

Package ‘runner’

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Title Running Operations for Vectors

Type Package

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Depends R (>= 3.0)

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Description Package contains running functions (a.k.a. windowed, rolling, cumulative) with varying window size and missing handling options. Package brings also running streak and running which, what extends beyond range of functions already implemented in R packages.

License GPL (>= 2)

Encoding UTF-8

BugReports <https://github.com/gogonzo/runner/issues>

LinkingTo Rcpp

Imports Rcpp

RoxygenNote 6.1.0

Suggests testthat, covr, knitr, rmarkdown, magrittr

VignetteBuilder knitr

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fill_run	<i>Fill NA with previous non-NA element</i>
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Description

Fill NA with last non-NA element.

Usage

```
fill_run(x, run_for_first = FALSE, only_within = FALSE)
```

Arguments

x	Vector of any type where NA are replaced
run_for_first	If first elements are filled with NA, run_for_first = TRUE allows to fill all initial NA with nearest non-NA value. By default run_for_first = TRUE
only_within	NA are replaced only if previous and next non-NA values are the same. By default only_within = TRUE

Value

numeric vector of length equals length of x containing all x elements with NA replaced with previous non-NA element.

Examples

```
fill_run(c(NA,NA,1:10, NA, NA), run_for_first=TRUE)
fill_run(c(NA,NA,1:10, NA, NA), run_for_first=TRUE)
fill_run(c(NA,NA,1:10, NA, NA), run_for_first=FALSE)
fill_run(c(NA,NA,1,2,NA,NA,2,2,NA,NA,1, NA, NA), run_for_first=TRUE,only_within = TRUE)
```

max_run	<i>Running maximum</i>
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Description

max_run calculates running max on given x numeric vector and specified k window size.

Usage

```
max_run(x, k = 0L, na_rm = TRUE, na_pad = FALSE)
```

Arguments

x	input numeric vector where running maximum is calculated.
k	Running window size. By default window size equals length(x). Allow varying window size specified by vector of length(x)
na_rm	logical (default na_rm=TRUE) - if TRUE NA are replaced by last observed maximum prior to element.
na_pad	logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

numeric vector of length equals length of x containing running max in k-long window.

Examples

```
set.seed(11)
x1 <- sample(c(1,2,3), 15, replace=TRUE)
x2 <- sample(c(NA,1,2,3), 15, replace=TRUE)
k <- sample(1:4, 15,replace=TRUE)
max_run(x1) # simple cumulative minimum
max_run(x2, na_rm = TRUE) # cumulative minimum with removing NA.
max_run(x2, na_rm = TRUE, k=4) # minimum in 4-element window
max_run(x2, na_rm = FALSE, k=k) # minimum in varying k window size
```

mean_run	<i>Running mean</i>
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Description

Running mean

Usage

```
mean_run(x, k = 0L, na_rm = TRUE, na_pad = FALSE)
```

Arguments

x	vector of any type on which running mean is calculated
k	running window size. Not yet implemented.
na_rm	logical (default na_rm=TRUE) - if TRUE mean is calculating excluding NA.
na_pad	logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

numeric vector of length equals length of x containing running mean in k-long window.

Examples

```
set.seed(11)
x1 <- rnorm(15)
x2 <- sample(c(rep(NA,5),rnorm(15)), 15, replace=TRUE)
k <- sample(1:15, 15, replace=TRUE)
mean_run(x1)
mean_run(x2, na_rm = TRUE)
mean_run(x2, na_rm = FALSE )
mean_run(x2, na_rm = TRUE, k=4)
```

min_run

Running minimum

Description

min_run calculates running min on given x numeric vector, specified k window size.

Usage

```
min_run(x, k = 0L, na_rm = TRUE, na_pad = FALSE)
```

Arguments

x	input numeric vector where running minimum is calculated.
k	Running window size. By default window size equals length(x). Allow varying window size specified by vector of length(x)
na_rm	logical (default na_rm=TRUE) - if TRUE NA are replaced by last observed minimum prior to element.
na_pad	logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

numeric vector of length equals length of x containing running min in k-long window.

Examples

```

set.seed(11)
x1 <- sample( c(1,2,3), 15, replace=TRUE)
x2 <- sample( c(NA,1,2,3), 15, replace=TRUE)
k <- sample( 1:4, 15, replace=TRUE)
min_run(x1) # simple cumulative minimum
min_run(x2, na_rm = TRUE) # cumulative minimum with removing NA.
min_run(x2, na_rm = TRUE, k=4) # minimum in 4-element window
min_run(x2, na_rm = FALSE, k=k) # minimum in varying k window size

```

streak_run	<i>Running streak length</i>
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Description

Calculates running series of consecutive elements

Usage

```
streak_run(x, k = 0L, na_rm = TRUE, na_pad = FALSE)
```

Arguments

x	vector of any type where running streak is calculated
k	running window size. By default window size equals length(x). Allow varying window size specified by vector of length(x)
na_rm	logical (default na_rm=TRUE) - if TRUE NA are replaced by last observed streak prior to element.
na_pad	logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

numeric vector of length equals length of x containing running streak length in k-long window.

Examples

```

set.seed(11)
x1 <- sample(c("a","b"),15,replace=TRUE)
x2 <- sample(c(NA_character_,"a","b"),15,replace=TRUE)
k <- sample(1:4,15,replace=TRUE)
streak_run(x1) # simple streak run
streak_run(x1, k=2) # streak run within 2-element window
streak_run(x2, na_pad=TRUE, k=3) # streak run within k=3 with padding NA
streak_run(x1, k=k) # streak run within varying window size specified by vector k

```

sum_run	<i>Running sum</i>
---------	--------------------

Description

Running sum in specified window of numeric vector.

Usage

```
sum_run(x, k = 0L, na_rm = TRUE, na_pad = FALSE)
```

Arguments

x	vector of any type where running sum is calculated
k	Running window size. Not yet implemented.
na_rm	logical (default na_rm=TRUE) - if TRUE sum is calculating excluding NA.
na_pad	logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

numeric vector of length equals length of x containing running sum in k-long window.

Examples

```
set.seed(11)
x1 <- rnorm(15)
x2 <- sample(c(rep(NA,5),rnorm(15)), 15, replace=TRUE)
k <- sample(1:15, 15, replace=TRUE)
sum_run(x1)
sum_run(x2, na_rm = TRUE)
sum_run(x2, na_rm = FALSE )
sum_run(x2, na_rm = TRUE, k=4)
```

unique_run	<i>List of running windows</i>
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Description

Creates list of windows

Usage

```
unique_run(x, k = 0L)
```

Arguments

x Vector of any type
k integer vector which specifies window length

Examples

```
unique_run(1:10, k=3)
unique_run(letters[1:10],k=c(1,2,2,4,5,5,5,5,5,5))
```

whichd_run	<i>Index of previous, different element</i>
------------	---

Description

Index of previous element different than current

Usage

```
whichd_run(x, k = 0L, na_pad = FALSE)
```

Arguments

x vector of any type where running index is calculated
k running window size. By default window size equals length(x). Allow varying window size specified by vector of length(x)
na_pad logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

numeric vector of length equals length of x containing running index length in k-long window.

Examples

```
set.seed(11)
x1 <- sample(c("a","b"),15,replace=TRUE)
x2 <- sample(c(NA_character_,"a","b"),15,replace=TRUE)
k <- sample(1:4,15,replace=TRUE)
whichd_run(x1)
whichd_run(x1, k=2)
whichd_run(x2, na_pad=TRUE, k=3)
whichd_run(x1, k=k)
```

whichmax_run	<i>Running which.max</i>
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Description

Running index of the (first or last) maximum.

Usage

```
whichmax_run(x, k = 0L, which = "last", na_rm = TRUE,
             na_pad = FALSE)
```

Arguments

x	numeric (or integer) vector for which running whichrun is calculated.
k	Running window size. By default window size equals length(x). Allow varying window size specified by vector of length(x)
which	specifies whether "first" or "last" index is returned.
na_rm	logical (default na_rm=TRUE) - if TRUE NA are replaced by last observed minimum prior to element.
na_pad	logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

Numeric vector of length equals length of x containing running index of maximum in k-long window.

Examples

```
x1 <- c(1, 1, 2, 1, 1, 3, 1, 1, 3, 1, 1, 2, 3, 3, 3)
x2 <- c(2, 1, 1, NA, 3, 2, 1, NA, 1, NA, NA, NA, 1, 2, 1)
k <- c(5, 1, 8, 1, 1, 15, 2, 5, 14, 2, 3, 7, 14, 13, 12)
whichmax_run(x1, which="first")
whichmax_run(x2, na_rm = TRUE, which="last")
whichmax_run(x2, k=3, na_rm = TRUE, which="last")
whichmax_run(x2 , k=k, na_rm = FALSE, which="first")
```

whichmin_run	<i>Running which.min</i>
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Description

Running index of the (first or last) maximum.

Usage

```
whichmin_run(x, k = 0L, which = "last", na_rm = TRUE,
             na_pad = FALSE)
```

Arguments

x	input logical vector where running whichrun is calculated.
k	Running window size. By default window size equals length(x). Allow varying window size specified by vector of length(x)
which	specifies whether "first" or "last" index is returned.
na_rm	logical (default na_rm=TRUE) - if TRUE NA are replaced by last observed minimum prior to element.
na_pad	logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

numeric vector of length equals length of x containing running index of maximum in k-long window.

Examples

```
set.seed(11)
x1 <- c(1, 1, 2, 1, 1, 3, 1, 1, 3, 1, 1, 2, 3, 3, 3)
x2 <- c(2, 1, 1, NA, 3, 2, 1, NA, 1, NA, NA, NA, 1, 2, 1)
k <- c(5, 1, 8, 1, 1, 15, 2, 5, 14, 2, 3, 7, 14, 13, 12)
whichmin_run(x1, which="first") # running index of minimum
whichmin_run(x1, which="last")
whichmin_run(x2, na_rm = TRUE, which="last") # running min-index ommiting NA
whichmin_run(x2, k=3, na_rm = TRUE, which="first") # running min-index in 3-element window
whichmin_run(x2, k = k, na_rm = TRUE, which = "last") # running min-index in varying window size
```

whicht_run *Running which-true function*

Description

whicht_run checks which element has value TRUE within specified running window.

Usage

```
whicht_run(x, k = 0L, which = "last", na_rm = TRUE, na_pad = FALSE)
```

Arguments

x	input logical vector where running which-true is calculated.
k	Running window size. By default window size equals length(x). Allow varying window size specified by vector of length(x)
which	specifies whether "first" or "last" index is returned.
na_rm	logical (default na_rm=TRUE) - if TRUE NA are replaced by last observed minimum prior to element.
na_pad	logical (default na_pad=FALSE) - if TRUE first k-results will be filled by NA. If k is not specified na_pad=F by default.

Value

numeric vector of length equals length of x containing running index in k-long window.

Examples

```
x <- c( NA, FALSE, TRUE, NA, TRUE, FALSE, TRUE, TRUE)
whicht_run( x, k=2, na_rm=TRUE, na_pad=FALSE )
```

window_run *List of running windows*

Description

Creates list of windows

Usage

```
window_run(x, k = 0L)
```

Arguments

x	Vector of any type
k	integer vector which specifies window length

Examples

```
window_run(1:10, k=3)
window_run(letters[1:10], k=c(1,2,2,4,5,5,5,5,5,5))
```

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