

Package ‘fun’

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Type Package

Title Use R for Fun

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Description This is a collection of R games and other funny stuff, such as the classical Mine sweeper and sliding puzzles.

License GPL

LazyLoad yes

URL <https://github.com/yihui/fun>

BugReports <https://github.com/yihui/fun/issues>

Collate 'fun-package.R' 'htmlspecialchars.R' 'shutdown.R'
'alzheimer_test.R' 'lights_out.R' 'mine_sweeper.R'
'random_password.R' 'sliding_puzzle.R' 'tag_cloud.R'
'tower_of_hanoi.R' 'gomoku.R'

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R topics documented:

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| fun-package | <i>Use R for Fun</i> |
|-------------|----------------------|

Description

This is a collection of R games and other funny stuff, such as the classical Mine sweeper and sliding puzzles.

Details

| | |
|-----------|---------|
| Package: | fun |
| Type: | Package |
| License: | GPL |
| LazyLoad: | yes |

New games are always welcome; if you know GIT and want to join the development, please go to <https://github.com/yihui/fun>; or simply contribute ideas at <https://github.com/yihui/fun/issues>.

Author(s)

Yihui Xie, Taiyun Wei and Yixuan Qiu

Examples

```
## See the examples in each function, or check out the
# demos
demo(package = "fun")
```

| | |
|----------------|---|
| alzheimer_test | <i>Test Alzheimer's disease by finding out the different character in a character rectangle</i> |
|----------------|---|

Description

Please try hard to find the letter "N" in 300 "M"s, one "6" in 300 "9"s, etc.

Usage

```
alzheimer_test(char1 = c("9", "0", "M", "I", "F",  
  "D"), char2 = c("6", "C", "N", "T", "E", "O"), nr = 10, nc = 30,  
  seed = NULL, ...)
```

Arguments

| | |
|-------|---|
| char1 | the 'background' character |
| char2 | the character to be found out |
| nr | number of rows of the character rectangle |
| nc | number of columns |
| seed | seed for random number generation |
| ... | other arguments passed to <code>set.seed</code> |

Details

Follow the instructions and finish the test.

Value

If at least one test item has been passed, a data.frame will be returned telling the result of the test.

Note

Don't be too serious about this test. I'm no doctor, but I think this will be a good present to your friends.

Author(s)

Yihui Xie <<http://yihui.name>>

Examples

```
x = alzheimer_test()
```

gomoku

The game of Gomoku, a.k.a Five in a row

Description

There are two players in this game who play one after the other using black and white stones respectively. The winner is the first player to get an unbroken row of five stones horizontally, vertically, or diagonally.

Usage

```
gomoku(n = 19)
```

Arguments

n the number of rows and columns in the board (the default 19 generates the standard board)

Value

NULL

Note

The players should judge the winner by themselves; this function does not do this job (patches are welcome, of course).

Author(s)

Yihui Xie <<http://yihui.name>>; modified from the code by pclin

References

<http://cos.name/cn/topic/104750>, <http://en.wikipedia.org/wiki/Gomoku>

Examples

```
gomoku()
```

htmlspecialchars *Replace HTML special characters with HTML entities*

Description

The characters c("&", "\", "'", "<", ">") will be replaced with c("&", """, "'", "<", ">") respectively.

Usage

```
htmlspecialchars(string)
```

Arguments

string the string with (or w/o) HTML special chars

Value

the string with special chars replaced.

Author(s)

Yihui Xie <<http://yihui.name>>

References

<http://php.net/manual/en/function.htmlspecialchars.php>

See Also

[gsub](#)

Examples

```
htmlspecialchars("<a href = 'http://yihui.name'>Yihui</a>")
# &lt;a href =
#   &#039;http://yihui.name&#039;&gt;Yihui&lt;/a&gt;
```

lights_out

Play the “Lights Out” game in R

Description

By default, the white squares in the plot denote the lights that are on, and black ones for the off. When you click on a light, this light as well as the four neighbors will switch their status. Your mission is to close all the lights.

Usage

```
lights_out(width = 5, height = 5, steps = 3, cheat = FALSE,
           col.off = "black", col.on = "white", col.frame = "lightblue",
           seed = NULL)
```

Arguments

| | |
|-----------|--|
| width | number of lights in x axis |
| height | number of lights in y axis |
| steps | number of “seed” lights to initialize the puzzle. In general, the larger steps is, the more complex this puzzle may be |
| cheat | logical. If TRUE a data frame indicating the steps to solve this puzzle will be printed |
| col.off | color when lights off |
| col.on | color when lights on |
| col.frame | color of lights border |
| seed | seed for random number generator |

Note

Linux/Mac users have to use X11(`type = 'Xlib'`) or the Cairo graphics device `Cairo()` in the package **cairoDevice**.

Author(s)

Yixuan Qiu <yixuan.qiu@cos.name>

References

[http://en.wikipedia.org/wiki/Lights_Out_\(game\)](http://en.wikipedia.org/wiki/Lights_Out_(game))

Examples

```
## should use Xlib for the x11() device under *nix, e.g
## Not run:
if (.Platform$OS.type == "windows")
  x11() else x11(type = "Xlib")

## End(Not run)

lights_out()
```

mine_sweeper

Play the Miner game in R

Description

The controls should be familiar to you: Click the left mouse button to dig in an area, and right button to mark or unmark the area with flags.

Usage

```
mine_sweeper(width = 10, height = 10, mines = 20,
             text.cex = 2, cheat = FALSE, seed = NULL)
```

Arguments

| | |
|----------|--|
| width | number of grids in horizontal axis |
| height | number of grids in vertical axis |
| mines | number of mines |
| text.cex | the amount by which text in graphics should be magnified relative to the default. Adjust this parameter when the size of text doesn't fit the grid |
| cheat | logical. If TRUE a matrix indicating the mines will be printed |
| seed | seed for random number generator |

Note

Linux/Mac users have to use `X11(type = 'Xlib')` or the Cairo graphics device `Cairo()` in the package **cairoDevice**.

Author(s)

Yixuan Qiu <yixuan.qiu@cos.name>

References

[http://en.wikipedia.org/wiki/Minesweeper_\(computer_game\)](http://en.wikipedia.org/wiki/Minesweeper_(computer_game))

Examples

```
## should use Xlib for the x11() device under *nix, e.g
## Not run:
if (.Platform$OS.type == "windows")
  x11() else x11(type = "Xlib")

## End(Not run)

mine_sweeper()
```

| | |
|-----------------|---|
| random_password | <i>Generate a random password with a specified length</i> |
|-----------------|---|

Description

This function generates a random password sampled from the ASCII table.

Usage

```
random_password(length = 12, replace = FALSE, extended = TRUE)
```

Arguments

| | |
|----------|--|
| length | length of the password |
| replace | sample from the ASCII table with (TRUE) or without (FALSE) replacement? |
| extended | if FALSE, use alphanumeric characters only; otherwise use all the ASCII characters |

Value

a character string

Author(s)

Yihui Xie <<http://yihui.name>>

References

<http://cos.name/en/topic/generating-passwords-with-r-from-ascii-characters>

See Also[sample](#)**Examples**

```
random_password()
# set the seed to get fixed password every time; you may
# just remember the seed and forget the real password
# because it's reproducible
set.seed(123)
random_password()
# long password
random_password(20, TRUE)
```

`shutdown`*Shut down the operating system with the command 'shutdown'*

Description

There is a command `shutdown` in both Windows and Linux, and this function uses it to shut down a computer.

Usage

```
shutdown(wait = 0)
```

Arguments

`wait` time to wait before shutting down (in seconds); passed to [Sys.sleep](#)

Details

After the time `wait` has passed, R will execute `shutdown -s -t 0` (for Windows) or `shutdown -h now` to shut down the computer.

Value

The status code of [system](#).

Author(s)

Yihui Xie <<http://yihui.name>>

References

<http://cos.name/en/topic/shut-down-your-windows-with-r>

See Also

[system](#), [Sys.sleep](#)

Examples

```
## Not run:
## when your code is extremely time-consuming, you may need
# this function; e.g. you go to sleep, and R is running
# long computation... complex graphics... and long long
# computation... at last,
shutdown()
## the next day you wake up, 'thank you, R' :)

## End(Not run)
```

| | |
|----------------|----------------------------|
| sliding_puzzle | <i>Sliding puzzle in R</i> |
|----------------|----------------------------|

Description

Use R to play sliding puzzle (currently only the Windows screen display).

Usage

```
sliding_puzzle(size = c(3, 3), bg = "lightblue", z = NULL)
```

Arguments

| | |
|------|---|
| size | two dimensional vector, the size of sliding puzzle. Note: the element of size must be greater than 1. |
| bg | the background color of blocks. |
| z | the matrix of sliding puzzle, if z is specified, size will be omitted. |

Details

If size is specified and z is NULL, then the function will generate a solvable sliding puzzle. In addition, the function only works under the Windows screen display because of the limitation of function `getGraphicsEvent`.

Note

Linux/Mac users have to use `X11` (`type = 'Xlib'`) or the Cairo graphics device `Cairo()` in the package `cairoDevice`.

Author(s)

Taiyun Wei

References

About the sliding puzzle: http://en.wikipedia.org/wiki/Sliding_puzzle

How to Solve a Slider Puzzle: <http://www.justadventure.com/articles/Slider/Slider.shtm>

Examples

```
## should use Xlib for the x11() device under *nix, e.g
## Not run:
if (.Platform$OS.type == "windows")
  x11() else x11(type = "Xlib")

## End(Not run)

sliding_puzzle()

sliding_puzzle(z = matrix(0:11, 3, 4))
```

tagData

Tag information of Yihui Xie's English blog

Description

Tag data collected from Yihui Xie's Blog, containing the tag words, frequency and hyperlinks, etc.

Format

A data frame with 45 observations on the following 5 variables.

tag a character vector; the tag words

link a character vector; hyperlinks of tags

count a numeric vector; the frequency of tags in blogs (see Details)

color a character vector in hexadecimal format specifying the RGB component of tag colors

hicolor a character vector similar to color; the color when mouse hangs over the tag

Details

The count was multiplied by 4 in the data in order that the tag cloud could be more clear.

Source

<http://yihui.name/en/> (accessed on June 10, 2009)

Examples

```
data(tagData)
hist(tagData$count/4, 10) # extremely right skewed
# see help(tag_cloud) for the example of creating tag cloud
# with this data
```

tag_cloud

*Creating Tag Cloud in R (with Flash and JavaScript)***Description**

Use R to write tag data (tag words, frequency, hyperlinks and colors, etc) into JavaScript, and the JavaScript code will generate a Flash movie. Finally the tag cloud can be created with fantastic 3D rotation effect.

Usage

```
tag_cloud(tagData, htmlOutput = "tagCloud.html", SWFPath,
  JSPath, divId = "tagCloudId", width = 600, height = 400,
  transparent = FALSE, tcolor = "333333", tcolor2 = "009900",
  hicolor = "ff0000", distr = "true", tspeed = 100, version = 9,
  bgcolor = "ffffff", useXML = FALSE, htmlTitle = "Tag Cloud",
  noFlashJS, target = NULL, scriptOnly = FALSE, encode = FALSE,
  reserved = FALSE)
```

Arguments

| | |
|-------------------------------------|---|
| tagData | a data.frame containing at least 3 columns: tag, link and count. Optional columns are color and hicolor |
| htmlOutput | filename of the HTML output |
| SWFPath | path of the SWF source file ('tagcloud.swf'); see <code>system.file("js", "tagcloud.swf", package = "tagcloud")</code> |
| JSPath | path of the JavaScript file ('swfobject.js'); see <code>system.file("js", "swfobject.js", package = "tagcloud")</code> |
| divId | id of the tag cloud div (HTML layer) |
| width,height | width and height of the tag cloud |
| transparent | logical; whether to use transparent background for the Flash movie? |
| tcolor,tcolor2,hicolor,distr,tspeed | see Details |
| version | the required Flash version |
| bgcolor | background color of the Flash movie |
| useXML | use XML file for the tag information or just a string; this will be passed to the Flash object as a variable |
| htmlTitle | title of the HTML file |
| noFlashJS | text to show if Flash or JavaScript is not supported |
| target | target window of the hyperlinks; possible values are NULL, '_blank', '_top', etc |
| scriptOnly | print the script in the console only? (if TRUE), no HTML file will be generated |
| encode | encode the tag XML or not? (with URLencode) set it to be TRUE when your browser does not recognize the tag XML correctly |
| reserved | should reserved characters be encoded? see URLencode |

Details

This function is based on the WordPress plugin “wp-cumulus”. If there are any arguments you don’t understand, please check the reference.

Value

NULL

Author(s)

Yihui Xie <<http://yihui.name>>

References

About the WordPress plugin: <http://www.roytanck.com/2008/03/15/wp-cumulus-released/>

Explanation of some arguments: <http://www.roytanck.com/2008/05/19/how-to-repurpose-my-tag-cloud-flash-m>

Usage of the SWFObject: <http://blog.deconcept.com/swfobject/>

An example of visualizing tags in my blog: <http://yihui.name/en/2009/06/creating-tag-cloud-using-r-and-flash>

See Also

[cat](#), [sprintf](#), [urlencode](#)

Examples

```
data(tagData)
htmlFile = paste(tempfile(), ".html", sep = "")
if (file.create(htmlFile)) {
  tag_cloud(tagData, htmlFile)
  if (!interactive())
    browseURL(htmlFile)
}
```

tower_of_hanoi

Demonstrate the Tower of Hanoi puzzle in R

Description

This function uses the recursive algorithm to solve the Tower of Hanoi puzzle, and demonstrates the game in animation.

Usage

```
tower_of_hanoi(n = 7)
```

Arguments

n an integer indicating the number of disks on the rot.

Details

This function was written by Linlin Yan <linlin.yan@cos.name> in a Chinese forum (See 'References') to show the usage of recursive algorithm.

Author(s)

Linlin Yan <<linlin.yan@cos.name>>

References

Original code: <http://cos.name/cn/topic/101199>

About the Tower of Hanoi: http://en.wikipedia.org/wiki/Tower_of_Hanoi

See Also

[barplot](#)

Examples

```
tower_of_hanoi(7)
```

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