Package 'sAUC'

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Title Semi-parametric Area Under the Curve (AUC) regression

Description Perform AUC analyses with discrete covariates and a semi-parametric estimation.

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URL https://github.com/sbohora/sAUC

BugReports https://github.com/sbohora/sAUC/issues

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LazyData TRUE

Depends R(>= 3.1.0)

Imports Matrix,
stats,
base,
methods,
utils

Suggests testthat,
testit

RoxygenNote 6.0.1.9000

R topics documented:

calculate_auc *Calculate different estimates related to AUC*

Description

Calculate variance of predicted AUC, logit of predicted AUC, and variance of logit of predicted AUC responses passed

Usage

```
calculate_auc(x, y = NULL, data = NULL)
```

Arguments

x	A formula with two vector responses (For e.g., y1 ~ y2) or a vector of responses.
y	A vector responses.
data	An R dataframe object.

Value

A list of AUC estimates.

Author(s)

Som Bohora

Examples

```
calculate_auc(mpg ~ am, data = datasets::mtcars)
calculate_auc(datasets::iris$Sepal.Length, datasets::iris$Petal.Length)
```

fasd *FASD data about effects of brochure types on alcohol use*

Description

A dataset containing the alcohol use and other attributes.

Usage

```
data(fasd)
```

Format

A data frame with 210 rows and 4 variables:

y alcohol use, number of drinks

group types of brochures

x1 Whether vitamin was taken or not

x2 Smoking status

Source

http://www.netfas.net/

Examples

```
data(fasd)
```

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sAUC *Run semiparametric AUC regression model adjusting for categorical covariates*

Description

Ask for data frame that contains only required variables in the model, Request to define response and treatment group, convert variables other than response into factors, estimate model parameters, and display results.

Usage

```
sAUC(x = FALSE, treatment_group = FALSE, data = FALSE)
```

Arguments

x	A formula with response and covariates such as response ~ x1 + x2
treatment_group	A treatment group for which a comparision is to be made
data	A dataframe that contains only variables needed for the analysis. At this point, this dataframe should not contain any extra variables

Value

A list of model summary, coefficients, AUC details, and session information.

Author(s)

Som Bohora

Examples

```
ds <- NULL
for (x1 in 0:1){
 for (x2 in 0:2){
   for (x3 in 0:2){
     for (group in 0:1){
         response <- round(rnorm(n = 100, mean = 0, sd = 1),4)
         column <- cbind(x1,x2,x3, group, response)
         ds <- as.data.frame(rbind(ds, column))
   }
  }
 }
}
ds[,c("x1", "x2", "x3", "group")] <- lapply(ds[,c("x1", "x2", "x3", "group")],
```

```
                                        function(x) factor(x))

sAUC(x = response ~ x1 + x2 + x3, treatment_group = "group", data = ds)
```

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