Package 'prcbench'

July 23, 2025

Type Package

Title Testing Workbench for Precision-Recall Curves

Version 1.1.10

Date 2025-05-14

Description A testing workbench to evaluate tools that calculate precision-recall curves. Saito and Rehmsmeier (2015) <doi:10.1371/journal.pone.0118432>.

URL https://evalclass.github.io/prcbench/, https://github.com/evalclass/prcbench

BugReports https://github.com/evalclass/prcbench/issues

Depends R (>= 3.2.3)

License GPL-3

Language en-US

LazyData TRUE

LinkingTo Rcpp

Imports Rcpp (>= 1.0.9), R6 (>= 2.1.1), assertthat (>= 0.1), grid, gridExtra (>= 2.0.0), graphics, ggplot2 (>= 2.1.0), methods, memoise (>= 1.0.0), ROCR (>= 1.0-7), PRROC (>= 1.1), precrec (>= 0.1)

RoxygenNote 7.3.2

Encoding UTF-8

Suggests microbenchmark (>= 1.4-2.1), rJava (>= 0.9-7), testthat (>= 0.11.0), knitr (>= 1.11), rmarkdown (>= 0.8.1), vdiffr (>= 1.0.0), patchwork (>= 1.1.2)

VignetteBuilder knitr

NeedsCompilation yes

Author Takaya Saito [aut, cre] (ORCID: <https://orcid.org/0000-0002-0154-8452>), Marc Rehmsmeier [aut] (ORCID: <https://orcid.org/0000-0002-5021-7721>)

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

Repository CRAN

Date/Publication 2025-05-14 17:40:01 UTC

Contents

autoplot . . . 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 . . . 11
run_benchmark . . . 12
run_evalcurve . . . 13
TestDataB . . . 13
TestDataC . . . 15
ToolAUCCalculator . . . 18
ToolIFBase . . . 20
ToolPerfMeas . . . 22
Toolprecrec . . . 23
ToolPRROC . . . 24
ToolROCR . . . 26

Index **28**

`autoplot` *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,
  multiplot_lib = "patchwork",
  ...
)
```

Arguments

object	An S3 object that contains evaluation results of Precision-Recall curves.
base_plot	A Boolean value to specify whether the base points are plotted.
ret_grob	A Boolean value to specify whether the function returns a grob object.
ncol	An integer used for the column size of multiple panes.
nrow	An integer used for the row size of multiple panes.
use_category	A Boolean value to specify whether the categorical summary instead of the total summary.
multiplot_lib	A string to decide which library is used to combine multiple plots. Either "patchwork" or "grid".
...	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	`TestDataC`	`C1DATA`
c2 or C2	`TestDataC`	`C2DATA`
c3 or C3	`TestDataC`	`C3DATA`
c4 or C4	`TestDataC`	`C4DATA`

   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. • ROCR • AUCCalculator • PerfMeas • PRROC • precrec
`set_names`	A character vector to specify a predefined set name. Following six sets are currently available. **"def5"** A set of 5 tools with `calc_auc` = `TRUE` and `store_res` = `TRUE` **"auc5"** A set of 5 tools with `calc_auc` = `TRUE` and `store_res` = `FALSE` **"crv5"** A set of 5 tools with `calc_auc` = `FALSE` and `store_res` = `TRUE` **"def4"** A set of 4 tools with `calc_auc` = `TRUE` and `store_res` = `TRUE` **"auc4"** A set of 4 tools with `calc_auc` = `TRUE` and `store_res` = `FALSE` **"crv4"** A set of 4 tools with `calc_auc` = `FALSE` and `store_res` = `TRUE`
`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
```

---

create_usrdata *Create a user-defined test dataset*

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

test_type	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
scores	A numeric vector to set scores.
labels	A numeric vector to set labels.
tsname	A single string to specify the name of the dataset.
base_x	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.

Author(s)

Maintainer: Takaya Saito <takaya.saito@outlook.com> (ORCID)

Authors:

- Marc Rehmsmeier <marc.rehmsmeier@ii.uib.no> (ORCID)

See Also

Useful links:

- https://evalclass.github.io/prcbench/
- https://github.com/evalclass/prcbench
- Report bugs at https://github.com/evalclass/prcbench/issues

run_benchmark *Run microbenchmark with specified tools and test sets*

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

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 *TestDataB*

Description

R6 class of test data set for performance evaluation tools.

Format

An R6 class object.

Details

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

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()`**:** Default class initialization method.

Usage:

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

Arguments:

`scores` A vector of scores.

`labels` A vector of labels.

`tsname` A dataset name.

Method `get_tsname()`**:** Get the dataset name.

Usage:

```
TestDataB$get_tsname()
```

Method `get_scores()`**:** Get a vector of scores.

Usage:

```
TestDataB$get_scores()
```

Method `get_labels()`**:** Get a vector of labels.

Usage:

```
TestDataB$get_labels()
```

Method `get_fg()`**:** Get a vector of positive scores.

Usage:

```
TestDataB$get_fg()
```

Method `get_bg()`**:** Get a vector of negative scores.

Usage:

```
TestDataB$get_bg()
```

Method `get_fname()`**:** Get a file name that contains scores and labels.

Usage:

```
TestDataB$get_fname()
```

Method `del_file()`**:** Delete the file with scores and labels.

Usage:

```
TestDataB$del_file()
```

Method `print()`**:** Pretty print of the test dataset.

Usage:

```
TestDataB$print(...)
```

Arguments:

`...` Not used.

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` *TestDataC*

Description

`R6` class of test dataset for Precision-Recall curve evaluation.

Format

An `R6` class object.

Details

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

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(): Set pre-calculated recall values for curve evaluation.

Usage:

```
TestDataC$set_basepoints_x(x)
```

Arguments:

x A recall value.

Method set_basepoints_y(): Set pre-calculated precision values for curve evaluation.

Usage:

```
TestDataC$set_basepoints_y(y)
```

Arguments:

y A precision value.

Method get_basepoints_x(): Get pre-calculated recall values for curve evaluation.

Usage:

```
TestDataC$get_basepoints_x()
```

Method get_basepoints_y(): Get pre-calculated precision values for curve evaluation.

Usage:

```
TestDataC$get_basepoints_y()
```

Method `set_textpos_x()`**:** Set the position `x` for displaying the test result in a plot.

Usage:

```
TestDataC$set_textpos_x(x)
```

Arguments:

`x` Position x of the test result.

Method `set_textpos_y()`**:** Set the `y` position for displaying the test result in a plot.

Usage:

```
TestDataC$set_textpos_y(y)
```

Arguments:

`y` Position y of the test result.

Method `set_textpos_x2()`**:** Set the `x` position for displaying the test result in a plot.

Usage:

```
TestDataC$set_textpos_x2(x)
```

Arguments:

`x` Position x of the test result.

Method `set_textpos_y2()`**:** Set the `y` position for displaying the test result in a plot.

Usage:

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

Arguments:

`y` Position y of the test result.

Method `get_textpos_x()`**:** Get the position `x` for displaying the test result in a plot.

Usage:

```
TestDataC$get_textpos_x()
```

Method `get_textpos_y()`**:** Get the position `y` for displaying the test result in a plot.

Usage:

```
TestDataC$get_textpos_y()
```

Method `get_textpos_x2()`**:** Get the `x` position for displaying the test result in a plot.

Usage:

```
TestDataC$get_textpos_x2()
```

Method `get_textpos_y2()`**:** Get the `y` position for displaying the test result in a plot.

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` *ToolAUCCalculator*

Description

R6 class of the AUCCalculator tool

Format

An R6 class object.

Details

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

Super class

`prcbench::ToolIFBase` -> `ToolAUCCalculator`

Methods

Public methods:

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

Method `new()`**:** Default class initialization method.

Usage:

```
ToolAUCCalculator$new(...)
```

Arguments:

`...` set value for `jarpath`.

Method `set_jarpath()`**:** It sets an AUCCalculator jar file.

Usage:

```
ToolAUCCalculator$set_jarpath(jarpath = NULL)
```

Arguments:

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

Method `set_curvetype()`**:** It sets the type of curve.

Usage:

```
ToolAUCCalculator$set_curvetype(curvetype = "SPR")
```

Arguments:

`curvetype` "SPR", "PR", or "ROC"

Method `set_auctype()`**:** It sets the type of calculation method

Usage:

```
ToolAUCCalculator$set_auctype(auctype)
```

Arguments:

`auctype` "java" or "r"

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 *ToolIFBase*

Description

Base class of performance evaluation tools.

Format

An R6 class object

Details

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

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(): Default class initialization method.

Usage:

```
ToolIFBase$new(...)
```

Arguments:

... set value for setname, calc_auc, store_res, x, y.

Method call(): It calls the tool to calculate precision-recall curves.

Usage:

```
ToolIFBase$call(testset, calc_auc, store_res)
```

Arguments:

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.

Method `get_toolname()`**:** Get the name of the tool.

Usage:

```
ToolIFBase$get_toolname()
```

Method `set_toolname()`**:** Set the name of the tool.

Usage:

```
ToolIFBase$set_toolname(toolname)
```

Arguments:

toolname Name of the tool.

Method `get_setname()`**:** Get the name of the tool set.

Usage:

```
ToolIFBase$get_setname()
```

Method `set_setname()`**:** Set the name of the tool set.

Usage:

```
ToolIFBase$set_setname(setname)
```

Arguments:

setname Name of the tool set.

Method `get_result()`**:** Get a list with curve values and the AUC score.

Usage:

```
ToolIFBase$get_result()
```

Method `get_x()`**:** Get calculated recall values.

Usage:

```
ToolIFBase$get_x()
```

Method `get_y()`**:** Get calculated precision values.

Usage:

```
ToolIFBase$get_y()
```

Method `get_auc()`**:** Get tne AUC score.

Usage:

```
ToolIFBase$get_auc()
```

Method `print()`**:** Pretty print of the tool interface

Usage:

```
ToolIFBase$print(...)
```

Arguments:

... Not used.

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 *ToolPerfMeas*

Description

R6 class of the PerfMeas tool

Format

An R6 class object.

Details

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

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 *Toolprecrec*

Description

R6 class of the precrec tool

Format

An R6 class object.

Details

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

Super class

prcbench::ToolIFBase -> Toolprecrec

Methods

Public methods:

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

Method new(): Default class initialization method.

Usage:

```
Toolprecrec$new(...)
```

Arguments:

... set value for x_bins.

Method set_x_bins(): Set the number of supporting points as the number of bins.

Usage:

```
Toolprecrec$set_x_bins(x_bins)
```

Arguments:

`x_bins` set value for `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` *ToolPRROC*

Description

`R6` class of the PRROC tool

Format

An `R6` class object.

Details

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

Super class

`prcbench::ToolIFBase` -> `ToolPRROC`

Methods

Public methods:

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

Method `new()`**:** Default class initialization method.

Usage:

```
ToolPRROC$new(...)
```

Arguments:

`...` set value for `curve`, `minStepSize`, `aucType`.

Method `set_curve()`**:** A Boolean value to specify whether precision-recall curve is calculated.

Usage:

```
ToolPRROC$set_curve(val)
```

Arguments:

`val` TRUE: calculate, FALSE: not calculate.

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

Usage:

```
ToolPRROC$set_minStepSize(val)
```

Arguments:

`val` Step size between two points.

Method `set_aucType()`**:** Set the AUC calculation method

Usage:

```
ToolPRROC$set_aucType(val)
```

Arguments:

`val` 1: integral, 2: Davis Goadrich

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 *ToolROCR*

Description

R6 class of the ROCR tool

Format

An R6 class object.

Details

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

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

∗ **datasets**
C1DATA, 3
C2DATA, 4
C3DATA, 4
C4DATA, 4

autoplot, 2

C1DATA, 3, *4*, *6*
C2DATA, 4, *6*
C3DATA, 4, *6*
C4DATA, 4, *6*
create_example_func, 5, *10*
create_testset, *5*, 5, *9–13*, *15*, *18*
create_toolset, 7, *10–13*, *19*, *22*, *24–26*
create_usrdata, *6*, 8, *11*
create_usrtool, *5*, 9, *11*

microbenchmark, *11, 12*

prcbench, 11
prcbench-package *(*prcbench*)*, 11
prcbench::TestDataB, *16*
prcbench::ToolIFBase, *18*, *22–24*, *26*

run_benchmark, *6*, *8*, *11*, 12
run_evalcurve, *6*, *8*, *11*, 13

summary.microbenchmark, *12*
system.time, *12*

TestDataB, *6*, *9*, 13, *18*
TestDataC, *6*, *9*, *15*, 15
ToolAUCCalculator, *8*, 18, *22*
ToolIFBase, *19*, 20, *22*, *24–26*
ToolPerfMeas, *8*, *22*, 22
Toolprecrec, *8*, *22*, 23
ToolPRROC, *8*, *22*, 24
ToolROCR, *8*, *22*, 26