runningsum() — Running sum of vector

Description

runningsum(x) returns a vector of the same dimension as x containing the running sum of x. Missing values are treated as contributing zero to the sum.

runningsum(x, missing) does the same but lets you specify how missing values are treated. runningsum(x, 0) is the same as runningsum(x). runningsum(x, 1) specifies that missing values are to turn the sum to missing where they occur.

quadrunningsum(x) and quadrunningsum(x, missing) do the same but perform the accumulation in quad precision.

_quadrunningsum(y, x [, missing]) and _quadrunningsum(y, x [, missing]) work the same way, except that rather than returning the running-sum vector, they store the result in y. This method is slightly more efficient when y is a view.

Syntax

    numeric vector  runningsum(numeric vector x [, missing])
    numeric vector  quadrunningsum(numeric vector x [, missing])
    void            _runningsum(y, numeric vector x [, missing])
    void            _quadrunningsum(y, numeric vector x [, missing])

where optional argument missing is a real scalar that determines how missing values in x are treated:

1. Specifying missing as 0 is equivalent to not specifying the argument; missing values in x are treated as contributing 0 to the sum.

2. Specifying missing as 1 specifies that missing values in x are to be treated as missing values and turn the sum to missing.

Remarks and examples

The running sum of (1, 2, 3) is (1, 3, 6).

All functions return the same type as the argument, real if argument is real, complex if complex.
Conformability

\text{runningsum}(x, \text{missing}), \quad \text{quadrunningsum}(x, \text{missing}):
\begin{align*}
x & : \quad r \times 1 \text{ or } 1 \times c \\
\text{missing} & : \quad 1 \times 1 \quad \text{(optional)} \\
\text{result} & : \quad r \times 1 \text{ or } 1 \times c
\end{align*}

\text{_runningsum}(y, x, \text{missing}), \quad \text{_quadrunningsum}(y, x, \text{missing}):
\begin{align*}
\text{input:} \\
x & : \quad r \times 1 \text{ or } 1 \times c \\
y & : \quad r \times 1 \text{ or } 1 \times c \quad \text{(contents irrelevant)} \\
\text{missing} & : \quad 1 \times 1 \quad \text{(optional)} \\
\text{output:} \\
y & : \quad r \times 1 \text{ or } 1 \times c
\end{align*}

Diagnostics

If \text{missing} = 0, missing values are treated as contributing zero to the sum; they do not turn the sum to missing. Otherwise, missing values turn the sum to missing.

\text{_runningsum}(y, x, \text{missing}) \quad \text{and} \quad \text{_quadrunningsum}(y, x, \text{missing}) \quad \text{abort with error if} \quad y \quad \text{is not} \quad p\text{-conformable} \quad \text{with} \quad x \quad \text{and of the same} \quad \text{eltype}. \quad \text{The contents of} \quad y \quad \text{are irrelevant.}

Also see

[M-5] \text{sum()} — Sums

[M-4] \textbf{Mathematical} — Important mathematical functions

[M-4] \textbf{Utility} — Matrix utility functions