

Package ‘prcbench’

March 26, 2020

Type Package

Title Testing Workbench for Precision-Recall Curves

Version 0.8.2

Date 2020-03-25

Description A testing workbench for evaluating precision-recall curves under various conditions.

URL <http://takayasaito.github.io/prcbench/>,
<https://github.com/takayasaito/prcbench>

BugReports <https://github.com/takayasaito/prcbench/issues>

Depends R (>= 3.2.3)

License GPL-3

Language en-US

LazyData TRUE

Imports ROCR (>= 1.0-7), PRROC (>= 1.1), precrec (>= 0.1), rJava (>= 0.9-7), R6 (>= 2.1.1), assertthat (>= 0.1), grid, gridExtra (>= 2.0.0), graphics, ggplot2 (>= 2.1.0), methods, memoise (>= 1.0.0)

RoxygenNote 7.1.0

Encoding UTF-8

Suggests microbenchmark (>= 1.4-2.1), PerfMeas (>= 1.2.1), testthat (>= 0.11.0), knitr (>= 1.11), rmarkdown (>= 0.8.1)

VignetteBuilder knitr

NeedsCompilation no

Author Takaya Saito [aut, cre],
Marc Rehmsmeier [aut]

Maintainer Takaya Saito <takaya.saito@outlook.com>

Repository CRAN

Date/Publication 2020-03-26 06:00:02 UTC

R topics documented:

autoplot.evalcurve	2
C1DATA	3
C2DATA	4
C3DATA	4
C4DATA	4
create_example_func	5
create_testset	5
create_toolset	7
create_usrdata	8
create_usrtool	9
prcbench	10
run_benchmark	11
run_evalcurve	12
TestDataB	13
TestDataC	15
ToolAUCCalculator	18
ToolIFBase	20
ToolPerfMeas	22
Toolprecrec	23
ToolPRROC	25
ToolROCR	27
Index	29

autoplot.evalcurve *Plot the result of Precision-Recall curve evaluation*

Description

The plot_eval_results function validates Precision-Recall curves and creates a plot.

Usage

```
## S3 method for class 'evalcurve'
autoplot(
  object,
  base_plot = TRUE,
  ret_grob = FALSE,
  ncol = NULL,
  nrow = NULL,
  use_category = FALSE,
  ...
)
```

Arguments

<code>object</code>	An S3 object that contains evaluation results of Precision-Recall curves.
<code>base_plot</code>	A Boolean value to specify whether the base points are plotted.
<code>ret_grob</code>	A Boolean value to specify whether the function returns a grob object.
<code>ncol</code>	An integer used for the column size of multiple panes.
<code>nrow</code>	An integer used for the row size of multiple panes.
<code>use_category</code>	A Boolean value to specify whether the categorical summary instead of the total summary.
<code>...</code>	Not used by this function.

Value

A data frame with validation results.

Examples

```
library(ggplot2)

## Plot evaluation results on test datasets r1, r2, and r3
testset <- create_testset("curve", c("c1", "c2", "c3"))
toolset <- create_toolset(set_names = "crv5")
eres1 <- run_evalcurve(testset, toolset)
autoplot(eres1)
```

C1DATA

C1: Pre-calculated Precision-Recall curve

Description

A list contains scores, labels, and pre-calculated recall and precision values as x and y.

Usage

```
data(C1DATA)
```

Format

A list with 5 items.

scores input scores

labels input labels

bp_x pre-calculated recall values for curve evaluation

bp_y pre-calculated precision values for curve evaluation

tp_x x position for displaying the test result in a plot

tp_y y position for displaying the test result in a plot

C2DATA

C2: Pre-calculated Precision-Recall curve

Description

A list contains scores, labels, and pre-calculated recall and precision values as x and y.

Usage

```
data(C2DATA)
```

Format

See [C1DATA](#).

C3DATA

C3: Pre-calculated Precision-Recall curve

Description

A list contains scores, labels, and pre-calculated recall and precision values as x and y.

Usage

```
data(C3DATA)
```

Format

See [C1DATA](#).

C4DATA

C4: Pre-calculated Precision-Recall curve

Description

A list contains scores, labels, and pre-calculated recall and precision values as x and y.

Usage

```
data(C4DATA)
```

Format

See [C1DATA](#).

create_example_func *Create an example for the func argument of the create_usrtool function*

Description

The create_example_func function creates an example for the [create_usrtool](#) function.

Usage

```
create_example_func()
```

Value

A function as an example for [create_usrtool](#)

See Also

[create_usrtool](#) requires the same format. [create_testset](#) for testset.

Examples

```
## Create a function
func <- create_example_func()
func
```

create_testset *Create a list of test datasets*

Description

The create_testset function creates test datasets either for benchmarking or curve evaluation.

Usage

```
create_testset(test_type, set_names = NULL)
```

Arguments

test_type	A single string to specify the type of dataset generated by this function. "bench" Create test datasets for benchmarking "curve" Create test datasets for curve evaluation
set_names	A character vector to specify the names of test datasets.

1. For benchmarking (`test_type = "bench"`)
This function uses a naming convention for randomly generated data for benchmarking. The format is a prefix ('i' or 'b') followed by the number of dataset. The prefix 'i' indicates a balanced dataset, whereas 'b' indicates an imbalanced dataset. The number can be used with a suffix 'k' or 'm', indicating respectively 1000 or 1 million.
Below are some examples.
 - "b100"** A balanced data set with 50 positives and 50 negatives.
 - "b10k"** A balanced data set with 5000 positives and 5000 negatives.
 - "b1m"** A balanced data set with 500,000 positives and 500,000 negatives.
 - "i100"** An imbalanced data set with 25 positives and 75 negatives.
 The function returns a list of `TestDataB` objects.
2. For curve evaluation (`test_type = "curve"`)
The following three predefined datasets can be specified for curve evaluation.

set name	S3 object	data source
c1 or C1	<code>TestDataC</code>	<code>C1DATA</code>
c2 or C2	<code>TestDataC</code>	<code>C2DATA</code>
c3 or C3	<code>TestDataC</code>	<code>C3DATA</code>
c4 or C4	<code>TestDataC</code>	<code>C4DATA</code>

The function returns a list of `TestDataC` objects.

Value

A list of R6 test dataset objects.

See Also

`run_benchmark` and `run_evalcurve` require the list of the datasets generated by this function. `TestDataB` for benchmarking test data. `TestDataC`, `C1DATA`, `C2DATA`, `C3DATA`, and `C4DATA` for curve evaluation test data. `create_usrdata` for creating a user-defined test set.

Examples

```
## Create a balanced data set with 50 positives and 50 negatives
tset1 <- create_testset("bench", "b100")
tset1

## Create an imbalanced data set with 25 positives and 75 negatives
tset2 <- create_testset("bench", "i100")
tset2

## Create P1 dataset
tset3 <- create_testset("curve", "c1")
tset3

## Create P1 dataset
```

```
tset4 <- create_testset("curve", c("c1", "c2"))
tset4
```

create_toolset *Create a set of tools*

Description

The create_toolset function takes names of predefined tools and generates a list of wrapper functions for Precision-Recall curve calculations.

Usage

```
create_toolset(
  tool_names = NULL,
  set_names = NULL,
  calc_auc = TRUE,
  store_res = TRUE
)
```

Arguments

tool_names	A character vector to specify the names of performance evaluation tools. The names for the following five tools can be currently used. <ul style="list-style-type: none"> • ROCR • AUCCalculator • PerfMeas • PRROC • precrec
set_names	A character vector to specify a predefined set name. Following six sets are currently available. <p>"def5" A set of 5 tools with calc_auc = TRUE and store_res = TRUE</p> <p>"auc5" A set of 5 tools with calc_auc = TRUE and store_res = FALSE</p> <p>"crv5" A set of 5 tools with calc_auc = FALSE and store_res = TRUE</p> <p>"def4" A set of 4 tools with calc_auc = TRUE and store_res = TRUE</p> <p>"auc4" A set of 4 tools with calc_auc = TRUE and store_res = FALSE</p> <p>"crv4" A set of 4 tools with calc_auc = FALSE and store_res = TRUE</p>
calc_auc	A Boolean value to specify whether the AUC score should be calculated.
store_res	A Boolean value to specify whether the calculated curve is retrieved and stored

Value

A list of R6 tool objects.

See Also

[run_benchmark](#) and [run_evalcurve](#) require the list of the tools generated by this function [ToolROCR](#), [ToolAUCCalculator](#), [ToolPerfMeas](#), [ToolPRROC](#), and [Toolprecrec](#) as R6 tool classes.

Examples

```
## Create ROCR and precrec
toolset1 <- create_toolset(c("ROCR", "precrec"))
toolset1

## Create auc5 tools
toolset2 <- create_toolset(set_names = "auc5")
toolset2
```

<code>create_usrdata</code>	<i>Create a user-defined test dataset</i>
-----------------------------	---

Description

The `create_usrdata` function creates various types of test datasets.

Usage

```
create_usrdata(
  test_type,
  scores = NULL,
  labels = NULL,
  tsname = NULL,
  base_x = NULL,
  base_y = NULL,
  text_x = NULL,
  text_y = NULL,
  text_x2 = text_x,
  text_y2 = text_y
)
```

Arguments

<code>test_type</code>	A single string to specify the type of dataset generated by this function. "bench" Create a test dataset for benchmarking "curve" Create a test dataset for curve evaluation
<code>scores</code>	A numeric vector to set scores.
<code>labels</code>	A numeric vector to set labels.
<code>tsname</code>	A single string to specify the name of the dataset.
<code>base_x</code>	A numeric vector to set pre-calculated recall values for curve evaluation.

base_y	A numeric vector to set pre-calculated precision values for curve evaluation.
text_x	A single numeric value to set the x position for displaying the test result in a plot
text_y	A single numeric value to set the y position for displaying the test result in a plot
text_x2	A single numeric value to set the x position for displaying the test result (group into categories) in a plot
text_y2	A single numeric value to set the y position for displaying the test result (group into categories) in a plot

Value

A list of R6 test dataset objects.

See Also

[create_testset](#) for creating a predefined test set. [TestDataB](#) for benchmarking test data. [TestDataC](#) for curve evaluation test data.

Examples

```
## Create a test dataset for benchmarking
testset2 <- create_usrdata("bench", scores = c(0.1, 0.2), labels = c(1, 0),
                          tsname = "m1")

testset2

## Create a test dataset for curve evaluation
testset <- create_usrdata("curve", scores = c(0.1, 0.2), labels = c(1, 0),
                         base_x = c(0, 1.0), base_y = c(0, 0.5))

testset
```

create_usrtool *Create a set of tools*

Description

The `create_toolset` function takes names of predefined tools and generates a list of wrapper functions for Precision-Recall curve calculations.

Usage

```
create_usrtool(
  tool_name,
  func,
  calc_auc = TRUE,
  store_res = TRUE,
  x = NA,
  y = NA
)
```

Arguments

tool_name	A single string to specify the name of a user-defined tool.
func	A function to calculate a Precision-Recall curve and the AUC. It should take an element of the test dataset generated by create_testset as an argument. It also should return a list with three elements - 'x', 'y', and 'auc' that represent calculated recall and precision values plus the AUC score. See create_example_func for an example.
calc_auc	A Boolean value to specify whether the AUC score should be calculated.
store_res	A Boolean value to specify whether the calculated curve is retrieved and stored.
x	Set pre-calculated recall values.
y	Set pre-calculated precision values.

Value

A list of R6 tool objects.

See Also

[create_toolset](#) to create a predefined tool set. [create_testset](#) for testset. [create_example_func](#) to create an example function.

Examples

```
## Create a new tool interface called "xyz"
efunc <- create_example_func()
toolset1 <- create_usrtool("xyz", efunc)
toolset1

## Example function with a correct argument
testset <- create_usrdata("bench", scores = c(0.1, 0.2), labels = c(1, 0))
retf <- efunc(testset[[1]])
retf
```

prcbench

prcbench: A package to provide a testing workbench for precision-recall curves

Description

The prcbench package provides four categories of important functions: tool interface, test data interface, benchmarking, and curve evaluation.

Tool interface

The `create_toolset` function creates a common interface for five different tools that calculate Precision-Recall curves. These tools are `ROCR`, `AUCCalculator`, `PerfMeas`, `PRROC`, and `precrec`.

The `create_usrtool` function helps users to make the same interface of the predefined ones for their own tools.

Test data interface

The `create_testset` function creates two different types of test data sets. The first type is for benchmarking, and the second type is for curve evaluation.

The `create_usrdata` function helps users to make their own test data sets.

Benchmarking

The `run_benchmark` function takes a tool set and a test data set and run `microbenchmark` for them.

Curve evaluation

The `run_evalcurve` function takes a tool set and a test data set and evaluates the accuracy of Precision-Recall curves for them.

run_benchmark	<i>Run microbenchmark with specified tools and test sets</i>
---------------	--

Description

The `run_benchmark` function runs `microbenchmark` for specified tools and test datasets

Usage

```
run_benchmark(testset, toolset, times = 5, unit = "ms", use_sys_time = FALSE)
```

Arguments

testset	A character vector to specify a test set generated by <code>create_testset</code> .
toolset	A character vector to specify a tool set generated by <code>create_toolset</code> .
times	The number of iteration used in <code>microbenchmark</code> .
unit	A single string to specify the unit used in <code>summary.microbenchmark</code> .
use_sys_time	A Boolean value to specify <code>system.time</code> is used instead of <code>summary.microbenchmark</code> .

Value

A data frame of `microbenchmark` results with additional columns.

See Also

[create_testset](#) to generate a test dataset. [create_toolset](#) to generate a tool set. [microbenchmark](#) for benchmarking details.

Examples

```
## Not run:
## Benchmarking for b10 and i10 test sets and crv5, auc5, and def5 tool sets
testset <- create_testset("bench", c("b10", "i10"))
toolset <- create_toolset(set_names = "def5")
res1 <- run_benchmark(testset, toolset)
res1

## End(Not run)
```

run_evalcurve

Evaluate Precision-Recall curves with specified tools and test sets

Description

The `run_evalcurve` function runs several tests to evaluate the accuracy of Precision-Recall curves.

Usage

```
run_evalcurve(testset, toolset, auto_combo = TRUE)
```

Arguments

testset	A character vector to specify a test set generated by create_testset .
toolset	A character vector to specify a tool set generated by create_toolset .
auto_combo	A Boolean value to specify whether a combination of test and tool sets is automatically created.

Value

A data frame with validation results.

See Also

[create_testset](#) to generate a test dataset. [create_toolset](#) to generate a tool set.

Examples

```
## Evaluate curves for c1, c2, c3 test sets and crv5 tool set
testset <- create_testset("curve", c("c1", "c2", "c3"))
toolset <- create_toolset(set_names = "crv5")
res1 <- run_evalcurve(testset, toolset)
res1
```

TestDataB

R6 class of test dataset for performance evaluation tools

Description

TestDataB is a class that contains scores and label for performance evaluation tools. It provides necessary methods for benchmarking.

Format

An R6 class object.

Methods

- `get_tsname()`: Get the dataset name.
- `get_scores()`: Get a vector of scores.
- `get_labels()`: Get a vector of labels.
- `get_fg()`: Get a vector of positive scores.
- `get_bg()`: Get a vector of negative scores.
- `get_fname()`: Get a file name that contains scores and labels.
- `del_file()`: Delete the file with scores and labels.

Methods

Public methods:

- `TestDataB$new()`
- `TestDataB$get_tsname()`
- `TestDataB$get_scores()`
- `TestDataB$get_labels()`
- `TestDataB$get_fg()`
- `TestDataB$get_bg()`
- `TestDataB$get_fname()`
- `TestDataB$del_file()`
- `TestDataB$print()`
- `TestDataB$clone()`

Method `new()`:

Usage:

`TestDataB$new(scores = NULL, labels = NULL, tsname = NA)`

Method `get_tsname()`:

Usage:

`TestDataB$get_tsname()`

Method `get_scores()`:

Usage:

`TestDataB$get_scores()`

Method `get_labels()`:

Usage:

`TestDataB$get_labels()`

Method `get_fg()`:

Usage:

`TestDataB$get_fg()`

Method `get_bg()`:

Usage:

`TestDataB$get_bg()`

Method `get_fname()`:

Usage:

`TestDataB$get_fname()`

Method `del_file()`:

Usage:

`TestDataB$del_file()`

Method `print()`:

Usage:

`TestDataB$print(...)`

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

Usage:

`TestDataB$clone(deep = FALSE)`

Arguments:

`deep` Whether to make a deep clone.

See Also

[create_testset](#) for creating a list of test datasets. [TestDataC](#) is derived from this class for curve evaluation.

Examples

```
## Initialize with scores, labels, and a dataset name
testset <- TestDataB$new(c(0.1, 0.2, 0.3), c(0, 1, 1), "m1")
testset
```

TestDataC

R6 class of test dataset for Precision-Recall curve evaluation

Description

TestDataC is a class that contains scores and label for performance evaluation tools. It provides necessary methods for curve evaluation.

Format

An R6 class object.

Methods

- `set_basepoints_x(x)`: Set pre-calculated recall values for curve evaluation
- `set_basepoints_y(y)`: Set pre-calculated precision values for curve evaluation
- `get_basepoints_x()`: Get pre-calculated recall values for curve evaluation
- `get_basepoints_y()`: Get pre-calculated precision values for curve evaluation
- `set_textpos_x(x)`: Set the x position for displaying the test result in a plot
- `set_textpos_y(y)`: Set the y position for displaying the test result in a plot
- `get_textpos_x()`: Get the x position for displaying the test result in a plot
- `get_textpos_y()`: Get the y position for displaying the test result in a plot

Following seven methods are inherited from [TestDataB](#). See [TestDataB](#) for the method descriptions.

- `get_datname()`
- `get_scores()`
- `get_labels()`
- `get_fg()`
- `get_bg()`
- `get_fname()`
- `del_file()`

Super class

`prcbench::TestDataB` -> `TestDataC`

Methods**Public methods:**

- [TestDataC\\$set_basepoints_x\(\)](#)
- [TestDataC\\$set_basepoints_y\(\)](#)
- [TestDataC\\$get_basepoints_x\(\)](#)
- [TestDataC\\$get_basepoints_y\(\)](#)
- [TestDataC\\$set_textpos_x\(\)](#)
- [TestDataC\\$set_textpos_y\(\)](#)
- [TestDataC\\$set_textpos_x2\(\)](#)
- [TestDataC\\$set_textpos_y2\(\)](#)
- [TestDataC\\$get_textpos_x\(\)](#)
- [TestDataC\\$get_textpos_y\(\)](#)
- [TestDataC\\$get_textpos_x2\(\)](#)
- [TestDataC\\$get_textpos_y2\(\)](#)
- [TestDataC\\$clone\(\)](#)

Method `set_basepoints_x()`:*Usage:*`TestDataC$set_basepoints_x(x)`**Method** `set_basepoints_y()`:*Usage:*`TestDataC$set_basepoints_y(y)`**Method** `get_basepoints_x()`:*Usage:*`TestDataC$get_basepoints_x()`**Method** `get_basepoints_y()`:*Usage:*`TestDataC$get_basepoints_y()`**Method** `set_textpos_x()`:*Usage:*`TestDataC$set_textpos_x(x)`**Method** `set_textpos_y()`:*Usage:*`TestDataC$set_textpos_y(y)`**Method** `set_textpos_x2()`:*Usage:*`TestDataC$set_textpos_x2(x)`

Method set_textpos_y2():

Usage:

```
TestDataC$set_textpos_y2(y)
```

Method get_textpos_x():

Usage:

```
TestDataC$get_textpos_x()
```

Method get_textpos_y():

Usage:

```
TestDataC$get_textpos_y()
```

Method get_textpos_x2():

Usage:

```
TestDataC$get_textpos_x2()
```

Method get_textpos_y2():

Usage:

```
TestDataC$get_textpos_y2()
```

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

Usage:

```
TestDataC$clone(deep = FALSE)
```

Arguments:

deep Whether to make a deep clone.

See Also

[create_testset](#) for creating a list of test datasets. It is derived from [TestDataB](#).

Examples

```
## Initialize with scores, labels, and a dataset name
testset <- TestDataC$new(c(0.1, 0.2), c(1, 0), "c4")
testset

## Set base points
testset$set_basepoints_x(c(0.13, 0.2))
testset$set_basepoints_y(c(0.5, 0.6))
testset
```

ToolAUCCalculator *R6 class of the AUCCalculator tool*

Description

ToolAUCCalculator is a wrapper class for the **AUCCalculator** tool, which is a Java library that provides calculations of ROC and Precision-Recall curves.

Format

An R6 class object.

Inheritance

[ToolIFBase](#)

Methods

`set_jarpath(jarpath)` It sets an AUCCalculator jar file.

`jarpath` File path of the AUCCalculator jar file, e.g. `"/path1/path2/auc2.jar"`.

Following nine methods are inherited from [ToolIFBase](#). See [ToolIFBase](#) for the method descriptions.

- `call((testset, calc_auc, store_res)`
- `get_toolname()`
- `set_toolname(toolname)`
- `get_setname()`
- `set_setname(setname)`
- `get_result()`
- `get_x()`
- `get_y()`
- `get_auc()`

Super class

`prcbench::ToolIFBase` -> ToolAUCCalculator

Methods

Public methods:

- `ToolAUCCalculator$new()`
- `ToolAUCCalculator$set_jarpath()`
- `ToolAUCCalculator$set_curvetype()`
- `ToolAUCCalculator$set_auctype()`

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

Method new():*Usage:*

ToolAUCCalculator\$new(...)

Method set_jarpath():*Usage:*

ToolAUCCalculator\$set_jarpath(jarpath = NULL)

Method set_curvetype():*Usage:*

ToolAUCCalculator\$set_curvetype(curvetype = "SPR")

Method set_auctype():*Usage:*

ToolAUCCalculator\$set_auctype(auctype)

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

ToolAUCCalculator\$clone(deep = FALSE)

Arguments:

deep Whether to make a deep clone.

See Also

This class is derived from [ToolIFBase](#). [create_toolset](#) for creating a list of tools.

Examples

```
## Initialization
toolauccalc <- ToolAUCCalculator$new()

## Show object info
toolauccalc

## create_toolset should be used for benchmarking and curve evaluation
toolauccalc2 <- create_toolset("AUCCalculator")
```

 ToolIFBase

Base class of performance evaluation tools

Description

ToolIFBase is an abstract class to provide a uniform interface for performance evaluation tools.

Format

An R6 class object

Methods

- `call(testset, calc_auc, store_res)`: It calls an actual tool to calculate Precision-Recall curves.
 `testset` R6 object generated by the `create_testset` function.
 `calc_auc` A Boolean value to specify whether the AUC score should be calculated.
 `store_res` A Boolean value to specify whether the calculated curve is retrieved and stored.
- `get_toolname()`: Get the name of the tool.
- `set_toolname(toolname)`: Set the name of the tool.
- `get_setname()`: Get the name of the tool set.
- `set_setname(setname)`: Set the name of the tool set.
- `get_result()`: Get a list with curve values and the AUC score.
- `get_x()`: Get calculated recall values.
- `get_y()`: Get calculated precision values.
- `get_auc()`: Get the AUC score.

Methods

Public methods:

- `ToolIFBase$new()`
- `ToolIFBase$call()`
- `ToolIFBase$get_toolname()`
- `ToolIFBase$set_toolname()`
- `ToolIFBase$get_setname()`
- `ToolIFBase$set_setname()`
- `ToolIFBase$get_result()`
- `ToolIFBase$get_x()`
- `ToolIFBase$get_y()`
- `ToolIFBase$get_auc()`
- `ToolIFBase$print()`

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

Method new():

Usage:

ToolIFBase\$new(...)

Method call():

Usage:

ToolIFBase\$call(testset, calc_auc, store_res)

Method get_toolname():

Usage:

ToolIFBase\$get_toolname()

Method set_toolname():

Usage:

ToolIFBase\$set_toolname(toolname)

Method get_setname():

Usage:

ToolIFBase\$get_setname()

Method set_setname():

Usage:

ToolIFBase\$set_setname(setname)

Method get_result():

Usage:

ToolIFBase\$get_result()

Method get_x():

Usage:

ToolIFBase\$get_x()

Method get_y():

Usage:

ToolIFBase\$get_y()

Method get_auc():

Usage:

ToolIFBase\$get_auc()

Method print():

Usage:

ToolIFBase\$print(...)

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

Usage:

ToolIFBase\$clone(deep = FALSE)

Arguments:

deep Whether to make a deep clone.

See Also

[ToolROCR](#), [ToolAUCCalculator](#), [ToolPerfMeas](#), [ToolPRROC](#), and [Toolprecrec](#) are derived from this class. [create_toolset](#) for creating a list of tools.

ToolPerfMeas

R6 class of the PerfMeas tool

Description

ToolPerfMeas is a wrapper class for the [PerfMeas](#) tool, which is an R library that provides several performance measures.

Format

An R6 class object.

Inheritance

[ToolIFBase](#)

Methods

Following nine methods are inherited from [ToolIFBase](#). See [ToolIFBase](#) for the method descriptions.

- `call(testset, calc_auc, store_res)`
- `get_toolname()`
- `set_toolname(toolname)`
- `get_setname()`
- `set_setname(setname)`
- `get_result()`
- `get_x()`
- `get_y()`
- `get_auc()`

Super class

[prcbench::ToolIFBase](#) -> ToolPerfMeas

Methods

Public methods:

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

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

Usage:

```
ToolPerfMeas$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

See Also

This class is derived from [ToolIFBase](#). [create_toolset](#) for creating a list of tools.

Examples

```
## Initialization
toolperf <- ToolPerfMeas$new()

## Show object info
toolperf

## create_toolset should be used for benchmarking and curve evaluation
toolperf2 <- create_toolset("PerfMeas")
```

Toolprecrec

R6 class of the precrec tool

Description

Toolprecrec is a wrapper class for the [precrec](#) tool, which is an R library that provides calculations of ROC and Precision-Recall curves.

Format

An R6 class object.

Inheritance

[ToolIFBase](#)

Methods

Following nine methods are inherited from [ToolIFBase](#). See [ToolIFBase](#) for the method descriptions.

- `call(testset, calc_auc, store_res)`
- `get_toolname()`
- `set_toolname(toolname)`
- `get_setname()`
- `set_setname(setname)`
- `get_result()`
- `get_x()`
- `get_y()`
- `get_auc()`

Super class

`prcbench::ToolIFBase -> Toolprecrec`

Methods

Public methods:

- `Toolprecrec$new()`
- `Toolprecrec$set_x_bins()`
- `Toolprecrec$clone()`

Method `new()`:

Usage:

`Toolprecrec$new(...)`

Method `set_x_bins()`:

Usage:

`Toolprecrec$set_x_bins(x_bins)`

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

Usage:

`Toolprecrec$clone(deep = FALSE)`

Arguments:

`deep` Whether to make a deep clone.

See Also

This class is derived from [ToolIFBase](#). [create_toolset](#) for creating a list of tools.

Examples

```
## Initialization
toolprecrec <- Toolprecrec$new()

## Show object info
toolprecrec

## create_toolset should be used for benchmarking and curve evaluation
toolprecrec2 <- create_toolset("precrec")
```

ToolPRROC

R6 class of the PRROC tool

Description

ToolPRROC is a wrapper class for the **PRROC** tool, which is an R library that provides calculations of ROC and Precision-Recall curves.

Format

An R6 class object.

Inheritance

[ToolIFBase](#)

Methods

`set_curve(val)` A Boolean value to specify whether a Precision-Recall curve is calculated.

`set_minStepSize(val)` A numeric value to specify the minimum step size between two intermediate points.

Following nine methods are inherited from [ToolIFBase](#). See [ToolIFBase](#) for the method descriptions.

- `call(testset, calc_auc, store_res)`
- `get_toolname()`
- `set_toolname(toolname)`
- `get_setname()`
- `set_setname(setname)`
- `get_result()`
- `get_x()`
- `get_y()`
- `get_auc()`

Super class

`prcbench::ToolIFBase` -> ToolPRROC

Methods**Public methods:**

- `ToolPRROC$new()`
- `ToolPRROC$set_curve()`
- `ToolPRROC$set_minStepSize()`
- `ToolPRROC$set_aucType()`
- `ToolPRROC$clone()`

Method `new()`:

Usage:

`ToolPRROC$new(...)`

Method `set_curve()`:

Usage:

`ToolPRROC$set_curve(val)`

Method `set_minStepSize()`:

Usage:

`ToolPRROC$set_minStepSize(val)`

Method `set_aucType()`:

Usage:

`ToolPRROC$set_aucType(val)`

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

Usage:

`ToolPRROC$clone(deep = FALSE)`

Arguments:

`deep` Whether to make a deep clone.

See Also

This class is derived from `ToolIFBase`. `create_toolset` for creating a list of tools.

Examples

```
## Initialization
toolprroc <- ToolPRROC$new()

## Show object info
toolprroc

## create_toolset should be used for benchmarking and curve evaluation
toolprroc2 <- create_toolset("PRROC")
```

ToolROCR	<i>R6 class of the ROCR tool</i>
----------	----------------------------------

Description

ToolROCR is a wrapper class for the **ROCR** tool, which is an R library that provides calculations of various performance evaluation measures.

Format

An R6 class object.

Inheritance

[ToolIFBase](#)

Methods

Following nine methods are inherited from [ToolIFBase](#). See [ToolIFBase](#) for the method descriptions.

- `call(testset, calc_auc, store_res)`
- `get_toolname()`
- `set_toolname(toolname)`
- `get_setname()`
- `set_setname(setname)`
- `get_result()`
- `get_x()`
- `get_y()`
- `get_auc()`

Super class

[prcbench::ToolIFBase](#) -> ToolROCR

Methods

Public methods:

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

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

Usage:

```
ToolROCR$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

See Also

This class is derived from [ToolIFBase](#). [create_toolset](#) for creating a list of tools.

Examples

```
## Initialization
toolrocr <- ToolROCR$new()

## Show object info
toolrocr

## create_toolset should be used for benchmarking and curve evaluation
toolrocr2 <- create_toolset("ROCR")
```

Index

*Topic **datasets**

C1DATA, 3

C2DATA, 4

C3DATA, 4

C4DATA, 4

autoplot.evalcurve, 2

C1DATA, 3, 4, 6

C2DATA, 4, 6

C3DATA, 4, 6

C4DATA, 4, 6

create_example_func, 5, 10

create_testset, 5, 5, 9–12, 14, 17

create_toolset, 7, 10–12, 19, 22–24, 26, 28

create_usrdata, 6, 8, 11

create_usrtool, 5, 9, 11

microbenchmark, 11, 12

prcbench, 10

prcbench::TestDataB, 15

prcbench::ToolIFBase, 18, 22, 24, 26, 27

run_benchmark, 6, 8, 11, 11

run_evalcurve, 6, 8, 11, 12

summary.microbenchmark, 11

system.time, 11

TestDataB, 6, 9, 13, 15, 17

TestDataC, 6, 9, 14, 15

ToolAUCCalculator, 8, 18, 22

ToolIFBase, 18, 19, 20, 22–28

ToolPerfMeas, 8, 22, 22

Toolprecrec, 8, 22, 23

ToolPRROC, 8, 22, 25

ToolROCR, 8, 22, 27