



R PACKAGE DEVELOPMENT AND VALIDATION

Package Documentation

Welcome

- Documenting Functions with {roxygen2}
- Long-form documentation in R packages
- Checking your R package



DOCUMENTING FUNCTIONS

?functionname

Function manuals

1. Describe the function

- What does it do
- What does it return

2. Identify arguments

- What goes into the function
- What are optional

3. Show examples



The screenshot shows the R documentation window for the 'Maxima and Minima' functions. The window has a menu bar with 'Files', 'Plots', 'Packages', 'Help', and 'Viewer'. Below the menu bar is a search bar and a 'Refresh Help Topic' button. The main content area is titled 'R: Maxima and Minima' and 'Find in Topic'. The documentation is for the 'Extremes {base}' package, as indicated by the 'R Documentation' link in the top right corner.

Maxima and Minima

Description

Returns the (regular or parallel) maxima and minima of the input values.

`pmax*()` and `pmin*()` take one or more vectors as arguments, recycle them to common length and return a single vector giving the 'parallel' maxima (or minima) of the argument vectors.

Usage

```
max(..., na.rm = FALSE)
min(..., na.rm = FALSE)

pmax(..., na.rm = FALSE)
pmin(..., na.rm = FALSE)

pmax.int(..., na.rm = FALSE)
pmin.int(..., na.rm = FALSE)
```

Arguments

`...` numeric or character arguments (see Note).
`na.rm` a logical indicating whether missing values should be removed.

Details

`max` and `min` return the maximum or minimum of *all* the values present in their arguments, as integer if all are logical or integer, as double if all are numeric, and character otherwise.

If `na.rm` is `FALSE` an NA value in any of the arguments will cause a value of NA to be returned, otherwise NA values are ignored.

The minimum and maximum of a numeric empty set are `+Inf` and `-Inf` (in this order!) which ensures *transitivity*, e.g., `min(x1, min(x2)) == min(x1, x2)`. For numeric `x` `max(x) == -Inf` and `min(x) == +Inf` whenever `length(x) == 0` (after removing missing values if requested). However, `pmax` and `pmin` return NA if all the parallel elements are NA even for `na.rm = TRUE`.

`pmax` and `pmin` take one or more vectors (or matrices) as arguments and return a single vector giving the 'parallel' maxima (or minima) of the vectors. The first element of the result is the maximum (minimum) of the first elements of all the arguments, the second element of the result is the maximum (minimum) of the second elements of all the arguments and so on. Shorter inputs (of non-zero length) are recycled if necessary. Attributes (see attributes: such as `names` or `dim`) are copied from

/man folder

- Folder in package
- “R Documentation” format
- (La)TeX-like
- Can be difficult to write correctly

```
% File src/library/base/man/load.Rd
\name{load}
\alias{load}
\title{Reload Saved Datasets}
\description{
  Reload the datasets written to a file with the function
  \code{save}.
}
\usage{
load(file, envir = parent.frame())
}
\arguments{
  \item{file}{a connection or a character string giving the
    name of the file to load.}
  \item{envir}{the environment where the data should be
    loaded.}
}
\seealso{
  \code{\link{save}}.
}
\examples{
## save all data
save(list = ls(), file= "all.RData")
}
```

Roxygen2

- INLINE with package
- Structured comments
 1. Title (@title)
 2. Description (@description)
 3. Arguments (@param)
 4. Returns (@return)
 5. Examples (@examples)
 6. Export (@export)

```
##' @title Add Two numbers
##'
##' @description adds two numbers together and returns their sum
##'
##' @param x first number
##' @param y second number
##'
##' @returns numeric value
##'
##' @examples
##' test_func(1,2)
##' test_func(11, 13)
##'
##' @export
test_func <- function(x){
  x + y
}
```

devtools::document()

document

- Updates all Rd files
- Update NAMESPACE files
- Checks outputs make sense
 - Past functions that were exported
- ? Will now work for your functions during development



VIGNETTES

Long form documentation to
share with the world how you
expect everything to fit together

```
vignette(topic = "base",  
package = "dplyr")
```

```
usethis::use_vignette()
```

usethis::use_vignette("R Package Validation Workshop")

1. Creates the "/vignettes folder
2. Creates a vignette Rmd file with the appropriate header
3. Updates package information
 - adds knitr to the list of suggested packages
 - Adds information around which vignette builder to use to CRAN
4. Opens the file

Rendering Vignettes

- Compiled by user with output left in “vignettes” folder
- Compiled when built into bundle
- Compiled on installation (if installing from source code)



CHECK YOURSELF


```
devtools::check()
```

Check

- Checks if R can build package
- Checks tests
- Checks documentation
- Returns warnings/errors/notes indicating things to update or fix if it finds any



DEVTOOLS

devtools

- Automates common tasks while developing an R package
 - Parse documentation – `devtools::document()`
 - Evaluate all tests in a package – `devtools::test()`
 - Evaluate a specific test file in a package – `devtools::test_active_file()`
 - Check package for best practices – `devtools::check()`
 - Load all package functions – `devtools::load_all()`
 - Install package from source – `devtools::install()`
 - Install package from remote source i.e. github – `devtools::install_github()`

devtools.r-lib.org



MATERIALS 02-E2

[Materials/Materials-02-Package_Elements_and_Structure/Materials-02-E02-Package_Documentation/](#)