Package 'ShinyItemAnalysis'

September 28, 2018

Type Package

Title Test and Item Analysis via Shiny

Version 1.2.8

Date 2018-09-27

Author Patricia Martinkova [aut, cre],
Adela Drabinova [aut],
Ondrej Leder [aut],
Jakub Houdek [aut],
Lubomir Stepanek [ctb]

Maintainer Patricia Martinkova <martinkova@cs.cas.cz>

Depends R (>= 3.1)

Imports corrplot, cowplot, CTT, data.table, deltaPlotR, DT, difNLR (>= 1.2.2), difR (>= 5.0), ggplot2 (>= 2.2.1), gridExtra, knitr, latticeExtra, ltm, mirt (>= 1.24), moments, msm, nnet, plotly, psych, psychometric, reshape2, rmarkdown, shiny (>= 1.0.3), shinyBS, shinydashboard, shinyjs (>= 0.9), stringr, xtable

Description Interactive shiny application for analysis of educational tests and their items.

License GPL-3

LazyData TRUE

RoxygenNote 6.1.0

BugReports https://github.com/patriciamar/ShinyItemAnalysis/issues

Encoding UTF-8

NeedsCompilation no

Repository CRAN

Date/Publication 2018-09-28 08:10:02 UTC

R topics documented:

`dataMedical` *Dichotomous Dataset of Admission Test to Medical School*

Description

The `dataMedical` dataset consists of the responses of 2,392 subjects (750 males, 1,633 females and 9 subjects without gender specification) to admission test to a medical school. It contains 100 items. A correct answer is coded as 1 and incorrect answer as 0. Missing answers were evaluated as incorrect, i.e. 0.

Usage

```
data(dataMedical)
```

Format

A `dataMedical` is a `data.frame` consisting of 2,392 observations on the following 101 variables. The first 100 columns represent dichotomously scored items of the test. The 101st column is vector of gender membership; values 0 and 1 refer to males and females. The 102nd columns in criterion variable; value 1 means that student studies standardly, 0 otherwise (e.g. leaving or interrupting studies).

Author(s)

Cestmir Stuka
First Faculty of Medicine, Charles University in Prague

Martin Vejrazka
First Faculty of Medicine, Charles University in Prague

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

Jakub Houdek
Institute of Computer Science, The Czech Academy of Sciences
The Faculty of Informatics and Statistics, University of Economics, Prague
houdek.james@gmail.com

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

References

Stuka, C. Vejrazka, M., Martinkova, P. Komenda, M. & Stepanek, L. (2016). The Use of Test and Item Analisis for Improvement of Tests. Workshop held at conference MEFANET, 2016, Brno, Czech Republic.

See Also

dataMedicaltest, dataMedicalkey, dataMedicalgraded

---

dataMedicalgraded *Graded Dataset of Admission Test to Medical School*

Description

The dataMedicalgraded dataset consists of the responses of 2,392 subjects (750 males, 1,633 females and 9 subjects without gender specification) to multiple-choice admission test to a medical school. It contains 100 items. Each item is graded with 0 to 4 points. Maximum of 4 points were set if all correct answers and none of incorrect answers were selected.

Usage

```
data(dataMedicalgraded)
```

Format

A `dataMedicalgraded` is a `data.frame` consisting of 2,392 observations on the following 101 variables. The first 100 columns represent graded answers of subject to items of the test. The 101st column is vector of gender membership; values 0 and 1 refer to males and females. The 102nd columns in criterion variable; value 1 means that student study standardly, 0 otherwise (e.g. leaving or interrupting studies).

Author(s)

Cestmir Stuka
First Faculty of Medicine, Charles University in Prague

Martin Vejrazka
First Faculty of Medicine, Charles University in Prague

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

Jakub Houdek
Institute of Computer Science, The Czech Academy of Sciences
The Faculty of Informatics and Statistics, University of Economics, Prague
houdek.james@gmail.com

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

References

Stuka, C. Vejrazka, M., Martinkova, P. Komenda, M. & Stepanek, L. (2016). The Use of Test and Item Analisis for Improvement of Tests. Workshop held at conference MEFANET, 2016, Brno, Czech Republic.

See Also

`dataMedical`, `dataMedicaltest`, `dataMedicalkey`

dataMedicalkey *Key of Correct Answers for* dataMedicaltest *Dataset*

Description

The dataMedicalkey is a vector of factors representing correct answers of dataMedicaltest data set.

Usage

```
data(dataMedicalkey)
```

Format

A data.frame with 100 values representing correct answers to items of dataMedicaltest dataset. For more details see dataMedicaltest.

Author(s)

Cestmir Stuka
First Faculty of Medicine, Charles University in Prague

Martin Vejrazka
First Faculty of Medicine, Charles University in Prague

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

Jakub Houdek
Institute of Computer Science, The Czech Academy of Sciences
The Faculty of Informatics and Statistics, University of Economics, Prague
houdek.james@gmail.com

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

References

Stuka, C. Vejrazka, M., Martinkova, P. Komenda, M. & Stepanek, L. (2016). The Use of Test and Item Analisis for Improvement of Tests. Workshop held at conference MEFANET, 2016, Brno, Czech Republic.

See Also

dataMedical, dataMedicaltest, dataMedicalgraded

---

dataMedicaltest *Dataset of Admission Test to Medical School*

Description

The dataMedicaltest dataset consists of the responses of 2,392 subjects (750 males, 1,633 females and 9 subjects without gender specification) to multiple-choice admission test to a medical school. It contains 100 items, possible answers were A, B, C, D, while any combination of these can be correct.

Usage

```
data(dataMedicaltest)
```

Format

dataMedicaltest is a data.frame consisting of 2,392 observations on the following 101 variables. The first 100 columns represent answers of subject to items of the test. The 101st column is vector of gender membership; values 0 and 1 refer to males and females. The 102nd columns in criterion variable; value 1 means that student studies standardly, 0 otherwise (e.g. leaving or interrupting studies).

Author(s)

Cestmir Stuka
First Faculty of Medicine, Charles University in Prague

Martin Vejrazka
First Faculty of Medicine, Charles University in Prague

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

Jakub Houdek
Institute of Computer Science, The Czech Academy of Sciences
The Faculty of Informatics and Statistics, University of Economics, Prague
houdek.james@gmail.com

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

References

Stuka, C. Vejrazka, M., Martinkova, P. Komenda, M. & Stepanek, L. (2016). The Use of Test and Item Analisis for Improvement of Tests. Workshop held at conference MEFANET, 2016, Brno, Czech Republic.

See Also

dataMedical, dataMedicalkey, dataMedicalgraded

`DDplot` *Graphical representation of difficulty and (generalized) discrimination in item analysis*

Description

Plots difficulty and (generalized) discrimination for items ordered by difficulty.

Usage

```
DDplot(data, item.names, k = 3, l = 1, u = 3)
```

Arguments

`data`	numeric: binary data matrix or data frame. See **Details**.
`item.names`	character: the names of items.
`k`	numeric: number of groups to which may be data.frame x divided by the total score. Default value is 3. See **Details**.
`l`	numeric: lower group. Default value is 1. See **Details**.
`u`	numeric: upper group. Default value is 3. See **Details**.

Details

The `data` is a matrix or data frame whose rows represents examinee answers ("1" correct, "0" incorrect) and columns correspond to the items. The `item.names` argument stands for names of items. If not specified, the names of dataset columns are used. Generalized discrimination is computed as follows: The function takes data on individuals, computes their total test score and then divides individuals into `k` groups. The lower and upper group are determined by `l` and `u` parameters, i.e. l-th and u-th group where the ordering is defined by increasing total score.

Note

Generalized discrimination is calculated by `gDiscrim` function, generalized version of `discrim` function in `psychometric` package.

Author(s)

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

Lubos Stepanek
First Faculty of Medicine, Charles University
lubomir.stepanek@lf1.cuni.cz

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

References

Martinkova, P., Stepanek, L., Drabinova, A., Houdek, J., Vejrazka, M., & Stuka, C. (2017). Semi-real-time analyses of item characteristics for medical school admission tests. In: Proceedings of the 2017 Federated Conference on Computer Science and Information Systems.

See Also

gDiscrim, discrim

Examples

```
## Not run:
# loading 100-item medical admission test data set
data(dataMedical)
data <- dataMedical[, 1:100]

# Difficulty/Discrimination plot of dataMedical data set
DDplot(data)

# Difficulty/Discrimination plot of dataMedical data set
# discrimination based on 5 groups, comparing 4th and 5th
DDplot(data, k = 5, l = 4, u = 5)

## End(Not run)
```

DistractorAnalysis *Function for item distractor analysis*

Description

Performs distractor analysis for each item and optional number of groups.

Usage

```
DistractorAnalysis(data, key, p.table = FALSE, num.groups = 3, matching = NULL)
```

Arguments

data	character: data matrix or data frame. See **Details**.
key	character: answer key for the items.
p.table	logical: should the function return the proportions. If FALSE (default) the counts are returned.
num.groups	numeric: number of groups to that should be respondents splitted.
matching	numeric: numeric vector. If not provided, total score is calculated and distractor analysis is performed based on it.

Details

This function is adapted version of `distractor.analysis` function from `CTT` package. The scores are calculatede using the item data and key. The respondents are then splitted into the `num.groups`-quantiles and the number (or proportion) of respondents in each quantile is reported with respect to their answers.

The `data` is a matrix or data frame whose rows represents unscored item response from a multiple-choice test and columns correspond to the items.

The `key` must be a vector of the same length as `ncol(data)`.

Author(s)

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

Examples

```
## Not run:
# loading 100-item medical admission test data
data(dataMedicaltest, dataMedicalkey)

# distractor analysis for dataMedicaltest data set
DistractorAnalysis(dataMedicaltest, dataMedicalkey)

# distractor analysis for dataMedicaltest data set with proportions
DistractorAnalysis(dataMedicaltest, dataMedicalkey, p.table = T)

# distractor analysis for dataMedicaltest data set for 6 groups
```

```
DistractorAnalysis(dataMedicaltest, dataMedicalkey, num.group = 6)

## End(Not run)
```

`gDiscrim` *Generalized Item Discrimination*

Description

Generalized item discrimination functions is generalized version of `discrim` function from `psychometric` package. It computes discrimination of an item, i.e. the ablitity for a specific items to distinguish among upper and lower ability individuals on a test, where number of groups, upper and lower group can be specified by user.

Usage

```
gDiscrim(x, k = 3, l = 1, u = 3)
```

Arguments

`x`	matrix or data.frame of items to be examined. Rows represent persons, columns reperesent items.
`k`	numeric: number of groups to which may be data.frame `x` divided by the total score. Default value is 3. See **Details**.
`l`	numeric: lower group. Default value is 1. See **Details**.
`u`	numeric: upper group. Default value is 3. See **Details**.

Details

The function takes data on individuals, computes their total test score and then divides individuals into `k` groups. The lower and upper group are determined by `l` and `u` parameters, i.e. l-th and u-th group where the ordering is defined by increasing total score.

Note

`gDiscrim` is used by `DDplot` function.

Author(s)

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

Lubos Stepanek
First Faculty of Medicine, Charles University
lubomir.stepanek@lf1.cuni.cz

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

References

Martinkova, P., Stepanek, L., Drabinova, A., Houdek, J., Vejrazka, M., & Stuka, C. (2017). Semi-real-time analyses of item characteristics for medical school admission tests. In: Proceedings of the 2017 Federated Conference on Computer Science and Information Systems.

See Also

discrim, DDplot

Examples

```
## Not run:
# loading 100-item medical admission test data set
data(dataMedical)
x <- dataMedical[, 1:100]

# discrimination as in discrim() function from psychometric package
# compare to psychometric::discrim(x)
gDiscrim(x)

# 5 groups, compare 4th and 5th
gDiscrim(x, k = 5, l = 4, u = 5)

## End(Not run)
```

---

ggWrightMap *Wright Map using ggplot*

Description

This function allows to generate Wright Map (also called item-person map) using ggplot() function from package ggplot2. Wright Map is used to display histogram of factor scores and the item difficulty parameters estimated by the Rasch IRT model.

Usage

```
ggWrightMap(theta, b, binwidth = 0.5, color = "blue", size = 15)
```

Arguments

theta	numeric: vector of ability estimates
b	numeric: vector of difficulty estimates
binwidth	numeric: the width of the bins of histogram
color	character: color of histogram
size	text size in pts

Author(s)

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

References

Wright, B. D., & Stone, M. H. (1979). Best test design.

See Also

wrightMap

Examples

```
## Not run:
library(ShinyItemAnalysis)
library(mirt)

data(dataMedical)
data <- dataMedical[, 1:100]

# Model
fit <- mirt(data, model = 1, itemtype = "Rasch")
# factor scores
theta <- as.vector(fscores(fit))
# difficulty estimates
b <- coef(fit, simplify = T)$items[, "d"]

ggWrightMap(theta, b)

## End(Not run)
```

HCI *Homeostasis Concept Inventory Dichotomous Dataset*

Description

(HCI) dataset consists of the dichotomously scored responses of 651 students (405 males, 246 females) to Homeostasis Concept Inventory multiple-choice test. It containts 20 items, vector of gender membership and identificator whether students plan to major.

Usage

```
data(HCI)
```

Format

HCI is a data.frame consisting of 651 observations on the 22 variables. First 20 variables represent dichotomously scored responses to multiple-choice items (1 means correct, 0 is incorrect). 21st column is a vector of gender membership; values 0 and 1 refer to males and females. 22nd column is a identificator whether students planning to major in the life sciences.

Author(s)

Jenny L. McFarland
Biology Department, Edmonds Community College

References

McFarland, J. L., Price, R. M., Wenderoth, M. P., Martinkova, P., Cliff, W., Michael, J., ... & Wright, A. (2017). Development and validation of the homeostasis concept inventory. CBE-Life Sciences Education, 16(2), ar35.

See Also

HCItest, HCIkey

HCIkey *Key of Correct Answers for Homeostasis Concept Inventory Dataset*

Description

The HCIkey is a vector of factors representing correct answers of HCItest dataset.

Usage

```
data(HCIkey)
```

Format

A `data.frame` with 20 values representing correct answers to items of `HCItest` dataset. For more details see `HCItest`.

Author(s)

Jenny L. McFarland
Biology Department, Edmonds Community College

References

McFarland, J. L., Price, R. M., Wenderoth, M. P., Martinkova, P., Cliff, W., Michael, J., ... & Wright, A. (2017). Development and validation of the homeostasis concept inventory. CBE-Life Sciences Education, 16(2), ar35.

See Also

`HCI`, `HCItest`

`HCItest` *Homeostasis Concept Inventory Dataset*

Description

(`HCItest`) dataset consists of the responses of 651 students (405 males, 246 females) to Homeostasis Concept Inventory multiple-choice test. It containts 20 items, vector of gender membership and identificator whether students plan to major.

Usage

```
data(HCItest)
```

Format

`HCItest` is a `data.frame` consisting of 651 observations on the 22 variables. First 20 variables represent responses to multiple-choice items. 21st column is a vector of gender membership; values 0 and 1 refer to males and females. 22nd column is a identificator whether students planning to major in the life sciences.

Author(s)

Jenny L. McFarland
Biology Department, Edmonds Community College

References

McFarland, J. L., Price, R. M., Wenderoth, M. P., Martinkova, P., Cliff, W., Michael, J., ... & Wright, A. (2017). Development and validation of the homeostasis concept inventory. CBE-Life Sciences Education, 16(2), ar35.

See Also

HCI, HCIkey

---

plotDIFirt *Function for characteristic curve of DIF IRT model*

Description

Plots characteristic curve of IRT model.

Usage

```
plotDIFirt(parameters, test = "Lord", item = "all", item.name, same.scale = F)
```

Arguments

parameters	numeric: data matrix or data frame. See **Details**.
test	character: type of statistic to be shown. See **Details**.
item	either character ("all"), or numeric vector, or single number corresponding to column indicators. See **Details**.
item.name	character: the name of item.
same.scale	logical: are the item parameters on the same scale? (default is "FALSE"). See **Details**.

Details

This function plots characteristic curve of DIF IRT model.

The parameters matrix has a number of rows equal to twice the number of items in the data set. The first J rows refer to the item parameter estimates in the reference group, while the last J ones correspond to the same items in the focal group. The number of columns depends on the selected IRT model: 2 for the 1PL model, 5 for the 2PL model, 6 for the constrained 3PL model and 9 for the unconstrained 3PL model. The columns of irtParam have to follow the same structure as the output of itemParEst, difLord or difRaju command from difR package.

Two possible type of test statistics can be visualized - "Lord" gives only characteristic curves, "Raju" also highlights area between these curves.

For default option "all", all characteristic curves are plotted.

Author(s)

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

See Also

itemParEst

difLord

difRaju

Examples

```
## Not run:
# loading libraries
library(difNLR, difR)

 # loading data based on GMAT2
data(GMAT2, package = "difNLR")

# Estimation of 2PL IRT model and Lord's statistic
# by difR package
fitLord <- difLord(GMAT2, group = 21, focal.name = 1, model = "2PL")
# plot of item 1 and Lord's statistic
plotDIFirt(fitLord$itemParInit, item = 1)

# Estimation of 2PL IRT model and Raju's statistic
# by difR package
fitRaju <- difRaju(GMAT2, group = 21, focal.name = 1, model = "2PL")
# plot of item 1 and Lord's statistic
plotDIFirt(fitRaju$itemParInit, test = "Raju", item = 1)

## End(Not run)
```

---

plotDIFLogistic *Function for characteristic curve of 2PL logistic DIF model*

Description

Plots characteristic curve of 2PL logistic DIF model

Usage

```
plotDIFLogistic(data, group, type = "both", item, item.name,
IRT = F, p.adjust.method = "none", purify = F)
```

Arguments

data	numeric: the data matrix. See Details.
group	numeric: the vector of group membership. See Details.
type	character: a character string specifying which DIF effects must be tested. Possible values are "both" (default), "udif" and "nudif". See Details.
item	numeric: number of item to be plotted
item.name	character: the name of item.
IRT	logical: if IRT parameterization (TRUE, default) or classic logistic parameterization (FALSE) may be applied.
p.adjust.method	character: the acronym of the method for p-value adjustment for multiple comparisons. See Details.
purify	logical: if item purification may be applied.

Details

This function plots characteristic curve of 2PL logistic DIF model.

Author(s)

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

Examples

```
## Not run:
# loading libraries
library(difNLR, difR)

 # loading data based on GMAT
data(GMAT, package = "difNLR")
data  <- GMAT[, colnames(GMAT) != "group"]
group <- GMAT[, "group"]

# Characteristic curve by logistic regression model
plotDIFLogistic(data, group, item = 1)

# Characteristic curve by logistic regression model using scaled score
plotDIFLogistic(data, group, item = 1, IRT = T)

## End(Not run)
```

`plotDistractorAnalysis` *Function for graphical representation of item distractor analysis*

Description

Plots graphical representation of item distractor analysis with proportions and optional number of groups.

Usage

```
plotDistractorAnalysis(data, key, num.groups = 3, item = 1, item.name,
multiple.answers = TRUE, matching = NULL)
```

Arguments

`data`	character: data matrix or data frame. See **Details**.
`key`	character: answer key for the items.
`num.groups`	numeric: number of groups to that should be respondents splitted.
`item`	numeric: the number of item to be plotted.
`item.name`	character: the name of item.
`multiple.answers`	logical: should be all combinations plotted (default) or should be answers splitted into distractors. See **Details**.
`matching`	numeric: numeric vector. If not provided, total score is calculated and distractor analysis is performed based on it.

Details

This function is graphical representation of `DistractorAnalysis` function. The scores are calculatede using the item data and key. The respondents are then splitted into the `num.groups`-quantiles and the proportion of respondents in each quantile is reported with respect to their answers, using all reported combinations (default) or distractors. These proportions are plotted.

The `data` is a matrix or data frame whose rows represents unscored item response from a multiple-choice test and columns correspond to the items.

The `key` must be a vector of the same length as `ncol(data)`.

If `multiple.answers = TRUE` (default) all reported combinations of answers are plotted. If `multiple.answers = FALSE` all combinations are splitted into distractors and only these are then plotted with correct combination.

Author(s)

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

Examples

```
## Not run:
# loading data
data(dataMedical, dataMedicaltest, dataMedicalkey)

# Difficulty/Discriminaton plot for medical admission test
DDplot(dataMedical)
# item 48 is very hard, thus does not discriminate well
# item 57 discriminates well
# item 32 does not discriminate well

plotDistractorAnalysis(dataMedicaltest, dataMedicalkey, item = 48, multiple.answers = F)
# correct answer B does not function well
plotDistractorAnalysis(dataMedicaltest, dataMedicalkey, item = 57, multiple.answers = F)
# all options function well, thus the whole item discriminates well
plotDistractorAnalysis(dataMedicaltest, dataMedicalkey, item = 32, multiple.answers = F)
# functions well, thus the whole item discriminates well

# distractor analysis plot for item 48, 57 and 32, all combinations
plotDistractorAnalysis(dataMedicaltest, dataMedicalkey, item = 48)
plotDistractorAnalysis(dataMedicaltest, dataMedicalkey, item = 57)
plotDistractorAnalysis(dataMedicaltest, dataMedicalkey, item = 32)

# distractor analysis plot for item 57, all combinations and 6 groups
plotDistractorAnalysis(dataMedicaltest, dataMedicalkey, num.group = 6, item = 57)

## End(Not run)
```

---

startShinyItemAnalysis

This function will start ShinyItemAnalysis application.

Description

An interactive shiny application for running test and item analysis.

Usage

```
startShinyItemAnalysis()
```

Author(s)

Patricia Martinkova
Institute of Computer Science, The Czech Academy of Sciences
martinkova@cs.cas.cz

Adela Drabinova
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
drabinova@cs.cas.cz

Ondrej Leder
Institute of Computer Science, The Czech Academy of Sciences
Faculty of Mathematics and Physics, Charles University
ondraleder@gmail.com

Jakub Houdek
Institute of Computer Science, The Czech Academy of Sciences
The Faculty of Informatics and Statistics, University of Economics, Prague
houdek.james@gmail.com

Examples

```
## Not run:
rm(list = ls())
startShinyItemAnalysis()

## End(Not run)
```

---

theme_app *Complete theme for* ShinyItemAnalysis *graphics*

Description

This complete theme is based on theme_bw and it was modified for purposes of ShinyItemAnalysis.

Usage

```
theme_app(base_size = 15, base_family = "")
```

Arguments

base_size	base font size
base_family	base font family

See Also

ggtheme

Examples

```
## Not run:
data(GMAT)
data <- GMAT[, 1:20]
# total score calculation
df <- data.frame(score = apply(data, 1, sum))
# histogram
g <- ggplot(df, aes(score)) +
geom_histogram(binwidth = 1) +
xlab("Total score") +
ylab("Number of respondents")

g
g + theme_app()

## End(Not run)
```

Index