Package ‘ERSA’

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License GPL (>= 2.0)
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add1_models

Constructs a list of fits by adding predictors sequentially

Usage

add1_models(model, preds, data = NULL)

Arguments

model A linear model
preds Predictors to be added sequentially
data The dataset (optional)

Value

A list of linear fits

createERServer

A function which returns a shiny server for Exploratory Regression

Usage

createERServer(
  ERfit,  
  ERdata = NULL,  
  ERbarcols = RColorBrewer::brewer.pal(4, "Set2"),  
  ERnpcpCols = 4,  
  pvalOrder = F
)

Arguments

ERfit the lm fit to be explored
ERdata the data used to fit the model. If NULL, attempts to extract from ERfit.
ERbarcols a vector of colours, one per term in lm. Will be expanded via colorRampPalette if not the correct length.
ERnpcpCols number of colours for the PCP
pvalOrder if TRUE, re-arranges predictors in order of p-value
createERUI

Value

A function

createERUI Constructs UI for Exploratory Regression app

Description

Constructs UI for Exploratory Regression app

Usage

createERUI(tablesOnly = F, gadget = TRUE)

Arguments

- tablesOnly: if TRUE, shows Plots 1-3 only.
- gadget: If TRUE, constructs a gadget, otherwise a shinyApp

Value

The UI

drop1_models Constructs a list of fits by dropping predictors from the supplied model

Description

Constructs a list of fits by dropping predictors from the supplied model

Usage

drop1_models(model, preds, data = NULL)

Arguments

- model: A linear model
- preds: Predictors to be dropped
- data: The dataset (optional)

Value

A list of linear fits
ERSA: A package exploring regressions with a Shiny app

Description

The Exploratory Regression Shiny App (ERSA) package consists of a collection of functions for displaying the results of a regression calculation, which are then packaged together as a shiny app function.

exploreReg

A function to launch the Exploratory Regression Shiny App

Usage

exploreReg(
  ERmfull,
  ERdata = NULL,
  ERbarcols = RColorBrewer::brewer.pal(4, "Set2"),
  npcpCols = 4,
  pvalOrder = F,
  tablesOnly = F,
  displayHeight = NULL,
  gadget = TRUE,
  viewer = "dialogViewer"
)

Arguments

ERmfull the lm fit to be explored
ERdata the data used to fit the model. If NULL, attempts to extract from ERmfull.
ERbarcols a vector of colours, one per term in lm. Will be expanded via colorRampPalette if not the correct length.
npcpCols number of colours for the PCP
pvalOrder if TRUE, re-arranges predictors in order of p-value
tablesOnly if TRUE, shows Plots 1-3 only.
displayHeight supply a value for the display height
gadget If TRUE, constructs a gadget, otherwise a shinyApp.
viewer For gadget, defaults to "dialogViewer". May be "paneViewer" or "browserViewer"
Value

the result

Examples

```r
f <- lm(mpg ~ hp+wt+disp, data=mtcars)
## Not run: exploreReg(f)
```

Description

A PCP plot of the data, residuals or hat values from regression fits

Usage

```r
pcpPlot(
  data,  
  fit,  
  type = "Variables",  
  npcpCols = 4,  
  resDiff = F,  
  absResid = F,  
  sequential = F,  
  selnum = NULL
)
```

Arguments

- `data`: a data frame
- `fit`: a lm for the data frame
- `type`: one of "Variables", "Residuals", "Hatvalues"
- `npcpCols`: number of colours
- `resDiff`: difference residuals, TRUE or FALSE
- `absResid`: absolute residuals, TRUE or FALSE
- `sequential`: use sequential fits (TRUE) or drop1 fits (FALSE)
- `selnum`: row numbers of cases to be highlighted

Value

`ggplot`
Examples

```r
f <- lm(mpg ~ wt+hp+disp, data=mtcars)
pcpPlot(mtcars, f, type="Residuals")
```

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**plotSeqSS**

*Plots barcharts of sequential sums of squares of lm*

**Description**

Plots barcharts of sequential sums of squares of lm

**Usage**

```r
plotSeqSS(fits, barcols = NULL, legend = F)
```

**Arguments**

- `fits`: list of lm objects
- `barcols`: a vector of colours, one per term in lms
- `legend`: TRUE or FALSE

**Value**

a ggplot

**Examples**

```r
plotSeqSS(list(fit1= lm(mpg ~ wt+hp+disp, data=mtcars),
fit2=lm(mpg ~ wt*hp*disp, data=mtcars)))
```

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**plotSum**

*Plots of model summaries*

**Description**

Plots of model summaries

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Usage

plotAnovaStats(
    fit0,
    barcols = NULL,
    preds = NULL,
    alpha = 0.05,
    type = "SS",
    width = 0.3
)

plottStats(fit0, barcols = NULL, preds = NULL, alpha = 0.05, width = 0.3)

plotCIStats(
    fit0,
    barcols = NULL,
    preds = NULL,
    alpha = 0.05,
    stdunits = FALSE,
    width = 0.3
)

Arguments

fit0 is an lm object
barcols a vector of colours, one per term in lm
preds terms to include in plot
alpha significance level
type "SS" or "F", from type 3 Anova
width bar width
stdunits TRUE or FALSE. If TRUE, coefficients refer to standardised predictor units.

Value

a ggplot

Functions

- plotAnovaStats(): Plots barchart of F or SS from lm
- plottStats(): Plots barchart of t stats from lm
- plotCIStats(): Plots confidence intervals from lm

Examples

plotAnovaStats(lm(mpg ~ wt+hp+disp, data=mtcars))
plottStats(lm(mpg ~ wt+hp+disp, data=mtcars))
plotCIStats(lm(mpg ~ wt+hp+disp, data=mtcars))
reorderTerms

Re-order model terms

Description

Re-order model terms

Usage

pvalOrder(m, d = NULL, refit = TRUE)
bselOrder(m, d = NULL, refit = TRUE, maxNPred = NULL)
fselOrder(m, d = NULL, refit = TRUE, maxNPred = NULL)
revPredOrder(m, d = NULL, refit = TRUE)
randomPredOrder(m, d = NULL, refit = TRUE)
regsubsetsOrder(m, d = NULL, refit = TRUE, collapse = TRUE)

Arguments

m an lm object

d the data frame. If NULL, attempts to extract from m.

refit TRUE or FALSE

maxNPred maximum number of predictors to use, defaults to all.

collapse TRUE or FALSE

Value

a vector of terms in order last to first, or an lm if refit=TRUE. regsubsetsOrder returns a list of predictor vectors, or a list of fits

Functions

• pvalOrder(): Arranges model terms in order of increasing p-value
• bselOrder(): Arranges model terms using backwards selection
• fselOrder(): Forwards selection
• revPredOrder(): Reverses order of terms in a fit
• randomPredOrder(): Reorders terms in a fit randomly
• regsubsetsOrder(): Best subsets regression.
termColours

Examples

bselOrder(lm(mpg ~ wt+hp+disp, data=mtcars))
fselOrder(lm(mpg ~ wt+hp+disp, data=mtcars))
revPredOrder(lm(mpg ~ wt+hp+disp, data=mtcars))
randomPredOrder(lm(mpg ~ wt+hp+disp, data=mtcars))
regsubsetsOrder(lm(mpg ~ wt+hp+disp, data=mtcars))

termColours

Constructs colour vector for model terms

Description

Constructs colour vector for model terms

Usage

termColours(f, pal = RColorBrewer::brewer.pal(4, "Set2"))

Arguments

f a model fit with term labels
pal use this palette

Value

a vector of colours. Residuals are given a grey color

Examples

termColours(lm(mpg ~ wt+hp, data=mtcars))
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