

Package ‘yulab.utils’

August 19, 2025

Title Supporting Functions for Packages Maintained by 'YuLab-SMU'

Version 0.2.1

Description Miscellaneous functions commonly used by 'YuLab-SMU'.

Depends R (>= 4.2.0)

Imports cli, digest, fs, rappdirs, rlang, tools, utils

Suggests httr2, jsonlite, openssl

ByteCompile true

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URL <https://yulab-smu.top/>

BugReports <https://github.com/YuLab-SMU/yulab.utils/issues>

Encoding UTF-8

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c2	c2
----	----

Description

chunked array

Usage

c2(x, y)

Arguments

- x a vector or chunked_array object
- y a vector or chunked_array object

Details

concatenate two vector/chunked_array into a chunked_array object

Value

chunked_array object

Author(s)

Guangchuang Yu

check_pkg

check_pkg

Description

Check whether the input packages are installed

Usage

```
check_pkg(pkg, reason = NULL, ...)
```

Arguments

pkg	package names
reason	the reason to check the pkg. If NULL, it will set the reason to the parent call.
...	additional parameters that passed to <code>rlang::check_installed()</code>

Details

This function check whether the input packages are installed. If not, it asks the user whether to install the missing packages.

Value

see also [check_installed](#)

Author(s)

Guangchuang Yu

`combinations`*combinations*

Description

all possible combinations of n sets

Usage

```
combinations(n)
```

Arguments

n number of sets

Value

a list of all combinations

`CRANpkg`*print md text of package with link to homepage (CRAN or Bioconductor)*

Description

print md text of package with link to homepage (CRAN or Bioconductor)

Usage

```
CRANpkg(pkg)
```

```
Biocpkg(pkg)
```

Arguments

pkg package name

Value

md text string

Author(s)

Guangchuang Yu

exec	<i>exec</i>
------	-------------

Description

run system command

Usage

```
exec(command)
```

Arguments

command	system command to run
---------	-----------------------

Value

An exec instance that stores system command outputs

Author(s)

Guangchuang Yu

get_dependencies	<i>get_dependencies</i>
------------------	-------------------------

Description

get reverse dependencies

Usage

```
get_dependencies(pkg, repo = c("CRAN", "BioC"))
```

Arguments

pkg	package name
repo	'CRAN' and/or 'BioC'

Value

reverse dependencies

Author(s)

Guangchuang Yu

get_fun_from_pkg	<i>get_fun_from_pkg</i>
------------------	-------------------------

Description

load function from package

Usage

```
get_fun_from_pkg(pkg, fun)
```

Arguments

pkg	package
fun	function

Value

function

Author(s)

Guangchuang Yu

Examples

```
get_fun_from_pkg('utils', 'zip')
```

Githubpkg	<i>print md text of package with link to github repo</i>
-----------	--

Description

print md text of package with link to github repo

Usage

```
Githubpkg(user, pkg)
```

Arguments

user	github user
pkg	package name

Value

md text string

Author(s)

Guangchuang Yu

has_internet

has_internet

Description

test for internet connection via reading lines from a URL

Usage

```
has_internet(site = "https://www.baidu.com/")
```

Arguments

site URL to test connection

Value

logical value

Author(s)

Guangchuang Yu

initial_cache

cache intermediate data

Description

Yulab provides a set of utilities to cache intermediate data, including initialize the cached item, update cached item and remove the cached item, etc.

Usage

```
initial_cache()

get_cache()

rm_cache()

initial_cache_item(item)

get_cache_item(item)

rm_cache_item(item)

update_cache_item(item, elements)

get_cache_element(item, elements)
```

Arguments

item	the name of the cached item
elements	elements to be cached in the item

Value

return the cache environment, item or selected elements, depends on the functions.

Examples

```
## Not run:
slow_fib <- function(x) {
  if (x < 2) return(1)
  slow_fib(x-2) + slow_fib(x-1)
}

fast_fib <- function(x) {
  if (x < 2) return(1)
  res <- get_cache_element('fibonacci', as.character(x))
  if (!is.null(res)) {
    return(res)
  }
  res <- fast_fib(x-2) + fast_fib(x-1)
  e <- list()
  e[[as.character(x)]] <- res
  update_cache_item('fibonacci', e)
  return(res)
}

system.time(slow_fib(30))
system.time(fast_fib(30))
```

```
## End(Not run)
```

install_zip	<i>install_zip</i>
-------------	--------------------

Description

install R package from zip file of source codes

Usage

```
install_zip(file, args = "--no-build-vignettes")
```

Arguments

file	zip file
args	argument to build package

Value

No return value, called for install R package from zip file of source codes

Author(s)

Guangchuang Yu

install_zip_gh	<i>install_zip_gh</i>
----------------	-----------------------

Description

install github package

Usage

```
install_zip_gh(repo, ref = "HEAD", args = "--no-build-vignettes")
```

Arguments

repo	github repo
ref	github branch, default is HEAD, which means the default branch of the GitHub repo
args	argument to build package

Details

it download the zip file first and use `install_zip` to install it

Value

No return value, called for installing github package

Author(s)

Guangchuang Yu

`is.installed`*is.installed*

Description

Check whether the input packages are installed

Usage

```
is.installed(packages)
```

Arguments

`packages` package names

Details

This function check whether the input packages are installed

Value

logical vector

Author(s)

Guangchuang Yu

Examples

```
is.installed(c("dplyr", "ggplot2"))
```

ls2df	<i>Convert a list of vector (e.g, gene IDs) to a data.frame object</i>
-------	--

Description

Convert a list of vector to a data.frame object.

Usage

```
ls2df(inputList)
```

Arguments

inputList	A list of vector
-----------	------------------

Value

a data.frame object.

mat2df	<i>mat2df</i>
--------	---------------

Description

convert a matrix to a tidy data frame (from wide to long format as described in the tidyverse concept)

Usage

```
mat2df(x)
```

Arguments

x	the input matrix
---	------------------

Value

a data.frame in long format with the 'value' column stores the original values and 'row' and 'col' columns stored in row and column index as in x

Author(s)

Guangchuang Yu

Examples

```
x <- matrix(1:15, nrow = 3)
mat2df(x)
```

*mat2list**mat2list*

Description

convert a matrix to a list

Usage

```
mat2list(x)
```

Arguments

x the input matrix

Value

a list that contains matrix columns as its elements

Examples

```
x <- matrix(1:15, nrow = 3)
mat2list(x)
```

*mypkg**mypkg*

Description

print md text of link to a package

Usage

```
mypkg(pkg, url)
```

Arguments

pkg package name
url package url

Value

md text string

Author(s)

Guangchuang Yu

o

o

Description

open selected directory or file

Usage

```
o(file = ".")
```

Arguments

file to be open; open working directory by default

Value

No return value, called for opening specific directory or file

Author(s)

Guangchuang Yu

Examples

```
## Not run:  
## to open current working directory  
o()  
  
## End(Not run)
```

packageTitle

packageTitle

Description

Extract package title

Usage

```
packageTitle(pkg, repo = "CRAN")
```

Arguments

pkg package name
repo 'CRAN' and/or 'BioC'

Value

reverse dependencies

Author(s)

Guangchuang Yu

`pload`

pload

Description

loading a package

Usage

```
pload(package, action = "auto")
```

Arguments

`package` package name

`action` function used to install package. If `'action = "auto"'`, it will try to use `'Bioc-Manager::install()'` if it is available.

Details

The function use `'library()'` to load the package. If the package is not installed, the function will try to install it before loading it.

Value

the selected package loaded to the R session

Author(s)

Guangchuang Yu

`rbindlist`*rbindlist*

Description

rbind a list

Usage

```
rbindlist(x)
```

Arguments

`x` a list that have similar elements that can be rbind to a data.frame

Value

data.frame

Author(s)

Guangchuang Yu

`read.cb`*read.cb*

Description

read clipboard

Usage

```
read.cb(reader = read.table, ...)
```

Arguments

`reader` function to read the clipboard
`...` parameters for the reader

Value

clipboard content, output type depends on the output of the reader

Author(s)

Guangchuang Yu

scale_range	<i>scale-range</i>
-------------	--------------------

Description

normalized data by range

Usage

```
scale_range(data)
```

Arguments

data	the input data.
------	-----------------

Value

normalized data

Author(s)

Guangchuang Yu

scihub_dl	<i>download publication via scihub</i>
-----------	--

Description

using scihub to download publication using doi

Usage

```
scihub_dl(doi, scihub = "sci-hub.tw", download = TRUE)
```

Arguments

doi	doi
scihub	scihub website
download	whether download the pdf file

Value

pdf url

Author(s)

Guangchuang Yu

set_PCRE	<i>switch regular expression style (PCRE vs TRE)</i>
----------	--

Description

The `set_regexpr_style()` allows user to specify which style to be used, while the `auto_set_regexpr_style()` automatically set the style depending on the operating system (TRE for Windows and PCRE for other OSs (Linux and Mac)).

Usage

`set_PCRE()`

`set_TRE()`

`use_perl()`

`set_regexpr_style(style)`

`auto_set_regexpr_style()`

Arguments

`style` one of 'PCRE' or 'TRE'

Details

`set_PCRE()` force to use PCRE style while `set_TRE()` force to use TRE.

Note that all these functions are not change the behavior of `gsub()` and `regexpr()`. The functions are just set a global option to store the user's choice of whether using `perl = TRUE`.

Users can access the option via `use_perl()` and pass the return value to `gsub()` or `regexpr()` to specify the style in use.

Value

logical value of whether use perl

Author(s)

Guangchuang Yu

References

<https://stackoverflow.com/questions/47240375/regular-expressions-in-base-r-perl-true-vs-the-default>

show_in_excel	<i>show_in_excel</i>
---------------	----------------------

Description

Open data frame in Excel. It can be used in pipe.

Usage

```
show_in_excel(.data)
```

Arguments

.data	a data frame to be open
-------	-------------------------

Value

original .data

Author(s)

Guangchuang Yu

str_detect	<i>str_detect</i>
------------	-------------------

Description

Detect the presentce/absence of a match

Usage

```
str_detect(string, pattern, negate = FALSE)
```

Arguments

string	input string
pattern	pattern to look for
negate	if TRUE, inverts the resulting boolean vector

Value

logical vector

Author(s)

Guangchuang Yu

str_extract	<i>str_extract</i>
-------------	--------------------

Description

Extract a substring using a pattern

Usage

```
str_extract(string, pattern)
```

Arguments

- string input string
- pattern a regular expression to describe the pattern to extracted from the 'string'

Value

substring

Author(s)

Guangchuang Yu

str_starts	<i>str_starts</i>
------------	-------------------

Description

Detect the presence or absence of a pattern at the beginning or end of a string or string vector.

Usage

```
str_starts(string, pattern, negate = FALSE)

str_ends(string, pattern, negate = FALSE)
```

Arguments

- string input string
- pattern pattern with which the string starts or ends
- negate if TRUE, return non-matching elements

Value

a logical vector

Author(s)

Guangchuang Yu

str_wrap	<i>str_wrap</i>
----------	-----------------

Description

wrapping long string to multiple lines

Usage

```
str_wrap(string, width = getOption("width"))
```

Arguments

string	input string
width	the maximum number of characters before wrapping to a new line

Value

update strings with new line character inserted

Author(s)

Guangchuang Yu

user_dir	<i>user_dir</i>
----------	-----------------

Descriptionget the user dir to save app caches, logs and data (a wrapper function of `rappdirs::user_cache_dir()`)**Usage**

```
user_dir(appname = NULL, appauthor = NULL, ...)
```

Arguments

appname	App name
appauthor	App author
...	additional parameters

Value

a directory (created if not exists)

Author(s)

Guangchuang Yu

yread_tsv

yread

Description

read file with caching

Usage

```
yread_tsv(  
  file,  
  reader = utils::read.delim,  
  params = list(),  
  cache_dir = tempdir()  
)
```

```
yread(file, reader = readLines, params = list(), cache_dir = NULL)
```

Arguments

file	a file or url
reader	a function to read the 'file_url'
params	a list of parameters that passed to the 'reader'
cache_dir	a folder to store cache files. If set to NULL will disable cache.

Details

This function read a file (local or url) and cache the content.

Value

the output of using the 'reader' to read the 'file_url' with parameters specified by the 'params'

Author(s)

Yonghe Xia and Guangchuang Yu

yulab_msg

yulab_msg

Description

Messages for R package developed by YuLab

Usage

```
yulab_msg(pkgname = NULL, n = 1)
```

Arguments

pkgname	package name
n	number of citation messages

Value

package message

Author(s)

Guangchuang Yu

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