

# Package: fun (via r-universe)

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**Type** Package

**Title** Use R for Fun

**Version** 0.3.1

**Maintainer** Yihui Xie <xie@yihui.name>

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

**License** GPL

**LazyData** yes

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

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

**RoxygenNote** 7.1.1

**Encoding** UTF-8

**Repository** <https://yihui.r-universe.dev>

**RemoteUrl** <https://github.com/yihui/fun>

**RemoteRef** HEAD

**RemoteSha** 47256dacdc1f95a3d76f5c51eace97b91c85a34

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

**Details**

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>

**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 <<https://yihui.org>>

**Examples**

```
## Not run:  
x = alzheimer_test()  
  
## End(Not run)
```

---

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 <<https://yihui.org>>; modified from the code by pklin

**References**

<https://d.cosx.org/d/104750>, <https://en.wikipedia.org/wiki/Gomoku>

**Examples**

```
gomoku()
```

---

htmlspecialchars

*Replace HTML special characters with HTML entities*

---

**Description**

The characters c("&", "'", '"', "<", ">") will be replaced with c("&amp;", "&quot;", "&#039;", "&lt;", "&gt;"), 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 <<https://yihui.org>>

**References**

<https://www.php.net/manual/en/function htmlspecialchars.php>

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

```
htmlspecialchars("<a href = 'https://yihui.org'>Yihui</a>")
# &lt;a href = &#039;https://yihui.org&#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**

[https://en.wikipedia.org/wiki/Lights\\_Out\\_\(game\)](https://en.wikipedia.org/wiki/Lights_Out_(game))

**Examples**

```
## should use Xlib for the x11() device under *nix, e.g
if (interactive()) {
  if (.Platform$OS.type == "windows")
    x11() else x11(type = "Xlib")
  lights_out()
}
```

---

mine\_sweeper

*Play the Mine Sweeper 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, cheat = FALSE)
```

**Arguments**

width	number of grids in horizontal axis
height	number of grids in vertical axis
mines	number of mines
cheat	logical. If TRUE a matrix indicating the mines will be printed

**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

[https://en.wikipedia.org/wiki/Minesweeper\\_\(computer\\_game\)](https://en.wikipedia.org/wiki/Minesweeper_(computer_game))

## Examples

```
## should use Xlib for the x11() device under *nix, e.g
if (interactive()) {
  if (.Platform$OS.type == "windows")
    x11() else x11(type = "Xlib")
  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 <<https://yihui.org>>

## 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 <<https://yihui.org>>

## See Also

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



## Examples

```
if (interactive()) {  
  # 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' :)  
}
```

---

sliding\_puzzle      *Sliding puzzle in R*

---

## Description

Use R to play sliding puzzle

## 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.

## 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: [https://en.wikipedia.org/wiki/Sliding\\_puzzle](https://en.wikipedia.org/wiki/Sliding_puzzle)

## Examples

```
## should use Xlib for the x11() device under *nix, e.g
if (interactive()) {
  if (.Platform$OS.type == "windows")
    x11() else x11(type = "Xlib")
  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

<https://yihui.org/en/> (accessed on June 10, 2009)

## Examples

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

**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 = "tagcloud.swf",  
  JSPath = "swfobject.js",  
  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 system.file("js", "tagcloud.swf", package = "fun")
JSPath	path of the JavaScript file ('swfobject.js'); see system.file("js", "swfobject.js", package = "fun")
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 <a href="#">URLencode</a> ) set it to be TRUE when your browser does not recognize the tag XML correctly
reserved	should reserved characters be encoded? see <a href="#">URLencode</a>

### 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 <<https://yihui.org>>

### References

About the WordPress plugin: <https://wordpress.org/plugins/wp-cumulus/>

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

An example of visualizing tags in my blog: <https://yihui.org/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: <https://d.cosx.org/d/101199>

About the Tower of Hanoi: [https://en.wikipedia.org/wiki/Tower\\_of\\_Hanoi](https://en.wikipedia.org/wiki/Tower_of_Hanoi)

## See Also

[barplot](#)

## Examples

```
## Not run:
tower_of_hanoi(7)

## End(Not run)
```

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