Package 'condformat'

October 8, 2023

Type Package

Title Conditional Formatting in Data Frames

Version 0.10.1

Date 2023-10-08

URL https://zeehio.github.io/condformat/, https://github.com/zeehio/condformat

BugReports https://github.com/zeehio/condformat/issues

Description Apply and visualize conditional formatting to data frames in R. It renders a data frame with cells formatted according to criteria defined by rules, using a tidy evaluation syntax. The table is printed either opening a web browser or within the 'RStudio' viewer if available. The conditional formatting rules allow to highlight cells matching a condition or add a gradient background to a given column. This package supports both 'HTML' and 'LaTeX' outputs in 'knitr' reports, and exporting to an 'xlsx' file.

License BSD_3_clause + file LICENSE

NeedsCompilation no

Imports dplyr (>= 0.7.7), grDevices, gridExtra (>= 2.3), gtable (>= 0.2.0), htmlTable (>= 1.9), htmltools (>= 0.3.6), knitr (>= 1.20), magrittr (>= 1.5), openxlsx (>= 4.1.5), rmarkdown (>= 1.10), rlang (>= 0.3.0), scales (>= 1.0.0), tibble (>= 1.3.4), tidyselect (>= 1.0.0)

Suggests promises, shiny (>= 1.0.5), testthat (>= 1.0), vdiffr (>= 1.0.4)

VignetteBuilder knitr

Encoding UTF-8

RoxygenNote 7.2.3

Author Sergio Oller Moreno [aut, cph, cre] (<https://orcid.org/0000-0002-8994-1549>)

Maintainer Sergio Oller Moreno <sergioller@gmail.com>

Repository CRAN

Date/Publication 2023-10-08 07:00:02 UTC

R topics documented:

`cf_field_to_css` *How to export a cf_field to CSS*

Description

This method is exported so package users can generate their own rules

Usage

```
cf_field_to_css(cf_field, xview, css_fields, unlocked)
```

Arguments

cf_field	A cf_field object. This is like a rule, but with the computed colour values. It usually maps one-to-one to a CSS field.
xview	A data frame with the columns to be printed and rows filtered
css_fields	A list of matrices. The names of the list are CSS attributes and each matrix is of the size of xview and contains the respective CSS values.
unlocked	A logical matrix of cells unlocked (that can still be modified by further rules).

Value

A list with two elements: css_fields and unlocked (with updated values)

---

cf_field_to_gtable *How to export a cf_field to grob*

Description

This method is exported so package users can generate their own rules

Usage

```
cf_field_to_gtable(
  cf_field,
  xview,
  gridobj,
  unlocked,
  has_rownames,
  has_colnames
)
```

Arguments

cf_field	A cf_field object. This is like a rule, but with the computed colour values. It usually maps one-to-one to a CSS field.
xview	A data frame with the columns to be printed and rows filtered
gridobj	The tableGrob object
unlocked	A logical matrix of cells unlocked (that can still be modified by further rules).
has_rownames	Whether or not the gridobj has a first column with row names
has_colnames	Whether or not the gridobj has a first row with column names

Value

A list with two elements: gridobj and unlocked (with updated values)

cf_field_to_latex *How to export cf values to latex*

Description

How to export cf values to latex

Usage

```
cf_field_to_latex(cf_field, xview, unlocked)
```

Arguments

cf_field	A cf_field object. This is like a rule, but with the computed colour values. It usually maps one-to-one to a CSS field.
xview	A data frame with the columns to be printed and rows filtered
unlocked	A logical matrix of cells unlocked (that can still be modified by further rules).

Value

A list with two character matrices named `before` and `after`. Both of these matrices must be of the same size as `xview`.

condformat *Conditional formatting for data frames*

Description

A `condformat_tbl` object is a data frame with attributes regarding the formatting of their cells, that can be viewed when the `condformat_tbl` object is printed.

Usage

```
condformat(x)
```

Arguments

x	A matrix or data.frame

Value

The `condformat_tbl` object. This object can be piped to apply conditional formatting rules. It can also be used as a conventional data frame.

The `condformat_tbl` print method generates an `htmlTable`, to be viewed using the 'RStudio Viewer' or an 'HTML browser', as available.

Examples

```
data(iris)
cf <- condformat(iris[1:5,])
## Not run:
print(cf)

## End(Not run)

cf <- condformat(iris[1:5,]) %>% rule_fill_gradient(Sepal.Length)
## Not run:
print(cf)

## End(Not run)

cf <- condformat(iris[1:5,]) %>%
 rule_fill_discrete(Sepal.Length, expression=Sepal.Width > 2)
## Not run:
print(cf)

## End(Not run)
```

---

condformat-shiny *Shiny bindings for condformat*

Description

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

Usage

```
condformatOutput(outputId, ...)

renderCondformat(expr, env = parent.frame(), quoted = FALSE)

condformat_example(display.mode = "normal")
```

Arguments

outputId	output variable to read from
...	arguments passed to htmlOutput
expr	An expression that generates a condformat object
env	The environment in which to evaluate expr.
quoted	Is expr a quoted expression (with quote())? This is useful if you want to save an expression in a variable.

display.mode	The mode in which to display the application. If set to the value "showcase", shows application code and metadata from a DESCRIPTION file in the application directory alongside the application. If set to "normal", displays the application normally. Defaults to "auto", which displays the application in the mode given in its DESCRIPTION file, if any.

---

condformat2excel *Writes the table to an Excel workbook*

Description

Writes the table to an Excel workbook

Usage

```
condformat2excel(
  x,
  filename,
  sheet_name = "Sheet1",
  overwrite_wb = FALSE,
  overwrite_sheet = TRUE
)
```

Arguments

x	A condformat_tbl object
filename	The xlsx file name.
sheet_name	The name of the sheet where the table will be written
overwrite_wb	logical to overwrite the whole workbook file
overwrite_sheet	logical to overwrite the sheet

---

condformat2grob *Converts the table to a grid object*

Description

Converts the table to a grid object

Usage

```
condformat2grob(x, draw = TRUE)
```

Arguments

x	A condformat_tbl object
draw	A logical. If TRUE (default), the table is immediately drawn using grid::draw() and the grob is returned. If FALSE, the grob is returned without drawing. Set draw=FALSE when using the grob in composite images with gridExtra::grid.arrange() or ggpubr::ggarrange().

Value

the grid object

Examples

```
library(condformat)
data.frame(Student = c("Alice", "Bob", "Charlie"),
           Evaluation = c("Great", "Well done", "Good job!")) %>%
 condformat() %>%
 condformat2grob()
```

---

condformat2html *Converts the table to a htmlTable object*

Description

Converts the table to a htmlTable object

Usage

```
condformat2html(x)
```

Arguments

x	A condformat_tbl object

Value

the htmlTable object

Examples

```
data(iris)
cf <- condformat2html(condformat(iris[1:5,]))
## Not run:
print(cf)

## End(Not run)
```

condformat2latex *Converts the table to LaTeX code*

Description

Converts the table to LaTeX code

Usage

```
condformat2latex(x)
```

Arguments

x	A condformat_tbl object

Value

A character vector of the table source code

condformat2widget *Converts the table to a htmlTableWidget*

Description

Converts the table to a htmlTableWidget

Usage

```
condformat2widget(x, ...)
```

Arguments

x	A condformat_tbl object
...	Deprecated: Arguments passed to htmlTable::htmlTableWidget

Value

the htmlTable widget

Examples

```
## Not run:
data(iris)
cf <- condformat2widget(condformat(iris[1:5,]))
\dontrun{
print(cf)
}

## End(Not run)
```

knit_print.condformat_tbl *Print method for knitr, exporting to HTML or LaTeX as needed*

Description

Print method for knitr, exporting to HTML or LaTeX as needed

Usage

```
## S3 method for class 'condformat_tbl'
knit_print(x, ...)
```

Arguments

x	Object to print
...	On a LaTeX output these are unused. On an HTML output can have paginate=TRUE or paginate = FALSE

print.condformat_tbl *Prints the data frame in an HTML page and shows it.*

Description

Prints the data frame in an HTML page and shows it.

Usage

```
## S3 method for class 'condformat_tbl'
print(x, ..., paginate = TRUE)
```

Arguments

x	A condformat_tbl object
...	Arguments passed on to htmltools::html_print background Background color for web page viewer A function to be called with the URL or path to the generated HTML page. Can be NULL, in which case no viewer will be invoked.
paginate	A logical value. If TRUE the printing will be paginated

Value

the value returned by htmlTable::htmlTable()

Examples

```
data(iris)
## Not run:
print(condformat(iris[1:5,]))

## End(Not run)
```

`rule_css` *Apply a CSS style property as a conditional formatting rule*

Description

Apply a CSS style property as a conditional formatting rule

Usage

```
rule_css(x, columns, expression, css_field, na.value = "", lockcells = FALSE)
```

Arguments

`x`	A condformat object, typically created with `condformat()`
`columns`	A character vector with column names to be coloured. Optionally `tidyselect::language()` can be used.
`expression`	This expression should evaluate to an array of the values
`css_field`	CSS style property name (e.g. `"color"`)
`na.value`	CSS property value to be used in missing values (e.g. `"grey"`)
`lockcells`	logical value determining if no further rules should be applied to the affected cells.

See Also

Other rule: `rule_fill_bar()`, `rule_fill_discrete()`, `rule_fill_gradient2()`, `rule_fill_gradient()`, `rule_text_bold()`, `rule_text_color()`

Examples

```
data(iris)
cf <- condformat(iris[c(1:5, 51:55, 101:105),]) %>%
  rule_css(Species, expression = ifelse(Species == "setosa", "red", "darkgreen"),
           css_field = "color")
## Not run:
print(cf)

## End(Not run)
```

rule_fill_bar *Fill column with a bar of a length proportional to a value*

Description

Fills the background of a column cell using a bar proportional to the value of the cell

Usage

```
rule_fill_bar(
  x,
  columns,
  expression,
  low = "darkgreen",
  high = "white",
  background = "white",
  na.value = "gray",
  limits = NA,
  lockcells = FALSE
)
```

Arguments

x	A condformat object, typically created with condformat()
columns	A character vector with column names to be coloured. Optionally tidyselect::language() can be used.
expression	an expression to be evaluated with the data. It should evaluate to a numeric vector, that will be used to determine the colour gradient level.
low	Colour for the beginning of the bar
high	Colour for the end of the bar
background	Background colour for the cell
na.value	Colour for missing values
limits	range of limits that the gradient should cover
lockcells	logical value determining if no further rules should be applied to the affected cells.

Value

The condformat_tbl object, with the added formatting information

See Also

Other rule: rule_css(), rule_fill_discrete(), rule_fill_gradient2(), rule_fill_gradient(), rule_text_bold(), rule_text_color()

Examples

```
data(iris)
cf <- condformat(iris[c(1:5, 70:75, 120:125), ]) %>% rule_fill_bar("Sepal.Length")
## Not run:
print(cf)

## End(Not run)
```

`rule_fill_discrete` *Fill column with discrete colors*

Description

Fills a column or columns of a data frame using a discrete colour palette, based on an expression.

Usage

```
rule_fill_discrete(
  x,
  columns,
  expression,
  colours = NA,
  na.value = "#FFFFFF",
  h = c(0, 360) + 15,
  c = 100,
  l = 65,
  h.start = 0,
  direction = 1,
  lockcells = FALSE
)
```

Arguments

`x`	A condformat object, typically created with `condformat()`
`columns`	A character vector with column names to be coloured. Optionally `tidyselect::language()` can be used.
`expression`	an expression to be evaluated with the data. It should evaluate to a logical or an integer vector, that will be used to determine which cells are to be coloured.
`colours`	a character vector with colours as values and the expression possible results as names.
`na.value`	a character string with the CSS color to be used in missing values
`h`	range of hues to use, in [0, 360]
`c`	chroma (intensity of colour), maximum value varies depending on combination of hue and luminance.
`l`	luminance (lightness), in [0, 100]

h.start	hue to start at
direction	direction to travel around the colour wheel, 1 = clockwise, -1 = counter-clockwise
lockcells	logical value determining if no further rules should be applied to the affected cells.

Value

The condformat_tbl object, with the added formatting information

See Also

Other rule: rule_css(), rule_fill_bar(), rule_fill_gradient2(), rule_fill_gradient(), rule_text_bold(), rule_text_color()

Examples

```
data(iris)
cf <- condformat(iris[c(1:5, 70:75, 120:125), ]) %>%
 rule_fill_discrete("Species", colours = c("setosa" = "red",
                                           "versicolor" = "blue",
                                           "virginica" = "green")) %>%
 rule_fill_discrete("Sepal.Length", expression = Sepal.Length > 4.6,
                    colours=c("TRUE"="red"))
## Not run:
print(cf)

## End(Not run)

cf <- condformat(iris[c(1:5, 70:75, 120:125), ]) %>%
 rule_fill_discrete(c(starts_with("Sepal"), starts_with("Petal")),
                    expression = Sepal.Length > 4.6,
                    colours=c("TRUE"="red"))
## Not run:
print(cf)

## End(Not run)
```

---

rule_fill_gradient *Fill column with sequential colour gradient*

Description

Fills the background color of a column using a gradient based on the values given by an expression

Usage

```
rule_fill_gradient(
  x,
  columns,
  expression,
  low = "#132B43",
  high = "#56B1F7",
  space = "Lab",
  na.value = "#7F7F7F",
  limits = NA,
  lockcells = FALSE
)
```

Arguments

x	A condformat object, typically created with condformat()
columns	A character vector with column names to be coloured. Optionally tidyselect::language() can be used.
expression	an expression to be evaluated with the data. It should evaluate to a numeric vector, that will be used to determine the colour gradient level.
low	colour for low end of gradient.
high	colour for high end of gradient.
space	colour space in which to calculate gradient. Must be "Lab" - other values are deprecated.
na.value	fill color for missing values
limits	range of limits that the gradient should cover
lockcells	logical value determining if no further rules should be applied to the affected cells.

Value

The condformat_tbl object, with the added formatting information

See Also

Other rule: rule_css(), rule_fill_bar(), rule_fill_discrete(), rule_fill_gradient2(), rule_text_bold(), rule_text_color()

Examples

```
data(iris)
cf <- condformat(iris[c(1:5, 70:75, 120:125), ]) %>%
  rule_fill_gradient(Sepal.Length) %>%
  rule_fill_gradient(Species, expression=Sepal.Length - Sepal.Width)
## Not run:
print(cf)
```

```
## End(Not run)

cf <- condformat(iris[c(1:5, 70:75, 120:125), ]) %>%
  rule_fill_gradient("Petal.Length") %>%
  rule_fill_gradient(starts_with("Sepal"), expression=Sepal.Length - Sepal.Width)
## Not run:
print(cf)

## End(Not run)
```

`rule_fill_gradient2` *Fill column with sequential color gradient*

Description

Fills the background color of a column using a gradient based on the values given by an expression

Usage

```
rule_fill_gradient2(
  x,
  columns,
  expression,
  low = scales::muted("red"),
  mid = "white",
  high = scales::muted("blue"),
  midpoint = NA,
  space = "Lab",
  na.value = "#7F7F7F",
  limits = NA,
  lockcells = FALSE
)
```

Arguments

`x`	A condformat object, typically created with `condformat()`
`columns`	A character vector with column names to be colored. Optionally `tidyselect::language()` can be used.
`expression`	an expression to be evaluated with the data. It should evaluate to a logical or an integer vector, that will be used to determine which cells are to be colored.
`low`	colour for low end of gradient.
`mid`	colour for mid point
`high`	colour for high end of gradient.
`midpoint`	the value used for the middle color (the median by default)

space	colour space in which to calculate gradient. Must be "Lab" - other values are deprecated.
na.value	fill color for missing values
limits	range of limits that the gradient should cover
lockcells	logical value determining if no further rules should be applied to the affected cells.

Value

The condformat_tbl object, with the added formatting information

See Also

Other rule: rule_css(), rule_fill_bar(), rule_fill_discrete(), rule_fill_gradient(), rule_text_bold(), rule_text_color()

Examples

```
data(iris)
cf <- condformat(iris[c(1:5, 70:75, 120:125), ]) %>%
 rule_fill_gradient2(Sepal.Length) %>%
 rule_fill_gradient2(Species, expression=Sepal.Length - Sepal.Width)
## Not run:
print(cf)

## End(Not run)

cf <- condformat(iris[c(1:5, 70:75, 120:125), ]) %>%
  rule_fill_gradient2("Petal.Length") %>%
  rule_fill_gradient2(starts_with("Sepal"), expression=Sepal.Length - Sepal.Width)
## Not run:
print(cf)

## End(Not run)
```

---

rule_text_bold *Use bold text if a condition is met*

Description

Use bold text if a condition is met

Usage

```
rule_text_bold(x, columns, expression, na.bold = FALSE, lockcells = FALSE)
```

Arguments

x	A condformat object, typically created with condformat()
columns	A character vector with column names to be coloured. Optionally tidyselect::language() can be used.
expression	Condition that evaluates to TRUE for the rows where bold text should be applied.
na.bold	If TRUE, make missing values bold.
lockcells	logical value determining if no further rules should be applied to the affected cells.

See Also

Other rule: rule_css(), rule_fill_bar(), rule_fill_discrete(), rule_fill_gradient2(), rule_fill_gradient(), rule_text_color()

Examples

```
data(iris)
cf <- condformat(iris[c(1:5, 51:55, 101:105),]) %>%
  rule_text_bold(Species, expression = Species == "setosa")
## Not run:
print(cf)

## End(Not run)
```

---

rule_text_color *Give a color to the text according to some expression*

Description

Give a color to the text according to some expression

Usage

```
rule_text_color(x, columns, expression, na.color = "", lockcells = FALSE)
```

Arguments

x	A condformat object, typically created with condformat()
columns	A character vector with column names to be coloured. Optionally tidyselect::language() can be used.
expression	Condition that evaluates to color names for the rows where text should be colored
na.color	Color for missing values
lockcells	logical value determining if no further rules should be applied to the affected cells.

See Also

Other rule: rule_css(), rule_fill_bar(), rule_fill_discrete(), rule_fill_gradient2(), rule_fill_gradient(), rule_text_bold()

Examples

```
data(iris)
cf <- condformat(iris[c(1:5, 51:55, 101:105),]) %>%
  rule_text_color(Species, expression = ifelse(Species == "setosa", "blue", ""))
## Not run:
print(cf)

## End(Not run)
```

---

show_columns *Selects the variables to be printed*

Description

Keeps the variables you mention in the printed table. Compared to dplyr::select(), show_columns does not remove the columns from the data frame, so formatting rules can still depend on them.

Usage

```
show_columns(x, columns, col_names)
```

Arguments

x	A condformat object, typically created with condformat()
columns	A character vector with column names to be to show. It can also be an expression can be used that will be parsed according to tidyselect::language(). See examples.
col_names	Character vector with the column names for the selected columns

Value

The condformat object with the rule added

See Also

dplyr::select()

Examples

```
data(iris)
x <- head(iris)

# Include some columns:
cf <- condformat(x) %>% show_columns(c(Sepal.Length, Sepal.Width, Species))
## Not run:
print(cf)

## End(Not run)
cf <- condformat(x) %>% show_columns(c("Sepal.Length", "Sepal.Width", "Species"))
## Not run:
print(cf)

## End(Not run)

# Rename columns:
cf <- condformat(x) %>%
  show_columns(c(Sepal.Length, Species),
               col_names = c("Length", "Spec."))
## Not run:
print(cf)

## End(Not run)

# Exclude some columns:
cf <- condformat(x) %>% show_columns(c(-Petal.Length, -Petal.Width))
## Not run:
print(cf)

## End(Not run)

cf <- condformat(x) %>% show_columns(c(starts_with("Petal"), Species))
## Not run:
print(cf)

## End(Not run)

petal_width <- "Petal.Width"
cf <- condformat(x) %>% show_columns(!! petal_width)
## Not run:
print(cf)

## End(Not run)
```

---

show_rows *Selects the rows to be printed*

Description

Keeps the rows you mention in the printed table. Compared to `dplyr::filter()`, show_rows does not remove the rows from the actual data frame, they are removed only for printing.

Usage

```
show_rows(x, ...)
```

Arguments

x	condformat_tbl object
...	Expressions used for filtering

Value

A condformat_show_rows object, usually to be added to a condformat_tbl object as shown in the examples

See Also

`dplyr::filter()`

Examples

```
library(condformat)
data(iris)
x <- head(iris)
cf <- condformat(x) %>% show_rows(Sepal.Length > 4.5, Species == "setosa")
## Not run:
print(cf)

## End(Not run)
# Use it programatically
expr_as_text <- 'Sepal.Length > 4.5'
expr <- rlang::parse_expr(expr_as_text)
cf <- condformat(x) %>% show_rows(!! expr)
## Not run:
print(cf)

## End(Not run)
# With multiple arguments:
expr_as_text <- c('Sepal.Length > 4.5', 'Species == "setosa"')
exprs <- lapply(expr_as_text, rlang::parse_expr)
cf <- condformat(x) %>% show_rows(!!! exprs)
## Not run:
print(cf)

## End(Not run)
```

theme_caption *Sets the caption of a condformat object*

Description

The advantage with respect to theme_htmlTable(caption = "My table") is that this works with HTML and LaTeX outputs

Usage

```
theme_caption(x, caption = "")
```

Arguments

x	The condformat object
caption	The caption to show

Examples

```
data(iris)
cf <- condformat(head(iris)) %>%
  theme_caption(caption = "My Caption")
## Not run:
print(cf)

## End(Not run)
```

theme_grob *Customizes appearance of condformat object*

Description

This is only used on grob output.

Usage

```
theme_grob(x, ...)
```

Arguments

x	The condformat object
...	Arguments to be passed to gridExtra::tableGrob (see examples)

See Also

gridExtra::tableGrob()

Examples

```
data(iris)
cf <- condformat(head(iris)) %>%
  theme_grob(
    rows = NULL,
    theme = gridExtra::ttheme_default(base_size = 10, base_colour = "red")
  )
condformat2grob(cf)
```

`theme_htmlTable` *Customizes appearance of condformat object*

Description

Customizes appearance of condformat object

Usage

```
theme_htmlTable(x, ...)
```

Arguments

`x`	The condformat object
`...`	Arguments to be passed to htmlTable

See Also

`htmlTable::htmlTable()`

Examples

```
data(iris)
cf <- condformat(head(iris)) %>%
  theme_htmlTable(caption="Table 1: My iris table", rnames=FALSE)
## Not run:
print(cf)

## End(Not run)
```

theme_htmlWidget *Customizes appearance of condformat object*

Description

Customizes appearance of condformat object

Usage

```
theme_htmlWidget(x, ...)
```

Arguments

x	The condformat object
...	Arguments to be passed to htmlTable::htmlTableWidget (see examples)

See Also

htmlTable::htmlTable()

Examples

```
data(iris)
cf <- condformat(head(iris)) %>%
  theme_htmlWidget(number_of_entries = c(10, 25, 100),
                   width = NULL, height = NULL, elementId = NULL)
## Not run:
print(cf)

## End(Not run)
```

theme_kable *Customizes appearance of condformat object*

Description

This is only used on LaTeX output.

Usage

```
theme_kable(x, ...)
```

Arguments

x	The condformat object
...	Arguments to be passed to knitr::kable (see examples)

See Also

knitr::kable()

Examples

```
data(iris)
cf <- condformat(head(iris)) %>%
  theme_kable(booktabs = TRUE, caption = "My Caption")
## Not run:
print(cf)

## End(Not run)
```

Index