

Package ‘csmtools’

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Type Package

Title R code in use in CSM solutions

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Description A collection of helpful functions that are widely or commonly used by the organization.

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LazyData TRUE

RoxygenNote 5.0.1

Imports data.table,
magrittr,
ggplot2,
dplyr,
ggthemes,
scales

Suggests testthat,
covr,
knitr,
rmarkdown

VignetteBuilder knitr

R topics documented:

csmtools-package	2
dread	2
dreads	3
dt_compare	4
dt_reduce	5
file_size_filter	6
filter_files	6
floor	7
gg_color_hue	8
has_hive	8
hive_datatypes	9
hive_read	10
hread	10

iri_week	11
iri_week_date	12
is_defined	12
make_color	13
make_compare_names	14
make_upc	14
mread	15
ninja_load	15
paman	16
pamat	17
pamel	17
preview_palatte	18
seq_	19
split_upc	19

Index	20
--------------	-----------

csmtools-package	<i>csmtools: A collection of useful code</i>
------------------	--

Description

csmtools is a collection of code that can be used in different projects to help prevent team members from reinventing the wheel for some things that others have already figured out.

Details

Bug reports, additions and enhancement requests are welcomed at: <https://github.com/McClellandLegge/csmtools>

dread	<i>Fread all files in a directory</i>
-------	---------------------------------------

Description

Fread all files in a directory

Usage

```
dread(dir_path, hive_default = FALSE, ...)
```

Arguments

dir_path	A valid directory path
hive_default	A boolean set to FALSE, in which case we use fread . Otherwise when FALSE we use hive_read .
...	Additional arguments to fread

Value

A data table

dreads

*A function to do multiple directory reads***Description**

A function to do multiple directory reads

Usage

```
dreads(envs, pattern, colnames = NULL, filters = NULL, combine_dir = TRUE,
       combine_env = TRUE, ...)
```

Arguments

envs	<p>A named list</p> <ul style="list-style-type: none"> • dir_path A character string sepecifying the path of the directory • hive A boolean, is this a hive table or a regular file • ext Optional, if hive is FALSE, specify if only files with a certain extension should be read, e.g. .dat or .csv.
pattern	A regex character string. Only file names which match the regular expression will be returned.
colnames	Any column names for the tables being read in. Note these must be universal so if any of the tables differ, leave this NULL and turn off the combine_* actions as appropriate
filters	Any regex filters to apply, no negation works at this time. Can be passed as a list or vector
combine_dir	A Boolean, collapse the list of data.tables read in from each env into a data.table, keeping the file/table names in the table_name column?
combine_env	A Boolean, collapse the list of data.tables from the different envs into a data.table, keeping the names of the envs in the env_name column?
...	Additional arguments to fread

Value

A list of data.tables or a data.table

See Also

[dread](#)

Examples

```
## Not run:
# read all walmart trip types from three different environments
# some are hive, some are regular files

wlm_01_envs <- list(
  prd = list(dir_path = file.path(home, "csm_synd_hive_schemas/csm_syndicated")
            , hive = TRUE)
  , dev = list(dir_path = file.path(home, "csm_synd_hive_schemas/csm_syndicated_dev")
```

```

      , hive = TRUE)
  , leg = list(dir_path = file.path(home, "dev/trip_typing/legacy_walmart/artifacts")
      , hive = FALSE
      , ext = ".dat")
)

ft <- paste0(1929:1940, collapse = "|")

dreads(wlm_01_envs, "wm_triptypes", filters = ft)

## End(Not run)

```

dt_compare

Merge and compare columns of data.frames (data.tables)

Description

Merge and compare columns of data.frames (data.tables)

Usage

```
dt_compare(x, y, compare = NULL, func = `~`, round = TRUE,
  precision = 6, verbose = TRUE, plot = TRUE, ...)
```

Arguments

x	A data.frame
y	A data.frame
compare	A character string or vector of shared column names
func	A binary function to compare the columns with, should be appropriate for the datatypes of the columns
round	A boolean, should we round at all?
precision	The precision of the comparison, is the digits argument to the round function
verbose	A boolean, should messages be written to the window?
plot	A boolean, should a summary plot be produced? Requires the loading of additional packages
...	Any arguments to the merge function

Value

A data.frame

Examples

```

x <- iris[1:50,]
y <- iris[1:60,]
x$id <- seq(nrow(x))
y$id <- seq(nrow(y))
y$Sepal.Width = y$Sepal.Width + rnorm(n = nrow(y))

# can specify any arguments to 'merge'
res <- dt_compare(x, y, compare = c("Sepal.Width", "Sepal.Length"), by = "id", all.y = TRUE)

```

dt_reduce	<i>Apply a row-wise Reduce</i>
-----------	--------------------------------

Description

Apply a row-wise Reduce

Usage

```
dt_reduce(DT, FUN, ...)
```

Arguments

DT	A data.table
FUN	Any binary function
...	Quoted column names from DT

Details

Apply a row-wise reduce for a given function on a set of a `data.table`'s columns. The main advantage of this function is that names can be passed to the function as vectors, eliminating the need to hard code differencing, etc. based on column names. Additionally, the output is specified by the user – often we want to perform a calculation and have vector output, something usually implemented with an ugly [unlist](#).

Value

A vector
Class will vary

Examples

```
library("data.table")
DT <- as.data.table(head(iris))
# basic differencing
dt_reduce(DT, `-`, "Sepal.Length", "Sepal.Width")

# paste columns together row-wise
dt_reduce(DT, paste, colnames(DT))

# calculate the mean
dt_reduce(DT, `+`, "Sepal.Length", "Sepal.Width", "Petal.Length") / nrow(DT)
```

file_size_filter	<i>Filter files based on their size</i>
------------------	---

Description

Filter files based on their size

Usage

```
file_size_filter(x, size = 0, units = "B", include = FALSE)
```

Arguments

x	A character vector of filenames
size	A numeric vector, the size of the file
units	A character vector specifying the units. Options are B , KB, MB and GB. Must match the length of size if specifying more than one unit.
include	A boolean, include files of size size?

Details

Filters out the files that are less than (or less than or equal to) the size with units specified. If all files are filtered out, then a character vector of length 0 is returned.

Value

A character vector

Examples

```
x <- list.files(path = Sys.getenv("TEMP"), full.names = TRUE)[1]
file_size_filter(x, size = 1, units = "KB")
```

filter_files	<i>Filter out file names based on criteria</i>
--------------	--

Description

Filter out file names based on criteria

Usage

```
filter_files(x, size = 0, units = "B", include = FALSE, simplify = TRUE)
```

Arguments

x	A character vector of filenames
size	A numeric vector, the size of the file
units	A character vector specifying the units. Options are B , KB, MB and GB. Must match the length of size if specifying more than one unit.
include	A boolean, include files of size size?
simplify	A boolean, should we create a data.table from the list of output?

Details

Automatically excludes any non-existent items

Value

A list or a [data.table](#)

Examples

```
# single file size and unit specification
x <- list.files(path = Sys.getenv("TEMP"), full.names = TRUE)[1:100]
filter_files(x, size = 1, units = "KB")

# multiple specifications
size <- c(0, rep(1, 4))
units <- c("B", "B", "KB", "MB", "GB")
res <- filter_files(x, size, units)
res$min_file_size <- factor(res$min_file_size, levels = paste(size, units))
table(res$min_file_size)
```

floor

A function to extend the functionality of the base::floor function

Description

A function to extend the functionality of the base::floor function

Usage

```
floor(x, digits = 0)
```

Arguments

x	A numeric
digits	The number of digits to the left of the decimal place to round to

Details

Usually used for purchase data when you need to floor the cents

Value

A numeric

Examples

```
x <- 99.9999
floor(x, 2)
# is equivalent to:
base::floor(100 * x)
```

gg_color_hue	<i>Emulate the default ggplot2 color palette</i>
--------------	--

Description

Emulate the default ggplot2 color palette

Usage

```
gg_color_hue(n, rgb = TRUE)
```

Arguments

n	The number of colors to produce
rgb	A Boolean, should a rgb(<r>, <g>,) character string be returned instead of the hex values?

Details

An adapted function from John Colby's <http://stackoverflow.com/a/8197703/3034614> on how to emulate the ggplot2 default color palette, which is just equal spacing on the color wheel.

Value

A character vector

Examples

```
gg_color_hue(5)
gg_color_hue(5, rgb = FALSE)
```

has_hive	<i>Check if the system has hive capabilities</i>
----------	--

Description

Check if the system has hive capabilities

Usage

```
has_hive()
```

Details

Checks to see if the hive binaries are in the PATH variable

Value

A boolean

Examples

```
if(has_hive()) {  
  print("yes")  
} else {  
  print("no")  
}
```

hive_datatypes	<i>Extract the R-datatypes for a hive table</i>
----------------	---

Description

Extract the R-datatypes for a hive table

Usage

```
hive_datatypes(schema, table_name)
```

Arguments

schema	A character string, the name of the hive schema
table_name	A character string, the name of the hive table

Details

For now the functions converts all number-y datatypes like integer, float, decimal to numeric and both date and string types to character.

Value

A `data.table` with columns:

- name The column name (character)
- type The R-datatype (character)

hive_read	<i>Read a Hive table that is stored as a text file</i>
-----------	--

Description

Read a Hive table that is stored as a text file

Usage

```
hive_read(x, ...)
```

Arguments

x	A character string, the directory path of the hive table to read
...	Additional arguments to fread

Details

The function allows you to assign your own additional arguments to [fread](#), but it defaults the separator to pipe ("|") and adds to the `na.string` to recognize the hive default.

Value

A [data.table](#)

hread	<i>A function to perform a read of a hive table</i>
-------	---

Description

A function to perform a read of a hive table

Usage

```
hread(table_name, schema, schema_loc, ...)
```

Arguments

table_name	A character string, the name of the hive table
schema	A character string, the name of the hive schema
schema_loc	A character string, the directory path of where the schema is located on the HDFS
...	Additional arguments to hive_read

Details

Will automatically read all files under the directory after finding the datatypes and column names from the hive metastore. Note that the schema can have a different physical location instead of being forced to have the `schema_loc/schema` naming convention.

Value

A [data.table](#)

Examples

```
## Not run:
schema_loc <- "/mapr/mapr03r/analytic_users/msmck/csm_synd_hive_schemas/csm_syndicated/"
hread("dictionary", "csm_syndicated", schema_loc)

## End(Not run)
```

iri_week	<i>A function to derive the IRI week for the date specified</i>
----------	---

Description

A function to derive the IRI week for the date specified

Usage

```
iri_week(x, fmt = "%Y-%m-%d", ...)
```

Arguments

x	A date or character string
fmt	A date format
...	Additional arguments to <code>as.Date</code> including further arguments to be passed from or to other methods, including format for <code>as.character</code> and <code>as.Date</code> methods.

Value

A numeric

See Also

[iri_week_date](#)

Examples

```
iri_week(Sys.Date())
iri_week("Dec. 12, 2016", "%b. %d, %Y")
```

iri_week_date	<i>A function to derive the week-ending or week-beginning date for an IRI week</i>
---------------	--

Description

A function to derive the week-ending or week-beginning date for an IRI week

Usage

```
iri_week_date(x, week_ending = TRUE)
```

Arguments

x	An IRI week
week_ending	A boolean, should we return the date for week-ending (TRUE) or week-beginning (FALSE)

Value

A Date

Examples

```
iri_week_date(1900, week_ending = FALSE)
```

is_defined	<i>A function to perform a read of a hive table</i>
------------	---

Description

A function to perform a read of a hive table

Usage

```
is_defined(..., .all = FALSE)
```

Arguments

...	A list of objects to test if they are null
.all	Boolean, should we return the tests for each individual element?

Details

Good for testing an input(s) to a function when it might be NULL

Examples

```
foo <- function(x = NULL, y = NULL) {
  if (is_defined(x, y)) {
    return(paste0(x, y))
  } else if (is_defined(x)) {
    return(x)
  } else if (any(is_defined(x, y, .all = TRUE))) {
    return("one is not null")
  }
}
foo(x = 1)
foo(x = 1, y = 2)
foo(y = 2)
```

make_color

*A function to convert colors to their hex values***Description**

A function to convert colors to their hex values

Usage

```
make_color(...)
```

Arguments

... A (possibly) mixed-type vector

Details

A list is returned instead of a vector to avoid the coercion of a Boolean value to a character one

Value

A list of hex values or Boolean FALSE when the element cannot be interpreted as a color

Examples

```
make_color(NA, "black", "blackk", 5, "#00", "#000000", "rgb(1, 1, 1, 0.5)")
```

make_compare_names	<i>Make names for comparing two data sets</i>
--------------------	---

Description

Make names for comparing two data sets

Usage

```
make_compare_names(compare, suffixes = c(".x", ".y"), sep = "_")
```

Arguments

compare	The column names to compare
suffixes	The suffixes for each set to use
sep	The separator between the names, the sep argument to the paste function

Value

A character vector

Examples

```
make_compare_names(compare = c("dollars", "units"), suffixes = c(".hive", ".sas"))
```

make_upc	<i>Make a upc form component parts</i>
----------	--

Description

Make a upc form component parts

Usage

```
make_upc(sys, gen, ven, ite, format = "sgvi")
```

Arguments

sys	A vector that can be coerced to integer
gen	A vector that can be coerced to integer
ven	A vector that can be coerced to integer
ite	A vector that can be coerced to integer
format	A character string with the four letters "s", "g", "v", and "i" arranged in the desired format of the outout, e.g. 'svgi'

Value

A character vector

Examples

```
set.seed(1)
sys <- rep(0, 5)
gen <- rep(1, 5)
ven <- sample(10000:99999, 5)
ite <- sample(10000:99999, 5)
make_upc(sys, gen, ven, ite, format = "sgiv")
```

mread	<i>"Meta-read": Read a file with an accompanying meta file</i>
-------	--

Description

"Meta-read": Read a file with an accompanying meta file

Usage

```
mread(filepath, metafilepath = NULL, ...)
```

Arguments

filepath	The file path of the file to be read
metafilepath	Default NULL, the file path of the meta file. Assumes the file is in the same directory and has an identical naming convention
...	Other arguments to fread

Details

Silently assigns the meta table to the global environment

Value

A data.table object

ninja_load	<i>Load packages silently</i>
------------	-------------------------------

Description

Load packages silently

Usage

```
ninja_load(...)
```

Arguments

...	The quoted names of the packages you wish to load with deadly silence
-----	---

Examples

```
# load some notoriously loud packages
## Not run:
ninja_load("data.table", "bit64")

## End(Not run)
```

paman

*Element-wise paste of a matrix using the column names***Description**

Element-wise paste of a matrix using the column names

Usage

```
paman(x, ...)
```

Arguments

x	A matrix, or object able to be coerced to a matrix with non-null dimnames
...	Arguments to paste

Details

Works just like a normal [paste0](#) function except the input is expected to be a matrix and the output will likewise be a matrix. Its a "paste" for a "matrix" "element" = "pa" + "m" + "el" = "pamel". Helpful for parsing hovertext for 3D plotly objects.

Value

A matrix

See Also

[pamat](#) [pamel](#)

Examples

```
m <- matrix(runif(9), nrow = 3, dimnames = list(LETTERS[1:3], LETTERS[4:6]))

paman(m, "From: ", y, " to: ", x)
paman(m, "From: ", x, " to: ", y)
```


pamat

*Element-wise paste of two (or more) matrices with a separator***Description**

Element-wise paste of two (or more) matrices with a separator

Usage

```
pamat(..., sep = " ")
```

Arguments

...	Matrix objects
sep	A character string, the separator between the element-wise paste

Details

The matrices will be pasted together in the order in which they are specified and one separator will be shared used. Its a "paste" for a "matrix" "element" = "pa" + "m" + "el" = "pamel". Helpful for parsing hovertext for 3D plotly objects.

Value

A matrix

See Also

[pamel](#) [paman](#)

Examples

```
caps <- matrix(LETTERS[1:9], nrow = 3)
lows <- matrix(letters[1:9], nrow = 3)
pamat(caps, lows, sep = " -> ")
```

pamel

*Element-wise paste of a matrix***Description**

Element-wise paste of a matrix

Usage

```
pamel(n, ...)
```

Arguments

<code>n</code>	The number of rows of the incoming/outgoing matrix
<code>...</code>	One or more R objects, to be converted to character vectors. Expecting that this contains the matrix object, but that is not strictly enforced.

Details

Works just like a normal [paste0](#) function except the input is expected to be a matrix and the output will likewise be a matrix. Its a "paste" for a "matrix" "element" = "pa" + "m" + "el" = "pamel". Helpful for parsing hovertext for 3D plotly objects.

Value

A matrix

See Also

[pamat](#) [paman](#)

Examples

```
m <- matrix(runif(9), nrow = 3)
pamel(nrow(m), "Value: ", round(m, 4), " units")
```

preview_palatte	<i>Preview your hex color palette</i>
-----------------	---------------------------------------

Description

Preview your hex color palette

Usage

```
preview_palatte(x)
```

Arguments

<code>x</code>	A vector of hex colors
----------------	------------------------

Details

Plots a simple image with swaths of the colors specified in the palette, in the order in which they are specified

Examples

```
colfunc <- colorRampPalette(c("white", "dodgerblue"))
my_cols <- colfunc(20)
preview_palatte(my_cols)
```

seq_	<i>Extension of base::seq to handle range specification</i>
------	---

Description

Extension of base::seq to handle range specification

Usage

```
seq_(range, ...)
```

Arguments

range	A numeric vector of length two specifying the 'from' and 'to' arguments to the seq function
...	Other arguments passed to seq

Value

A vector

Examples

```
seq_(range(1:10), by = 2)
```

split_upc	<i>Split up a character UPC</i>
-----------	---------------------------------

Description

Split up a character UPC

Usage

```
split_upc(upc, format = "sgvi", convert = FALSE)
```

Arguments

upc	A character vector
format	A character string with the four letters "s", "g", "v", and "i" arranged in the format of the input upc, e.g. 'svgi'
convert	A boolean, should the final component pieces be converted to numeric?

Value

A named list of the component pieces

Examples

```
upcs <- c("0000790350211", "0007403067401", "0010248198421")
split_upc(upcs, format = "svgi", convert = TRUE)
```

Index

csmttools (csmttools-package), [2](#)
csmttools-package, [2](#)

data.table, [5](#), [7](#), [9–11](#)
dread, [2](#), [3](#)
dreads, [3](#)
dt_compare, [4](#)
dt_reduce, [5](#)

file_size_filter, [6](#)
filter_files, [6](#)
floor, [7](#)
fread, [2](#), [3](#), [10](#), [15](#)

gg_color_hue, [8](#)

has_hive, [8](#)
hive_datatypes, [9](#)
hive_read, [2](#), [10](#), [10](#)
hread, [10](#)
<http://stackoverflow.com/a/8197703/3034614>,
[8](#)

iri_week, [11](#)
iri_week_date, [11](#), [12](#)
is_defined, [12](#)

make_color, [13](#)
make_compare_names, [14](#)
make_upc, [14](#)
merge, [4](#)
mread, [15](#)

ninja_load, [15](#)

paman, [16](#), [17](#), [18](#)
pamat, [16](#), [17](#), [18](#)
pamel, [16](#), [17](#), [17](#)
paste, [14](#)
paste0, [16](#), [18](#)
preview_palatte, [18](#)

regex, [3](#)
round, [4](#)

seq, [19](#)
seq_, [19](#)
split_upc, [19](#)
unlist, [5](#)