

Package ‘dictionary6’

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Title R6 Dictionary Interface

Description Efficient object-oriented R6 dictionary capable of holding objects of any class, including R6. Typed and untyped dictionaries are provided as well as the 'usual' dictionary methods that are available in other OOP languages, for example listing keys, items, values, and methods to get/set these.

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URL <https://xoopsR.github.io/dictionary6/>,
<https://github.com/xoopsR/dictionary6/>

BugReports <https://github.com/xoopsR/dictionary6/issues>

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Imports ooplah, R6

Suggests testthat

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dct	<i>Construct a Dictionary</i>
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Description

Sugar function wrapping `[Dictionary]$new`.

Usage

```
dct(..., x = list(...), types = NULL)
```

Arguments

...	(ANY) Named arguments with names corresponding to the items to add to the dictionary, where the keys are the names and the values are the elements. Names must be unique.
x	(list()) A named list with the names corresponding to the items to add to the dictionary, where the keys are the list names and the values are the list elements. Names must be unique.
types	(character()) If non-NULL then types creates a typed dictionary in which all elements of the dictionary must inherit from these types. Any class can be given to types as long as there is a valid <code>as.character</code> method associated with the class.

Examples

```
# untyped
dct(a = 1, b = 2, c = "a")

# typed - class is forced
dct(a = 1L, b = 2L, c = 3L, types = "integer")

# list constructor
dct(x = list(a = 1, b = 2, c = "a"))

# with R6
d <- dct(a = 1)
dct(d = d)
```

Description

Dictionaries are essential objects in other object-oriented languages, such as Python. The primary function of a dictionary is to store items in a key-value pair. Where the key is the name of the item and the value is the value. This object contains all the 'usual' methods that would be found in other languages, including setting and getting values, adding and removing items, and containedness checks.

Active bindings

`keys` `None` -> `character()`
Get dictionary keys.

`values` `None` -> `list()`
Get dictionary values.

`items` `list()` -> `self` / `None` -> `list()`
If `x` is missing then returns the dictionary items.
If `x` is not missing then used to set items in the dictionary.

`length` `None` -> `integer(1)`
Get dictionary length as number of items.

`typed` `None` -> `logical(1)`
Get if the dictionary is typed (TRUE) or not (FALSE).

`types` `None` -> `character()`
Get the dictionary types (NULL if un-typed).

Methods**Public methods:**

- `Dictionary$new()`
- `Dictionary$add()`
- `Dictionary$rekey()`
- `Dictionary$revalue()`
- `Dictionary$remove()`
- `Dictionary$get()`
- `Dictionary$get_list()`
- `Dictionary$has()`
- `Dictionary$assert_contains()`
- `Dictionary$has_value()`
- `Dictionary$print()`
- `Dictionary$summary()`
- `Dictionary$merge()`

- [Dictionary\\$clone\(\)](#)

Method new(): Constructs a Dictionary object.

Usage:

```
Dictionary$new(..., x = list(...), types = NULL)
```

Arguments:

... (ANY)

Named arguments with names corresponding to the items to add to the dictionary, where the keys are the names and the values are the elements. Names must be unique.

x (list())

A named list with the names corresponding to the items to add to the dictionary, where the keys are the list names and the values are the list elements. Names must be unique.

types (character())

If non-NULL then types creates a typed dictionary in which all elements of the dictionary must inherit from these types. Any class can be given to types as long as there is a valid as.character method associated with the class.

Method add(): Add new items to the dictionary.

Usage:

```
Dictionary$add(x = list(), keys = NULL, values = NULL)
```

Arguments:

x (list())

Same as initialize, items to add to the list.

keys (character())

If x is NULL then keys and values can be provided to add the new items by a character vector of keys and list of values instead.

values (list())

If x is NULL then keys and values can be provided to add the new items by a list of keys and values instead.

Method rekey(): Change the name of a given key.

Usage:

```
Dictionary$rekey(key, new_key)
```

Arguments:

key (character(1))

Key to rename.

new_key (character(1))

New name of key, must not already exist in dictionary.

Method revalue(): Change the value of a given item.

Usage:

```
Dictionary$revalue(key, new_value)
```

Arguments:

key (character(1))

Key of item to revalue.

new_value (character(1))
New value of item.

Method remove(): Removes the given item from the list.

Usage:

Dictionary\$remove(key)

Arguments:

key (character(1))
Key of item to remove.

Method get(): Gets the given items from the dictionary. If only one item is requested then returns the (unlisted) item, or if multiple items are requested as the dictionary is typed, then the unlisted items are returned.

Usage:

Dictionary\$get(keys, clone = TRUE)

Arguments:

keys (character())
Keys of items to get.
clone (logical(1))
If TRUE (default) then deep clones R6 objects if requested.

Method get_list(): Gets the given items from the dictionary as list.

Usage:

Dictionary\$get_list(keys, clone = TRUE)

Arguments:

keys (character())
Keys of items to get.
clone (logical(1))
If TRUE (default) then deep clones R6 objects if requested.

Method has(): Checks if the given key is in the list, returns a logical.

Usage:

Dictionary\$has(key)

Arguments:

key (character(1))
Key to check.

Method assert_contains(): Asserts if the given keys are in the list, returns keys invisibly if assertion passes otherwise errors.

Usage:

Dictionary\$assert_contains(keys)

Arguments:

keys (character())
Keys to check.

Method `has_value()`: Checks if the given value is in the list, returns a logical.

Usage:

`Dictionary$has_value(value)`

Arguments:

`value` (ANY)

Value to check.

Method `print()`: Prints dictionary.

Usage:

`Dictionary$print(n = 2)`

Arguments:

`n` (integer(1))

Number of items to print on either side of ellipsis.

Method `summary()`: Summarises dictionary.

Usage:

`Dictionary$summary(n = 2)`

Arguments:

`n` (integer(1))

Number of items to print on either side of ellipsis.

Method `merge()`: Merges another dictionary, or list of dictionaries, into self.

Usage:

`Dictionary$merge(x)`

Arguments:

`x` (Dictionary(1) | list())

Dictionary or list of dictionaries to merge in, must have unique keys.

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

`Dictionary$clone(deep = FALSE)`

Arguments:

`deep` Whether to make a deep clone.

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