

R-Bootcamp Functions

Function	Description	Arguments	Example	Additional Comment	Source
c()	Erstellung Vektoren (1-Dimensional)		c(1,2,3)	all the elements of a given vector must be of the same type	Slides_R_Bootcamp_Sept2020_DAY_1
matrix()	Erstellung Matrix (2-Dimensional)	matrix(data = NA, nrow = 1, ncol = 1, byrow = FALSE, dimnames = NULL)		all the elements of a given matrix must be of the same type	Slides_R_Bootcamp_Sept2020_DAY_1
rbind()	Erstellung Matrix (2-Dimensional)	rbind(x1, x2, ..., deparse.level = 1)	rbind(c(6,4,2), c(5,3,1))	row bind, all the elements of a given matrix must be of the same type; very often r- and cbind() are used to add columns to an existing matrix	Slides_R_Bootcamp_Sept2020_DAY_1
cbind()	Erstellung Matrix (2-Dimensional)	cbind(..., deparse.level = 1) data.frame(..., row.names = NULL, check.rows = FALSE, check.names = TRUE, fix.empty.names = TRUE, stringsAsFactors = FALSE)	cbind(1:2, 3:4, 5:6)	column bind, all the elements of a given matrix must be of the same type; very often r- and cbind() are used to add columns to an existing matrix	Slides_R_Bootcamp_Sept2020_DAY_1
data.frame()	Data Frame erstellen		d.test <- data.frame(v.participant.name, v.age, v.minor.YES)	within one column only one data type	Slides_R_Bootcamp_Sept2020_DAY_1
class()	Typ des Objekts		class(v.participant.name)		DemoCode_DAY_1
colnames()	Spaltennamen herausgeben / ändern	colnames(x, do.NULL = TRUE, prefix = "col")	colnames(d.test)	ändern: colnames(d.test.2) <- c("a", "b", "??")	DemoCode_DAY_1
merge()	combine data frames	merge(x, y, by = intersect(names(x), names(y)), by.x = by, by.y = by, all = FALSE, all.x = all, all.y = all, sort = TRUE, suffixes = c("-", "x", "y"), no.dups = TRUE, incomparables = NULL, ...)		merge(x, y)	Slides_R_Bootcamp_Sept2020_DAY_1
list()	liste erstellen, unterschiedliche classes möglich		l.1 <- list(A = "a", num.vec = 10:5)	can store objects of different classes and different dimensions, elements accessed using the double squared brackets	Slides_R_Bootcamp_Sept2020_DAY_1
is.list()	check if class is list		is.list(lm.lns)		Slides_R_Bootcamp_Sept2020_DAY_1
seq()	Generate regular sequences	seq(from = 1, to = 1, by = {(to - from)/(length.out - 1)}, length.out = NULL, along.with = NULL, ...)	seq(from = 1, to = 10, length.out = 5)	length.out: 1-10 in 5 werte mir regelmässigem abstand	DemoCode_DAY_1
rep(x=)	rep replicates the values in x	rep(x, times = 1, length.out = NA, each = 1)	rep(x = 1:3, times = 4)		DemoCode_DAY_1
head()	Returns the first parts of a vector, matrix, table		head(lms)		Slides_R_Bootcamp_Sept2020_DAY_1
tail()	Returns the last parts of a vector, matrix, table				Slides_R_Bootcamp_Sept2020_DAY_1
str()	structure of object		str(lms)		Slides_R_Bootcamp_Sept2020_DAY_1
read.table()	daten importieren	read.table("ExampleDataSets/ForSlides/BlauEier.txt", quote = "\"", ...)			Slides_R_Bootcamp_Sept2020_DAY_1
getwd()	aktuelles working directory				Slides_R_Bootcamp_Sept2020_DAY_1
summary()	produce result summaries of the results of various model fitting functions				Slides_R_Bootcamp_Sept2020_DAY_1
ndim()	number of rows number of columns				DemoCode_DAY_1
range()	returns minimum and maximum value of numeric object		range(lms\$Sepal.Length)		DemoCode_DAY_1
levels()	provides access to the levels attribute of a variable		levels(lms\$Species)		DemoCode_DAY_1
nlevels()	provides access to the number of levels attribute of a variable		nlevels(lms\$Species)		DemoCode_DAY_1
unique()	extract unique elements		nlevels(lms\$Species)		DemoCode_DAY_1
length()	length of object		length(unique(lms\$Sepal.Length))		DemoCode_DAY_1
n_distinct()	faster and more concise equivalent of length(unique(x))			in package (dplyr)	DemoCode_DAY_1
plot()	Generic function for plotting of R objects	https://www.rdocumentation.org/packages/ggraphics/versions/3.6.2/topics/plot	x = PurocytinConc, main = "Reaction rates vs. Conc", xlab = "Substrate conc [ppm]"		Slides_R_Bootcamp_Sept2020_DAY_2
boxplot()	create boxplot				Slides_R_Bootcamp_Sept2020_DAY_2
hist()	histogramm				Slides_R_Bootcamp_Sept2020_DAY_2
pairs()	matrix of scatterplots				Slides_R_Bootcamp_Sept2020_DAY_2
abline()	add a line to plot		plot(Examination ~ Fertility, data = swiss, col = "green", pch = 19) abline(a = 45, b = -0.4, col = "red", lty = "dotted", lwd = 3)	low level function	Slides_R_Bootcamp_Sept2020_DAY_2
text()	places text within the graph				DemoCode_DAY_2
points()	points is a generic function to draw a sequence of points at the specified coordinates				DemoCode_DAY_2
legend()	add legends to plots				DemoCode_DAY_2
identify()	reads the position of the graphics pointer when the (first) mouse button is pressed. It then searches the coordinates given in x and y for the point closest to the pointer. If this point is close enough to the pointer, its index will be returned as part of the value of the call			end by clicking on finish (top right in graph)	DemoCode_DAY_2
locator()	Reads the position of the graphics cursor when the (first) mouse button is pressed			end by clicking on finish (top right in graph)	DemoCode_DAY_2
par()	control the visual aspect of a graph		par(mfrow = c(1, 2), ## two graphs in one device pch = 17) ## all graphs with triangles		
jpeg()	save plot			> jpeg("plot.jpg") > plot(x,y) > dev.off() > jpeg("plot.jpg") > plot(x,y) > dev.off()	DemoCode_DAY_2
dev.off()	makes scatterplots to indicate the relationship between two numerical variables				DemoCode_DAY_2
xyplot()				library(lattice)	DemoCode_DAY_2
install.packages()					DemoCode_DAY_2
library("boot")	general construction: ggplot(data = <DATA>, mapping = aes(<MAPPINGS>)) + <GEOM_FUNCTION>()				DemoCode_DAY_2
ggplot()	create plot	https://ggplot2.tidyverse.org		library(ggplot2) general construction: ggplot(data = <DATA>, mapping = aes(<MAPPINGS>)) +	Assignment
geom_point()			ggplot(data = data, mapping = aes(y = RentCount, x = Temperature)) + geom_point()	library(ggplot2)	Assignment
geom_line()		https://ggplot2.tidyverse.org	geom_smooth(se = FALSE)	library(ggplot2)	Assignment
geom_smooth()		https://ggplot2.tidyverse.org	ggplot(data = data, mapping = aes(y = RentCount, x = Temperature)) + geom_point() + geom_smooth(se = FALSE)	library(ggplot2)	Assignment
t.test()	t test	t.test(x, y = NULL, alternative = c("two.sided", "less", "greater"), mu = 0, paired = FALSE, var.equal = FALSE, conf.level = 0.95, ...)			Slides_R_Bootcamp_Sept2020_DAY_3
lm()	create linear model	lm(formula, data, subset, weights, na.action, method = "qr", model = TRUE, x = FALSE, y = FALSE, qr = TRUE, singular.ok = TRUE, contrasts = NULL, offset, ...)			Slides_R_Bootcamp_Sept2020_DAY_3
anova()	anova				Slides_R_Bootcamp_Sept2020_DAY_3
update()	modify an existing model				Slides_R_Bootcamp_Sept2020_DAY_3
fitted()	get the fitted values				Slides_R_Bootcamp_Sept2020_DAY_3
residuals()	get the residuals				Slides_R_Bootcamp_Sept2020_DAY_3
anyNA()	chk if any na				Slides_R_Bootcamp_Sept2020_DAY_3
is.na()	returns a logical vector of the same length as its argument x, containing TRUE for those elements marked NA				Slides_R_Bootcamp_Sept2020_DAY_3
apply()	returns a vector or array of list of values obtained by applying a function to margins of an array or matrix		apply(airquality, MARGIN = 2, FUN = anyNA)		DemoCode_DAY_3
nchar()	nchar() function determines the size of each elements of an character vector				DemoCode_DAY_4
substr()	Extract or replace substrings in a character vector.		substr(v.char, start = 1, stop = 3)	Regular expressions	DemoCode_DAY_4
grep()	grep, grepl, regexpr, grexpr and regexec search for matches to argument pattern within each element of a character vector		grep(v.char, pattern = "c")	contains "c", Regular expressions	DemoCode_DAY_4
grepl()	grep, grepl, regexpr, grexpr and regexec search for matches to argument pattern within each element of a character vector		grep(v.char, pattern = "c")	Regular expressions	DemoCode_DAY_4
gsub()	grep, grepl, regexpr, grexpr and regexec search for matches to argument pattern within each element of a character vector		gsub(v.char, pattern = "Anna", replacement = "Annamaria")	substitute some text	DemoCode_DAY_4
cv.glm()	cross validation			library(boot)	Assignment
glm()	create general linear model				Assignment