 0.7) + scale_fill_OkabeIto(order = c(1, 3, 5))
```

 scale_UC

UC color scale

Description

Apply the official University of Cincinnati expanded palette to ggplot graphics. The default ordering prioritizes the primary UC colors, followed by expanded brand accents intended for data visualization.

Arguments

order	Numeric vector listing the order in which the colors should be used.
darken	Relative amount by which the scale should be darkened (for positive values) or lightened (for negative values).
alpha	Alpha transparency level of the color. Default is no transparency.
...	common discrete scale parameters: name, breaks, labels, na.value, limits, guide, and aesthetics. see <code>ggplot2::discrete_scale</code> for more details.

Value

A discrete ggplot2 scale object. The helper aliases return the same scale with aesthetics preset for colour or fill mappings.

See Also

Other palettes: [palette_OkabeIto](#), [palette_UC](#), [scale_OkabeIto\(\)](#)

Examples

```
library(ggplot2)
ggplot(iris, aes(Sepal.Length, Sepal.Width, color = Species)) +
  geom_point() + scale_color_UC()
ggplot(iris, aes(Sepal.Length, fill = Species)) +
  geom_density(alpha = 0.7) + scale_fill_UC()
```

`scale_x_dt`*Date Scale*

Description

Wrapper for `ggplot2::scale_x_date` that generates labels for data variable on x-axis based on input data.

Usage

```
scale_x_dt(  
  df,  
  x,  
  break_by = "year",  
  round_unit = "year",  
  labels = scales::date_format("%y"),  
  ...  
)
```

Arguments

<code>df</code>	data set used for plotting
<code>x</code>	date variable mapped to x-axis
<code>break_by</code>	a character string specifying a time unit to use for axis breaks
<code>round_unit</code>	a character string specifying a time unit or a multiple of a unit to be rounded to for the axis breaks. Valid base units are second, minute, hour, day, week, month, bimonth, quarter, season, halfyear and year.
<code>labels</code>	format to use for displaying labels
<code>...</code>	additional arguments passed to <code>ggplot2::scale_x_date</code>

Value

A `ggplot2` date scale object created by `ggplot2::scale_x_date()`.

Author(s)

Saannidhya Rawat

Examples

```
library(ggplot2)  
  
# use default ggplot2 scale  
bcat_plt_line(df = economics,  
             x = date,  
             y = unemploy,
```

```

      y_ref = 10000)

# use scale_x_dt to break by every 5 years
bcat_plt_line(df = economics,
             x = date,
             y = unemploy,
             y_ref = 10000,
             x_scale = scale_x_dt(economics, date, round_unit = "5 years"))

```

set_UC_geoms

UC default geoms

Description

Apply UC default colors to ggplot2 geoms. Note: only applies during session.

Usage

```
set_UC_geoms()
```

Value

No return value, called for side effects on ggplot2 geom defaults for the current R session.

Author(s)

Saannidhya Rawat

theme_UC

Various UC themes for use with ggplot charts

Description

These functions allow you to add University of Cincinnati themes to ggplot graphics using the official UC color system and digital typography fallbacks.

Usage

```

theme_UC(
  border = TRUE,
  legend_position = c("bottom", "right"),
  legend_hide = FALSE
)

theme_UC_hgrid(border = FALSE, ...)

theme_UC_vgrid(border = FALSE, ...)

theme_UC_nogrid(border = FALSE, ...)

```

Arguments

<code>border</code>	If FALSE, removes outer border from plot.
<code>legend_position</code>	legend position. "bottom" or "right"
<code>legend_hide</code>	If TRUE, hides legend in final plot.
<code>...</code>	Additional arguments passed into <code>theme_UC</code>

Details

The main theme is `theme_UC`, while `theme_UC_hgrid` and `theme_UC_vgrid` are used for plots that benefit from a single grid direction. `theme_UC_nogrid` removes all gridlines.

Value

A complete `ggplot2` theme object. The exported variants return horizontal-grid, vertical-grid, or no-grid versions of the base theme.

Author(s)

Saannidhya Rawat

Examples

```
library(ggplot2)

p <- ggplot(
  data = iris,
  mapping = aes(x = Petal.Width, y = Petal.Length, color = Species)
) +
  geom_jitter(size = 1.5) +
  labs(
    x = "Petal Width",
    y = "Petal Length",
    title = "Iris Example",
    subtitle = "Width vs Length by Species",
    caption = "Note: This is a caption"
  ) +
  facet_wrap(~Species)

p + theme_UC()
p + theme_UC_hgrid()
p + theme_UC_vgrid()
```

UC_html_document	<i>Rbearcat HTML document</i>
------------------	-------------------------------

Description

An R Markdown output format for HTML documents.

Usage

```
UC_html_document(  
  number_sections = FALSE,  
  toc = TRUE,  
  toc_depth = 2,  
  css = NULL,  
  ...  
)
```

Arguments

number_sections	logical. Set to FALSE to leave sections unnumbered.
toc	logical. set to FALSE to excluded the table of contents side-bar.
toc_depth	number of layers in TOC.
css	relative path to a css formatting document. If NULL (default), function will use the style.css file included with the package.
...	other options passed to <code>bookdown::html_document2</code> . See html_document2 and html_document for all available options.

Value

An `rmarkdown::output_format` object for rendering HTML documents.

Author(s)

Saannidhya Rawat

UC_pdf_document	<i>Rbearcat PDF document</i>
-----------------	------------------------------

Description

An R Markdown output format for PDF documents.

Usage

```
UC_pdf_document(  
  number_sections = FALSE,  
  toc = FALSE,  
  toc_depth = 2,  
  highlight_bw = FALSE,  
  in_header = NULL,  
  ...  
)
```

Arguments

<code>number_sections</code>	logical. Set to TRUE to number sections.
<code>toc</code>	logical. set to TRUE to include a table of contents.
<code>toc_depth</code>	number of layers in TOC.
<code>highlight_bw</code>	set to TRUE to convert colors in syntax highlighted code blocks to grayscale.
<code>in_header</code>	relative path to a tex formatting document included in the preamble. If NULL (default), function will use the <code>preamble.tex</code> file included with the package.
<code>...</code>	other options passed to <code>bookdown::pdf_document2</code> . See pdf_document2 and pdf_document for all available options.

Value

An `rmarkdown::output_format` object for rendering PDF documents.

Author(s)

Saannidhya Rawat

UC_word_document	<i>Rbearcat word document</i>
------------------	-------------------------------

Description

An R Markdown output format for Word documents (docx).

Usage

```
UC_word_document(toc = FALSE, toc_depth = 2, reference_docx = NULL, ...)
```

Arguments

toc	logical. set to TRUE to include a table of contents.
toc_depth	number of layers in TOC.
reference_docx	relative path to a docx reference document. If NULL (default), function will use the style.docx file included with the package.
...	other options passed to <code>bookdown::word_document2</code> . See word_document2 and word_document for all available options.

Value

An `rmarkdown::output_format` object for rendering Word documents.

Author(s)

Saannidhya Rawat

util_git_check_uncommitted	<i>Check if git repo has uncommitted changes</i>
----------------------------	--

Description

Check if git repo has uncommitted changes

Usage

```
util_git_check_uncommitted(path = ".", dir_ignore = "docs/")
```

Arguments

path	the path to the directory to check.
dir_ignore	name of subdirectory to skip over for uncommitted files. should generally be the output directory for rmarkdown rendered files (e.g., "docs/" for bookdown projects.)

Value

Invisible NULL if path is not a Git repository or has no relevant uncommitted changes. Throws an error otherwise.

Author(s)

Saannidhya Rawat

util_git_commit_id *Get git commit ID*

Description

Get git commit ID

Usage

```
util_git_commit_id(path = ".")
```

Arguments

path the path to the directory

Value

A length-one character vector containing the current Git SHA, or NULL if path is not a Git repository.

Author(s)

Saannidhya Rawat

Index

- * **datasets**
 - palette_OkabeIto, 41
 - palette_UC, 41
- * **formatting**
 - bcat_fmt_comma, 6
 - bcat_fmt_date, 6
 - bcat_fmt_dollar, 7
 - bcat_fmt_percent, 8
 - bcat_fmt_pvalue, 9
 - bcat_fmt_scientific, 10
- * **palettes**
 - palette_OkabeIto, 41
 - palette_UC, 41
 - scale_OkabeIto, 42
 - scale_UC, 43
- * **plots**
 - bcat_plt_area, 15
 - bcat_plt_bar, 18
 - bcat_plt_box, 21
 - bcat_plt_coef, 23
 - bcat_plt_diag, 25
 - bcat_plt_hist, 26
 - bcat_plt_line, 28
 - bcat_plt_point, 30
 - bcat_plt_ts, 34
- * **tables**
 - bcat_cor_table, 3
 - bcat_fmt_style_table, 10
 - bcat_reg_table, 36
 - bcat_sum_table, 39
- * **themes**
 - theme_UC, 45
- * **utilities**
 - bcat_extract_metadata, 5
 - bcat_import_data, 13
 - bcat_new_quarto, 14
 - bcat_setup_rmd, 37
 - bcat_source_rmd, 38
- bcat_beamer, 3
- bcat_cor_table, 3, 12, 37, 40
- bcat_extract_metadata, 5, 13, 14, 37, 38
- bcat_fmt_comma, 6, 7–10
- bcat_fmt_date, 6, 6, 8–10
- bcat_fmt_dollar, 6, 7, 7, 8–10
- bcat_fmt_percent, 6–8, 8, 9, 10
- bcat_fmt_pvalue, 6–8, 9, 10
- bcat_fmt_scientific, 6–9, 10
- bcat_fmt_style_table, 4, 10, 37, 40
- bcat_gitbook, 12
- bcat_import_data, 5, 13, 14, 37, 38
- bcat_new_quarto, 5, 13, 14, 37, 38
- bcat_pdf_book, 15
- bcat_plt_area, 15, 19, 23–25, 27, 30, 33, 35
- bcat_plt_bar, 17, 18, 23–25, 27, 30, 33, 35
- bcat_plt_box, 17, 19, 21, 24, 25, 27, 30, 33, 35
- bcat_plt_coef, 17, 19, 23, 23, 25, 27, 30, 33, 35
- bcat_plt_diag, 17, 19, 23, 24, 25, 27, 30, 33, 35
- bcat_plt_hist, 17, 19, 23–25, 26, 30, 33, 35
- bcat_plt_line, 17, 19, 23–25, 27, 28, 33, 35
- bcat_plt_point, 17, 19, 23–25, 27, 30, 30, 35
- bcat_plt_ts, 17, 19, 23–25, 27, 30, 33, 34
- bcat_reg_table, 4, 12, 36, 40
- bcat_setup_rmd, 5, 13, 14, 37, 38
- bcat_source_rmd, 5, 13, 14, 37, 38
- bcat_sum_table, 4, 12, 37, 39
- bcat_xaringan, 40
- format, 7
- html_document, 47
- html_document2, 47
- label_comma, 6
- label_dollar, 7
- label_percent, 8
- label_pvalue, 9

label_scientific, [10](#)

palette_OkabeIto, [41](#), [42](#), [43](#)
palette_OkabeIto_black
 (palette_OkabeIto), [41](#)
palette_OkabeIto_light
 (palette_OkabeIto), [41](#)
palette_UC, [41](#), [41](#), [42](#), [43](#)
pdf_document, [48](#)
pdf_document2, [48](#)

scale_color_OkabeIto (scale_OkabeIto),
 [42](#)
scale_color_OkabeIto_light
 (scale_OkabeIto), [42](#)
scale_color_UC (scale_UC), [43](#)
scale_colour_OkabeIto (scale_OkabeIto),
 [42](#)
scale_colour_OkabeIto_light
 (scale_OkabeIto), [42](#)
scale_colour_UC (scale_UC), [43](#)
scale_fill_OkabeIto (scale_OkabeIto), [42](#)
scale_fill_OkabeIto_light
 (scale_OkabeIto), [42](#)
scale_fill_UC (scale_UC), [43](#)
scale_OkabeIto, [41](#), [42](#), [42](#), [43](#)
scale_UC, [41](#), [42](#), [43](#)
scale_x_dt, [44](#)
set_UC_geoms, [45](#)

theme_UC, [45](#)
theme_UC_hgrid (theme_UC), [45](#)
theme_UC_nogrid (theme_UC), [45](#)
theme_UC_vgrid (theme_UC), [45](#)

UC_html_document, [47](#)
UC_pdf_document, [48](#)
UC_word_document, [49](#)
util_git_check_uncommitted, [49](#)
util_git_commit_id, [50](#)

word_document, [49](#)
word_document2, [49](#)