

Package ‘formatters’

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Title ASCII Formatting for Values and Tables

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Description We provide a framework for rendering complex tables to ASCII, and a set of formatters for transforming values or sets of values into ASCII-ready display strings.

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Depends methods, R (>= 2.10)

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Encoding UTF-8

LazyData true

URL <https://github.com/insightengineering/formatters>

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basic_matrix_form	<i>Create spoof matrix form from a data.frame</i>
-------------------	---

Description

This is useful primarily for writing testing/examples, and as a starting point for more sophisticated custom ‘matrix_form’ methods

Usage

```
basic_matrix_form(df)
```

Arguments

df	data.frame
----	------------

Value

A valid 'MatrixPrintForm' object representing 'df', ready for ASCII rendering

Examples

```
mform <- basic_matrix_form(mtcars)
cat(toString(mform))
```

 basic_pagdf

Basic/spoof pagination info dataframe

Description

Returns a minimal pagination info data.frame (with no sibling/footnote/etc info).

Usage

```
basic_pagdf(
  rnames,
  labs = rnames,
  rnums = seq_along(rnames),
  extents = 1L,
  rclass = "NA"
)
```

Arguments

rnames	character. Vector of row names
labs	character. Vector of row labels (defaults to names)
rnums	integer. Vector of row numbers. Defaults to 'seq_along(rnames)'.
extents	integer. Number of lines each row will take to print,d defaults to 1 for all rows
rclass	character. Class(es) for the rows. Defaults to "NA"

Value

A data.frame suitable for use in both the 'matrix_print_form' constructor and the pagination machinery

Examples

```
basic_pagdf(c("hi", "there"))
```

default_hsep	<i>Default horizontal Separator</i>
--------------	-------------------------------------

Description

The default horizontal separator character which can be displayed in the current charset for use in rendering table-likes.

Usage

```
default_hsep()
```

Value

unicode 2014 (long dash for generating solid horizontal line) if in a locale that uses a UTF character set, otherwise an ASCII hyphen with a once-per-session warning.

Examples

```
default_hsep()
```

divider_height	<i>Divider Height</i>
----------------	-----------------------

Description

Divider Height

Usage

```
divider_height(obj)
```

```
## S4 method for signature 'ANY'
divider_height(obj)
```

Arguments

obj ANY. Object.

Value

The height, in lines of text, of the divider between header and body. Currently returns 1L for the default method.

Examples

```
divider_height(mtcars)
```

DM	<i>DM data</i>
----	----------------

Description

DM data

Usage

DM

Format

rds (data.frame)

ex_ads1	<i>Simulated CDISC Alike Data for Examples</i>
---------	--

Description

Simulated CDISC Alike Data for Examples

Usage

ex_ads1

ex_adae

ex_adaette

ex_adtte

ex_adcm

ex_adlb

ex_admh

ex_adqs

ex_adrs

ex_advS

Format

rds (data.frame)

An object of class tbl_df (inherits from tbl, data.frame) with 1934 rows and 48 columns.

An object of class tbl_df (inherits from tbl, data.frame) with 1200 rows and 42 columns.

An object of class tbl_df (inherits from tbl, data.frame) with 1200 rows and 42 columns.

An object of class tbl_df (inherits from tbl, data.frame) with 1934 rows and 41 columns.

An object of class tbl_df (inherits from tbl, data.frame) with 8400 rows and 59 columns.

An object of class tbl_df (inherits from tbl, data.frame) with 1934 rows and 41 columns.

An object of class tbl_df (inherits from tbl, data.frame) with 14000 rows and 49 columns.

An object of class tbl_df (inherits from tbl, data.frame) with 2400 rows and 41 columns.

An object of class tbl_df (inherits from tbl, data.frame) with 16800 rows and 59 columns.

format_value	<i>Converts a (possibly compound) value into a string using the format information</i>
--------------	--

Description

Converts a (possibly compound) value into a string using the format information

Usage

```
format_value(x, format = NULL, output = c("ascii", "html"), na_str = "NA")
```

Arguments

x	ANY. The value to be formatted
format	character(1) or function. The format label (string) or formatter function to apply to x.
output	character(1). output type
na_str	character(1). String that should be displayed when the value of x is missing. Defaults to "NA".

Value

formatted text representing the cell x.

See Also

[round_fmt()]

Examples

```
x <- format_value(pi, format = "xx.xx")
x

format_value(x, output = "ascii")
```

ifnotlen0	'% %' <i>If length-0 alternative operator</i>
-----------	--

Description

'%||%' If length-0 alternative operator

Usage

```
a %||% b
```

Arguments

a	ANY. Element to select only if it is not length 0
b	ANY. Element to select if a is length 0

Value

'a', unless it is length 0, in which case 'b' (even in the case 'b' is also length 0)

Examples

```
6 %||% 10

character() %||% "hi"

NULL %||% "hi"
```

is.wholenumber	<i>is.wholenumber</i>
----------------	-----------------------

Description

is.wholenumber

Usage

```
is.wholenumber(x, tol = .Machine$double.eps^0.5)
```

Arguments

x	numeric(1). A numeric value
tol	numeric(1). A precision tolerance.

Value

TRUE if x is within tol of zero, FALSE otherwise.

Examples

```
is.wholenumber(5)
is.wholenumber(5.0000000000000001)
is.wholenumber(.5)
```

is_valid_format	<i>Check if a format is supported</i>
-----------------	---------------------------------------

Description

Check if a format is supported

Usage

```
is_valid_format(x, stop_otherwise = FALSE)
```

Arguments

x	either format string or an object returned by <code>sprintf_format</code>
stop_otherwise	logical, if x is not a format should an error be thrown

Value

TRUE if x is NULL, a supported format string, or a function; FALSE otherwise.

Note

No check if the function is actually a formatter is performed.

Examples

```
is_valid_format("xx.x")
is_valid_format("fakeyfake")
```

lab_name	<i>Label, Name and Format accessor generics Getters and setters for basic, relatively universal attributes of "table-like" objects"</i>
----------	---

Description

Label, Name and Format accessor generics

Getters and setters for basic, relatively universal attributes of "table-like" objects"

Usage

```
obj_name(obj)

obj_name(obj) <- value

obj_label(obj)

obj_label(obj) <- value

## S4 method for signature 'ANY'
obj_label(obj)

## S4 replacement method for signature 'ANY'
obj_label(obj) <- value

obj_format(obj)

## S4 method for signature 'ANY'
obj_format(obj)

obj_format(obj) <- value

## S4 replacement method for signature 'ANY'
obj_format(obj) <- value
```

Arguments

obj	ANY. The object.
value	character(1). The new label

Value

the name, format or label of obj for getters, or obj after modification for setters.

See Also

with_label

list_valid_format_labels

List with currently support 'xx' style format labels grouped by 1d, 2d and 3d

Description

Currently valid format labels can not be added dynamically. Format functions must be used for special cases

Usage

```
list_valid_format_labels()
```

Value

A nested list, with elements listing the supported 1d, 2d, and 3d format strings.

Examples

```
list_valid_format_labels()
```

main_title

General title/footer accessors

Description

General title/footer accessors

Usage

```
main_title(obj)

## S4 method for signature 'MatrixPrintForm'
main_title(obj)

main_title(obj) <- value

subtitles(obj)

## S4 method for signature 'MatrixPrintForm'
subtitles(obj)

subtitles(obj) <- value

page_titles(obj)

## S4 method for signature 'MatrixPrintForm'
page_titles(obj)

## S4 method for signature 'ANY'
page_titles(obj)

page_titles(obj) <- value

## S4 replacement method for signature 'MatrixPrintForm'
page_titles(obj) <- value

main_footer(obj)

## S4 method for signature 'MatrixPrintForm'
main_footer(obj)

main_footer(obj) <- value

## S4 replacement method for signature 'MatrixPrintForm'
main_footer(obj) <- value

prov_footer(obj)

## S4 method for signature 'MatrixPrintForm'
prov_footer(obj)

prov_footer(obj) <- value

## S4 replacement method for signature 'MatrixPrintForm'
prov_footer(obj) <- value
```

```
all_footers(obj)
```

```
all_titles(obj)
```

Arguments

obj ANY. Object to extract information from.
 value character. New value.

Value

a character scalar ('main_title', 'main_footer'), or vector of length zero or more ('subtitles', 'page_titles', 'prov_footer') containing the relevant title/footer contents

make_row_df	<i>Make row and column layout summary data.frames for use during pagination</i>
-------------	---

Description

Make row and column layout summary data.frames for use during pagination

Usage

```
make_row_df(
  tt,
  colwidths = NULL,
  visible_only = TRUE,
  rownum = 0,
  indent = 0L,
  path = character(),
  incontent = FALSE,
  repr_ext = 0L,
  repr_inds = integer(),
  sibpos = NA_integer_,
  nsibs = NA_integer_
)
```

Arguments

tt ANY. Object representing the table-like object to be summarized.
 colwidths numeric. Internal detail do not set manually.
 visible_only logical(1). Should only visible aspects of the table structure be reflected in this summary. Defaults to TRUE. May not be supported by all methods.
 rownum numeric(1). Internal detail do not set manually.
 indent integer(1). Internal detail do not set manually.

path	<p>character. Path to the (sub)table represented by tt. Defaults to character() @details When <code>visible_only</code> is TRUE (the default), methods should return a data.frame with exactly one row per visible row in the table-like object. This is useful when reasoning about how a table will print, but does not reflect the full pathing space of the structure (though the paths which are given will all work as is).</p> <p>If supported, when <code>visible_only</code> is FALSE, every structural element of the table (in row-space) will be reflected in the returned data.frame, meaning the full pathing-space will be represented but some rows in the layout summary will not represent printed rows in the table as it is displayed.</p> <p>Most arguments beyond <code>tt</code> and <code>visible_only</code> are present so that ‘<code>make_row_df</code>’ methods can call ‘<code>make_row_df</code>’ recursively and retain information, and should not be set during a top-level call</p>
incontent	logical(1). Internal detail do not set manually.
repr_ext	integer(1). Internal detail do not set manually.
repr_inds	integer. Internal detail do not set manually.
sibpos	integer(1). Internal detail do not set manually.
nsibs	integer(1). Internal detail do not set manually.

Value

a data.frame of row/column-structure information used by the pagination machinery.

Note

the technically present root tree node is excluded from the summary returned by both `make_row_df` and `make_col_df`, as it is simply the row/column structure of `tt` and thus not useful for pathing or pagination.

MatrixPrintForm	<i>Matrix Print Form - Intermediate Representation for ASCII Table Printing</i>
-----------------	---

Description

This should generally only be called by ‘`matrix_form`’ custom methods, and almost never from other code.

Usage

```
matrix_print_form(
  strings = NULL,
  spans,
  aligns,
  formats,
```

```

    row_info,
    line_grouping = seq_len(NROW(strings)),
    ref_fnotes = list(),
    nlines_header,
    nrow_header,
    has_topleft = TRUE,
    has_rowlabs = has_topleft,
    expand_newlines = TRUE,
    main_title = "",
    subtitles = character(),
    page_titles = character(),
    main_footer = "",
    prov_footer = character()
)

```

```

MatrixPrintForm(
  strings = NULL,
  spans,
  aligns,
  formats,
  row_info,
  line_grouping = seq_len(NROW(strings)),
  ref_fnotes = list(),
  nlines_header,
  nrow_header,
  has_topleft = TRUE,
  has_rowlabs = has_topleft,
  expand_newlines = TRUE,
  main_title = "",
  subtitles = character(),
  page_titles = character(),
  main_footer = "",
  prov_footer = character()
)

```

Arguments

<code>strings</code>	character matrix. Matrix of formatted, ready to display strings organized as they will be positioned when rendered. Elements that span more than one column must be followed by the correct number of placeholders (typically either empty strings or repeats of the value).
<code>spans</code>	numeric matrix. Matrix of same dimension as <code>strings</code> giving the spanning information for each element. Must be repeated to match placeholders in <code>strings</code> .
<code>aligns</code>	character matrix. Matrix of same dimension as <code>strings</code> giving the text alignment information for each element. Must be repeated to match placeholders in <code>strings</code> .
<code>formats</code>	matrix. Matrix of same dimension as <code>strings</code> giving the text format information for each element. Must be repeated to match placeholders in <code>strings</code> .

row_info	data.frame. Data.frame with row-information necessary for pagination (XXX document exactly what that is).
line_grouping	integer. Sequence of integers indicating how print lines correspond to semantic rows in the object. Typically this should not be set manually unless <code>exact_newlines</code> is set to FALSE.
ref_fnotes	list. Referential footnote information if applicable.
nlines_header	numeric(1). Number of lines taken up by the values of the header (ie not including the divider).
nrow_header	numeric(1). Number of <i>rows</i> corresponding to the header.
has_topleft	logical(1). Does the corresponding table have 'top left information' which should be treated differently when expanding newlines. Ignored if <code>expand_newlines</code> is FALSE.
has_rowlabs	logical(1). Do the matrices (<code>strings</code> , <code>spans</code> , <code>aligns</code>) each contain a column that corresponds with row labels (Rather than with table cell values). Defaults to TRUE.
expand_newlines	logical(1). Should the matrix form generated expand rows whose values contain newlines into multiple 'physical' rows (as they will appear when rendered into ASCII). Defaults to TRUE
main_title	character(1). Main title as a string.
subtitles	character. Subtitles, as a character vector.
page_titles	character. Page-specific titles, as a character vector.
main_footer	character(1). Main footer as a string.
prov_footer	character. Provenance footer information as a character vector.

Value

An object of class 'MatrixPrintForm'. Currently this is implemented as an S3 class inheriting from `list` with the following elements:

`strings` see argument

`spans` see argument

`aligns` see argument

`display` logical matrix of same dimension as 'strings' that specifies whether an element in 'strings' will be displayed when the table is rendered

`formats` see argument

`row_info` see argument

`line_grouping` see argument

`ref_footnotes` see argument

`main_title` see argument

`subtitles` see argument

`page_titles` see argument

main_footer see argument

prov_footer see argument

as well as the following attributes:

nlines_header see argument

nrow_header see argument

ncols number of columns *of the table*, not including any row names/row labels

matrix_form	<i>Transform rtable to a list of matrices which can be used for outputting</i>
-------------	--

Description

Although rtables are represented as a tree data structure when outputting the table to ASCII or HTML it is useful to map the rtable to an in between state with the formatted cells in a matrix form.

Usage

```
matrix_form(obj, indent_rownames = FALSE, indent_size = 2)
```

```
## S4 method for signature 'MatrixPrintForm'
```

```
matrix_form(obj, indent_rownames = FALSE, indent_size = 2)
```

Arguments

obj ANY. Object to be transformed into a ready-to-render form (a MatrixPrintForm object)

indent_rownames logical(1), if TRUE the column with the row names in the 'strings' matrix of has indented row names (strings pre-fixed)

indent_size numeric(1). Number of spaces to be used per level of indent (if supported by the relevant method). Defaults to 2.

Details

The strings in the return object are defined as follows: row labels are those determined by `summarize_rows` and cell values are determined using `get_formatted_cells`. (Column labels are calculated using a non-exported internal function).

Value

A ‘MatrixPrintForm’ classed list with the following elements:

strings The content, as it should be printed, of the top-left material, column headers, row labels , and cell values of tt

spans The column-span information for each print-string in the strings matrix

aligns The text alignment for each print-string in the strings matrix

display Whether each print-string in the strings matrix should be printed or not.

row_info the data.frame generated by summarize_rows(tt)

With an additional nrow_header attribute indicating the number of pseudo "rows" the column structure defines.

nlines	<i>Number of lines required to print a value</i>
--------	--

Description

Number of lines required to print a value

Usage

```
nlines(x, colwidths)
```

```
## S4 method for signature 'list'
nlines(x, colwidths)
```

```
## S4 method for signature ``NULL``
nlines(x, colwidths)
```

```
## S4 method for signature 'character'
nlines(x, colwidths)
```

Arguments

x ANY. The object to be printed

colwidths numeric. Column widths (if necessary)

Value

A scalar numeric indicating the number of lines needed to render the object x.

padstr

Pad a string and align within string

Description

Pad a string and align within string

Usage

```
padstr(x, n, just = c("center", "left", "right"))
```

Arguments

x	string
n	number of character of the output string, if 'n < nchar(x)' an error is thrown
just	character(1). Text alignment justification to use. Defaults to center. Must be center, right or left.

Value

'x', padded to be a string of 'n' characters

Examples

```
padstr("abc", 3)
padstr("abc", 4)
padstr("abc", 5)
padstr("abc", 5, "left")
padstr("abc", 5, "right")
```

```
if(interactive()){
  padstr("abc", 1)
}
```

pagdfrow*Create row of pagination data frame*

Description

Create row of pagination data frame

Usage

```
pagdfrow(
  row,
  nm = obj_name(row),
  lab = obj_label(row),
  rnum,
  pth,
  sibpos = NA_integer_,
  nsibs = NA_integer_,
  extent = nlines(row, colwidths),
  colwidths = NULL,
  reptext = 0L,
  repind = integer(),
  indent = 0L,
  rclass = class(row),
  nrowrefs = 0L,
  ncellrefs = 0L,
  nreflines = 0L,
  force_page = FALSE,
  page_title = NA_character_
)
```

Arguments

<code>row</code>	ANY. Object representing the row, which is used for default values of <code>nm</code> , <code>lab</code> , <code>extent</code> and <code>rclass</code> if provided. Must have methods for <code>obj_name</code> , <code>obj_label</code> , and <code>nlines</code> , respectively, for default values of <code>nm</code> , <code>lab</code> and <code>extent</code> to be retrieved, respectively.
<code>nm</code>	character(1). Name
<code>lab</code>	character(1). Label
<code>rnum</code>	numeric(1). Absolute rownumber
<code>pth</code>	character or NULL. Path within larger table
<code>sibpos</code>	integer(1). Position amongst sibling rows
<code>nsibs</code>	integer(1). Number of siblings
<code>extent</code>	numeric(1). Number of lines required to print the row
<code>colwidths</code>	numeric. Column widths
<code>reptext</code>	integer(1). Number of lines required to reprint all context for this row if it appears directly after pagination.
<code>repind</code>	integer. Vector of row numbers to be reprinted if this row appears directly after pagination.
<code>indent</code>	integer. Indent
<code>rclass</code>	character(1). Class of row object.
<code>nrowrefs</code>	integer(1). Number of row referential footnotes for this row
<code>ncellrefs</code>	integer(1). Number of cell referential footnotes for the cells in this row

<code>nreflines</code>	integer(1). Total number of lines required by all referential footnotes
<code>force_page</code>	logical(1). Currently Ignored.
<code>page_title</code>	logical(1). Currently Ignored.

Value

a single row data.frame with the columns appropriate for a pagination info data frame.

<code>pag_indices_inner</code>	<i>Find Pagination Indices From Pagination Info Dataframe</i>
--------------------------------	---

Description

Pagination methods should typically call the ‘make_row_df’ method for their object and then call this function on the resulting pagination info data.frame.

Usage

```
pag_indices_inner(
  pagdf,
  rlpp,
  min_siblings,
  nosplitin = character(),
  verbose = FALSE
)
```

Arguments

<code>pagdf</code>	data.frame. A pagination info data.frame as created by either ‘make_rows_df’ or ‘make_cols_df’.
<code>rlpp</code>	numeric. Maximum number of <i>row</i> lines per page (not including header materials), including (re)printed header and context rows
<code>min_siblings</code>	numeric. Minimum sibling rows which must appear on either side of pagination row for a mid-subtable split to be valid. Defaults to 2.
<code>nosplitin</code>	character. List of names of sub-tables where page-breaks are not allowed, regardless of other considerations. Defaults to none.
<code>verbose</code>	logical(1). Should additional informative messages about the search for pagination breaks be shown. Defaults to FALSE.

Value

A list containing the vector of row numbers, broken up by page

Examples

```
mypgdf <- basic_pagdf(row.names(mtcars))

paginds <- pag_indices_inner(mypgdf, rlpp = 15, min_siblings = 0)
lapply(paginds, function(x) mtcars[x,])
```

print,ANY-method *Print Print an R object. see [base::print()]*

Description

Print
Print an R object. see [base::print()]

Usage

```
## S4 method for signature 'ANY'
print(x, ...)
```

Arguments

x an object used to select a method.
... further arguments passed to or from other methods.

propose_column_widths *Propose Column Widths based on an object's 'MatrixPrintForm' form*

Description

The row names are also considered a column for the output

Usage

```
propose_column_widths(x)
```

Arguments

x MatrixPrintForm object

Value

a vector of column widths based on the content of x for use in printing and pagination.

Examples

```
mf <- basic_matrix_form(mtcars)
propose_column_widths(mf)
```

round_fmt	<i>Round and prepare a value for display</i>
-----------	--

Description

This function is used within [format_value](#) to prepare numeric values within cells for formatting and display.

Usage

```
round_fmt(x, digits, na_str = "NA")
```

Arguments

x	numeric(1). Value to format
digits	numeric(1). Number of digits to round to, or NA to convert to a character value with no rounding.
na_str	character(1). The value to return if x is NA.

Details

This function combines the rounding behavior of R's standards-complaint [round](#) function (see the Details section of that documentation) with the strict decimal display of [sprintf](#). The exact behavior is as follows:

1. If x is NA, the value of na_str is returned
2. If x is non-NA but digits is NA, x is converted to a character and returned
3. If x and digits are both non-NA, round is called first, and then sprintf is used to convert the rounded value to a character with the appropriate number of trailing zeros enforced.

Value

A character value representing the value after rounding, containing containing any trailing zeros required to display *exactly* digits elements.

Note

This differs from the base R [round](#) function in that NA digits indicate x should be passed converted to character and returned unchanged whereas round(x, digits =NA) returns NA for all values of x. This behavior will differ from as.character(round(x, digits = digits)) in the case where there are not at least digits significant digits after the decimal that remain after rounding. It *may* differ from sprintf("%.Nf", x) for values ending in 5 after the decimal place on many popular operating systems due to round's stricter adherence to the IEC 60559 standard, particularly for R versions > 4.0.0 (see Warning in [round](#) documentation).

See Also

[link{format_value} round sprintf](#)

Examples

```
round_fmt(0, digits = 3)
round_fmt(.395, digits = 2)
round_fmt(NA, digits = 1)
round_fmt(NA, digits = 1, na_str = "-")
round_fmt(2.765923, digits = NA)
```

spans_to_viscell	<i>Transform vectors of spans (with duplication) to Visibility vector</i>
------------------	---

Description

Transform vectors of spans (with duplication) to Visibility vector

Usage

```
spans_to_viscell(spans)
```

Arguments

spans numeric. Vector of spans, with each span value repeated for the cells it covers.

Details

The values of spans are assumed to be repeated to such that each individual position covered by the span has the repeated value.

This means that each block of values in span must be of a length at least equal to its value (ie two 2s, three 3s, etc).

This function correctly handles cases where two spans of the same size are next to eachother; i.e., a block of four 2s represents two large cells each of which span two individual cells.

Value

a logical vector the same length as 'spans' indicating whether the contents of a string vector with those spans

Note

Currently no checking or enforcement is done that the vector of spans is valid in the sense described in the Details section above.

Examples

```
spans_to_viscell(c(2, 2, 2, 2, 1, 3, 3, 3))
```

spread_integer	<i>spread x into len elements</i>
----------------	-----------------------------------

Description

spread x into len elements

Usage

```
spread_integer(x, len)
```

Arguments

x	numeric(1). The number to spread
len	numeric(1). The number of times to repeat x

Value

if x is a scalar "whole number" value (see [is.wholenumber](#)), the value x repeated len times. If not, an error is thrown.

Examples

```
spread_integer(3, 1)
spread_integer(0, 3)
spread_integer(1, 3)
spread_integer(2, 3)
spread_integer(3, 3)
spread_integer(4, 3)
spread_integer(5, 3)
spread_integer(6, 3)
spread_integer(7, 3)
```

sprintf_format	<i>Specify text format via a sprintf format string</i>
----------------	--

Description

Specify text format via a sprintf format string

Usage

```
sprintf_format(format)
```

Arguments

format character(1). A format string passed to sprintf.

Value

A formatting function which wraps and will apply the specified printf style format string format.

See Also

[sprintf](#)

Examples

```
fmtfun <- sprintf_format("N=%i")
format_value(100, format = fmtfun)

fmtfun2 <- sprintf_format("%.4f - %.2f")
format_value(list(12.23456, 2.724))
```

toString	<i>toString Transform a complex object into a string representation ready to be printed or written to a plain-text file</i>
----------	---

Description

toString

Transform a complex object into a string representation ready to be printed or written to a plain-text file

Usage

```
toString(x, ...)
```

```
## S4 method for signature 'MatrixPrintForm'
toString(x, widths = NULL, col_gap = 3, hsep = default_hsep())
```

Arguments

x	ANY. Object to be prepared for rendering.
...	Passed to individual methods.
widths	(proposed) widths for the columns of x
col_gap	numeric(1). Space between columns
hsep	character(1). Characters to repeat to create header/body separator line.

Value

A character string containing the ASCII rendering of the table-like object represented by 'x'

Examples

```
mform <- basic_matrix_form(mtcars)
cat(toString(mform))
```

var_labels	<i>Get Label Attributes of Variables in a data.frame</i>
------------	--

Description

Variable labels can be stored as a label attribute for each variable. This functions returns a named character vector with the variable labels (empty sting if not specified)

Usage

```
var_labels(x, fill = FALSE)
```

Arguments

x	a data.frame object
fill	boolean in case the label attribute does not exist if TRUE the variable names is returned, otherwise NA

Value

a named character vector with the variable labels, the names correspond to the variable names

Examples

```
x <- iris
var_labels(x)
var_labels(x) <- paste("label for", names(iris))
var_labels(x)
```

var_labels<- *Set Label Attributes of All Variables in a data.frame*

Description

Variable labels can be stored as a label attribute for each variable. This functions sets all non-missing (non-NA) variable labels in a data.frame

Usage

```
var_labels(x) <- value
```

Arguments

x a data.frame object
value new variable labels, NA removes the variable label

Value

modifies the variable labels of x

Examples

```
x <- iris  
var_labels(x)  
var_labels(x) <- paste("label for", names(iris))  
var_labels(x)  
  
if(interactive()){  
  View(x) # in RStudio data viewer labels are displayed  
}
```

var_labels_remove *Remove Variable Labels of a data.frame*

Description

Removing labels attributes from a variables in a data frame

Usage

```
var_labels_remove(x)
```

Arguments

x a data.frame object

Value

the same data frame as `x` stripped of variable labels

Examples

```
x <- var_labels_remove(iris)
```

var_relabel	<i>Copy and Change Variable Labels of a data.frame</i>
-------------	--

Description

Relabel a subset of the variables

Usage

```
var_relabel(x, ...)
```

Arguments

<code>x</code>	a <code>data.frame</code> object
<code>...</code>	name-value pairs, where name corresponds to a variable name in <code>x</code> and the value to the new variable label

Value

a copy of `x` with changed labels according to `...`

Examples

```
x <- var_relabel(iris, Sepal.Length = "Sepal Length of iris flower")
var_labels(x)
```

vert_pag_indices	<i>Find Column Indices for Vertical Pagination</i>
------------------	--

Description

Find Column Indices for Vertical Pagination

Usage

```
vert_pag_indices(obj, cpp = 40, verbose = FALSE)
```

Arguments

obj	ANY. object to be paginated. Must have a <code>matrix_form</code> method.
cpp	numeric(1). Number of columns per page
verbose	logical(1). Should additional informative messages about the search for pagination breaks be shown. Defaults to FALSE.

Value

A list partitioning the vector of column indices into subsets for 1 or more vertically paginated pages.

Examples

```
mf <- basic_matrix_form(df = mtcars)
colpaginds <- vert_pag_indices(mf)
lapply(colpaginds, function(j) mtcars[,j, drop = FALSE])
```

with_label	<i>Return an object with a label attribute</i>
------------	--

Description

Return an object with a label attribute

Usage

```
with_label(x, label)
```

Arguments

x	an object
label	label attribute to be attached to x

Value

x labeled by label. Note: the exact mechanism of labeling should be considered an internal implementation detail, but the label will always be retrieved via `obj_label`.

Examples

```
x <- with_label(c(1,2,3), label = "Test")
obj_label(x)
```

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