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| colSums {base} | R Documentation |

**Form Row and Column Sums and Means**

**Description**

Form row and column sums and means for numeric arrays (or data frames).

**Usage**

colSums (x, na.rm = FALSE, dims = 1)

rowSums (x, na.rm = FALSE, dims = 1)

colMeans(x, na.rm = FALSE, dims = 1)

rowMeans(x, na.rm = FALSE, dims = 1)

.colSums(x, m, n, na.rm = FALSE)

.rowSums(x, m, n, na.rm = FALSE)

.colMeans(x, m, n, na.rm = FALSE)

.rowMeans(x, m, n, na.rm = FALSE)

**Arguments**

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| x | an array of two or more dimensions, containing numeric, complex, integer or logical values, or a numeric data frame. For .colSums() etc, a numeric, integer or logical matrix (or vector of length m \* n). |
| na.rm | logical. Should missing values (including NaN) be omitted from the calculations? |
| dims | integer: Which dimensions are regarded as ‘rows’ or ‘columns’ to sum over. For row\*, the sum or mean is over dimensions dims+1, ...; for col\* it is over dimensions 1:dims. |
| m, n | the dimensions of the matrix x for .colSums() etc. |

**Details**

These functions are equivalent to use of [apply](http://127.0.0.1:14695/library/base/help/apply) with FUN = mean or FUN = sum with appropriate margins, but are a lot faster. As they are written for speed, they blur over some of the subtleties of NaN and NA. If na.rm = FALSE and either NaN or NA appears in a sum, the result will be one of NaN or NA, but which might be platform-dependent.

Notice that omission of missing values is done on a per-column or per-row basis, so column means may not be over the same set of rows, and vice versa. To use only complete rows or columns, first select them with [na.omit](http://127.0.0.1:14695/library/base/help/na.omit) or [complete.cases](http://127.0.0.1:14695/library/base/help/complete.cases) (possibly on the transpose of x).

The versions with an initial dot in the name (.colSums() etc) are ‘bare-bones’ versions for use in programming: they apply only to numeric (like) matrices and do not name the result.

**Value**

A numeric or complex array of suitable size, or a vector if the result is one-dimensional. For the first four functions the dimnames (or names for a vector result) are taken from the original array.

If there are no values in a range to be summed over (after removing missing values with na.rm = TRUE), that component of the output is set to 0 (\*Sums) or NaN (\*Means), consistent with [sum](http://127.0.0.1:14695/library/base/help/sum) and [mean](http://127.0.0.1:14695/library/base/help/mean).

**See Also**

[apply](http://127.0.0.1:14695/library/base/help/apply), [rowsum](http://127.0.0.1:14695/library/base/help/rowsum)

**Examples**

## Compute row and column sums for a matrix:

x <- cbind(x1 = 3, x2 = c(4:1, 2:5))

rowSums(x); colSums(x)

dimnames(x)[[1]] <- letters[1:8]

rowSums(x); colSums(x); rowMeans(x); colMeans(x)

x[] <- as.integer(x)

rowSums(x); colSums(x)

x[] <- x < 3

rowSums(x); colSums(x)

x <- cbind(x1 = 3, x2 = c(4:1, 2:5))

x[3, ] <- NA; x[4, 2] <- NA

rowSums(x); colSums(x); rowMeans(x); colMeans(x)

rowSums(x, na.rm = TRUE); colSums(x, na.rm = TRUE)

rowMeans(x, na.rm = TRUE); colMeans(x, na.rm = TRUE)

## an array

dim(UCBAdmissions)

rowSums(UCBAdmissions); rowSums(UCBAdmissions, dims = 2)

colSums(UCBAdmissions); colSums(UCBAdmissions, dims = 2)

## complex case

x <- cbind(x1 = 3 + 2i, x2 = c(4:1, 2:5) - 5i)

x[3, ] <- NA; x[4, 2] <- NA

rowSums(x); colSums(x); rowMeans(x); colMeans(x)

rowSums(x, na.rm = TRUE); colSums(x, na.rm = TRUE)

rowMeans(x, na.rm = TRUE); colMeans(x, na.rm = TRUE)