

Package ‘deflist’

July 22, 2025

Type Package

Title Deferred List - A Read-Only List-Like Object with Deferred Access

Version 0.2.0

Description

Implements the 'deflist' class, a read-only list-like object that accesses its elements via a function. The 'deflist' class can be used to model deferred access to data or computations by routing indexed list access to a function.

This approach is particularly useful when sequential list-

like access to data is required but holding all the data in memory at once is not feasible.

The package also provides utilities for memoisation and caching to optimize access to frequently requested elements.

License LGPL (>= 2.1)

Encoding UTF-8

RoxygenNote 7.2.3

Imports purrr, memoise, rlang, assertthat

Suggests testthat (>= 3.0.0), covr, knitr, rmarkdown

Config/testthat/edition 3

VignetteBuilder knitr

URL <https://bbuchsbaum.github.io/deflist/>

NeedsCompilation no

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Repository CRAN

Date/Publication 2023-04-27 12:52:35 UTC

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as.list.deflist	<i>Convert a deflist object to a list</i>
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Description

Convert a deflist object to a list

Usage

```
## S3 method for class 'deflist'  
as.list(x, ...)
```

Arguments

- x A deflist object.
- ... Additional arguments passed to methods.

Value

A list containing the elements of the deflist object.

deflist	<i>Create a deferred list</i>
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Description

A read-only list that retrieves elements with a function call. The deferred list is useful for handling large datasets where elements are computed on-demand.

Usage

```
deflist(  
  fun,  
  len = 1,  
  names,  
  memoise = FALSE,  
  cache = c("memory", "file"),  
  cachedir = NULL  
)
```

Arguments

fun	A function that is used to retrieve elements.
len	Integer, the length of the list (default is 1).
names	Character vector, an optional set of names, one per element.
memoise	Logical, whether to memoise the function to speed up repeated element access (default is FALSE).
cache	Character, use an in-memory or filesystem cache if memoise is TRUE (default is "memory").
cachedir	Character, the file path to the cache (default is NULL).

Details

The deferred list is created using the provided function, length, names, and caching options. The list is read-only, and elements are retrieved using the provided function.

Value

An object of class "deflist" representing the deferred list.

Examples

```
# Create a deferred list of squares
square_fun <- function(i) i^2
square_deflist <- deflist(square_fun, len = 5)
print(square_deflist)
cat("First element of the list:", square_deflist[[1]], "\n")
```

length.deflist	<i>Retrieve the length of a deflist object</i>
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Description

Retrieve the length of a deflist object

Usage

```
## S3 method for class 'deflist'
length(x)
```

Arguments

x	A deflist object.
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Value

The length of the deflist object.

Examples

```
square_fun <- function(i) i^2
square_deflist <- deflist(square_fun, len = 5)
stopifnot(length(square_deflist) == 5)
```

[.deflist	<i>Subset a deflist object</i>
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Description

Subset a deflist object

Usage

```
## S3 method for class 'deflist'
x[i]
```

Arguments

x	A deflist object.
i	Indices or names of the elements to be retrieved.

Value

A list containing the elements at the specified indices or names in the deflist object.

[<-.deflist	<i>Prevent assignment to elements in a deflist object</i>
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Description

Prevent assignment to elements in a deflist object

Usage

```
## S3 replacement method for class 'deflist'
x[i] <- value
```

Arguments

x	A deflist object.
i	Indices or names of the elements to be assigned.
value	Values to be assigned to the elements.

Value

this function throws an error by design, no return value

[[.deflist	<i>Retrieve an element from a deflist object</i>
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Description

Retrieve an element from a deflist object

Usage

```
## S3 method for class 'deflist'  
x[[i]]
```

Arguments

x	A deflist object.
i	Index or name of the element to be retrieved.

Value

The element at the specified index or name in the deflist object.

[[<-.deflist	<i>Prevent assignment to an element in a deflist object</i>
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Description

Prevent assignment to an element in a deflist object

Usage

```
## S3 replacement method for class 'deflist'  
x[[i]] <- value
```

Arguments

x	A deflist object.
i	Index or name of the element to be assigned.
value	Value to be assigned to the element.

Value

this function throws an error by design, no return value

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