

Package ‘yulab.utils’

July 26, 2024

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

Version 0.1.5

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

Imports cli, digest, fs, memoise, rlang, stats, tools, utils

Suggests httr, jsonlite, openssl

ByteCompile true

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

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Encoding UTF-8

RoxygenNote 7.3.2

NeedsCompilation no

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Repository CRAN

Date/Publication 2024-07-26 05:30:02 UTC

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check_pkg	<i>check_pkg</i>
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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	<i>combinations</i>
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Description

all possible combinations of n sets

Usage

```
combinations(n)
```

Arguments

n number of sets

Value

a list of all combinations

CRANpkg	<i>print md text of package with link to homepage (CRAN or Bioconductor)</i>
---------	--

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 *exec*

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 *get_dependencies*

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 *get_fun_from_pkg*

Description

load function from package

Usage

`get_fun_from_pkg(pkg, fun)`

Arguments

<code>pkg</code>	package
<code>fun</code>	function

Value

function

Author(s)

Guangchuang Yu

Examples

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

Githubpkg *print md text of package with link to github repo*

Description

print md text of package with link to github repo

Usage

`Githubpkg(user, pkg)`

Arguments

<code>user</code>	github user
<code>pkg</code>	package name

Value

md text string

Author(s)

Guangchuang Yu

initial_cache	<i>cache intermediate data</i>
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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

install_zip

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

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

Description

install github package

Usage

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

Arguments

<code>repo</code>	github repo
<code>ref</code>	github branch, default is HEAD, which means the default branch of the GitHub repo
<code>args</code>	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

<code>is.installed</code>	<i>is.installed</i>
---------------------------	---------------------

Description

Check whether the input packages are installed

Usage

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

Arguments

<code>packages</code>	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

Convert a list of vector (e.g, gene IDs) to a data.frame object

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

mat2df

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	<i>mypkg</i>
-------	--------------

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	<i>o</i>
---	----------

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)
```

<code>packageTitle</code>	<i>packageTitle</i>
---------------------------	---------------------

Description

Extract package title

Usage

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

Arguments

<code>pkg</code>	package name
<code>repo</code>	'CRAN' and/or 'BioC'

Value

reverse dependencies

Author(s)

Guangchuang Yu

pload	<i>pload</i>
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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	<i>rbindlist</i>
-----------	------------------

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

scale-range

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

show_in_excel

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_extract` *str_extract*

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 and Erqiang Hu

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 = tempdir())
```

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

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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