Package 'AssumpSure'

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Title 'shiny' Application for Statistical Test Assumption Checking and Guidance

Version 1.1.4

Description A 'shiny' application to assess statistical assumptions and guide users toward appropriate tests. The app is designed for researchers with minimal statistical training and provides diagnostics, plots, and test recommendations for a wide range of analyses. Many statistical assumptions are implemented using the package 'rstatix' (Kassambara, 2019) <doi:10.32614/CRAN.package.rstatix> and 'performance' (Lüdecke et al., 2021) <doi:10.21105/joss.03139>.

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Imports shiny, shinyjs, shinyBS, bslib, htmltools, shinyscreenshot, fontawesome, tidyverse, rstatix, ggpubr, knitr, compositions, car, correlation, MVN, performance, modelbased, patchwork, see, bestNormalize, DHARMa, lmerTest, lme4, MASS, nnet, broom, broom.mixed, DT, kableExtra, sjPlot, brglm2, glmmTMB, effectsize, coin, dplyr

Depends R (>= 4.2.0)

Encoding UTF-8

RoxygenNote 7.3.3

URL https://github.com/Ahmedbargheet/AssumpSure

BugReports https://github.com/Ahmedbargheet/AssumpSure/issues

Suggests testthat (>= 3.0.0)

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Contents

`bacteria_for_correlation`

Example Dataset for bacteria_for_correlation

Description

A small synthetic dataset included with *AssumpSure* for demonstrating correlation analysis of the compositional data in the Correlation tab.

Format

A CSV file with 126 rows and 21 columns:

sample_id Sample identifier.

B_longum Relative abundance of *Bifidobacterium longum*.

E_coli Relative abundance of *Escherichia coli*.

B_bifidum Relative abundance of *Bifidobacterium bifidum*.

B_breve Relative abundance of *Bifidobacterium breve*.

k_pneumoniae Relative abundance of *Klebsiella pneumoniae*.

S_salivarius Relative abundance of *Streptococcus salivarius*.

S_lactarius Relative abundance of *Streptococcus lactarius*.

E_faecium Relative abundance of *Enterococcus faecium*.

S_mitis Relative abundance of *Streptococcus mitis*.

S_peroris Relative abundance of *Streptococcus peroris*.

S_pneumoniae Relative abundance of *Streptococcus pneumoniae*.

S_lutetiensis Relative abundance of *Streptococcus lutetiensis*.

k_variicola Relative abundance of *Klebsiella variicola*.

B_fragilis Relative abundance of *Bacteroides fragilis*.

S_equinus Relative abundance of *Streptococcus equinus*.

C_sp Relative abundance of *Clostridium* species.

P_cumminsii Relative abundance of *Peptoniphilus cumminsii*.

T_bernardiae Relative abundance of *Trueperella bernardiae*.

C_simulans Relative abundance of *Corynebacterium simulans*.

G_SGB61413 Relative abundance of *Granulicatella* sp. SGB61413.

Details

The file is stored in `inst/extdata/bacteria_for_correlation.csv`.

All values are synthetic, created only for demonstration; no human data were used, and no ethical approval or consent is required.

Source

Simulated data generated by the author.

Examples

```
read.csv(system.file("extdata", "bacteria_for_correlation.csv", package = "AssumpSure"))
```

---

chi_fisher *Example Dataset for chi_fisher*

Description

A small synthetic dataset included with *AssumpSure* for demonstrating Fisher & Chi-square tests in the Fisher & Chi-square tab.

Format

A CSV file with 101 rows and 2 columns:

sex Sex.

location Location.

Details

The file is stored in `inst/extdata/chi_fisher.csv`.

All values are synthetic, created only for demonstration; no human data were used, and no ethical approval or consent is required.

Source

Simulated data generated by the author.

Examples

```
read.csv(system.file("extdata", "chi_fisher.csv", package = "AssumpSure"))
```

`correlation` *Example Dataset for correlation*

Description

A small synthetic dataset included with *AssumpSure* for demonstrating correlation analysis in the Correlation tab.

Format

A CSV file with 33 rows and 12 columns:

sample_id Sample identifier.

mpg Miles per gallon.

cyl Number of cylinders.

disp Displacement (cu. in.).

hp Gross horsepower.

drat Rear axle ratio.

wt Weight (1000 lbs).

qsec 1/4 mile time.

vs Engine shape (0 = V-shaped, 1 = straight).

am Transmission (0 = automatic, 1 = manual).

gear Number of forward gears.

carb Number of carburetors.

Details

The file is stored in `inst/extdata/correlation.csv`.

All values are synthetic, created only for demonstration; no human data were used, and no ethical approval or consent is required.

Source

Simulated data generated by the author.

Examples

```
read.csv(system.file("extdata", "correlation.csv", package = "AssumpSure"))
```

`infants` *Sample Infant Dataset (CSV)*

Description

A simulated dataset included with the AssumpSure package and used by the Shiny app for demonstration and testing.

Format

A CSV file with 251 rows and 12 columns:

infant_id Participant identifier.

Treatment Treatment group.

timepoint Measurement time point.

gender Participant gender.

born_method Method of delivery.

country Participant country.

fortified Whether the participant received fortification.

nutrients Whether the participant received nutrients.

diarrhea Whether the participant experienced diarrhea.

weight Participant weight.

count Bacterial richness count.

height Participant height.

Details

The file is stored in `inst/extdata/infants.csv` and can be accessed with: `system.file("extdata", "infants.csv", package = "AssumpSure")`.

All values are synthetic, created only for demonstration; no human data were used, and no ethical approval or consent is required.

Source

Simulated data generated by the author.

Examples

```
read.csv(system.file("extdata", "infants.csv", package = "AssumpSure"))
```

launch_app *Launch the AssumpSure Shiny App*

Description

Launch the AssumpSure Shiny App

Usage

```
launch_app()
```

Value

Runs the Shiny app.

Examples

```
if (interactive()) {
  launch_app()
}
```

plantgrowth *Example Dataset for plantgrowth*

Description

A small synthetic dataset included with *AssumpSure* for demonstrating one-way ANOVA in the Continuous Data Tests tab.

Format

A CSV file with 31 rows and 2 columns:

weight Plant weight.

group Treatment group.

Details

The file is stored in `inst/extdata/plantgrowth.csv`.

All values are synthetic, created only for demonstration; no human data were used, and no ethical approval or consent is required.

Source

Simulated data generated by the author.

Examples

```
read.csv(system.file("extdata", "plantgrowth.csv", package = "AssumpSure"))
```

`t-test` *Example Dataset for t-tests*

Description

A small synthetic dataset included with *AssumpSure* for demonstrating independent and paired t-tests in the Continuous Data Tests tab.

Format

A CSV file with 85 rows and 5 columns:

Plant Plant number.

Type Treatment group.

Treatment Treatment type.

conc Treatment concentration.

uptake Uptake value.

Details

The file is stored in `inst/extdata/t-test.csv`.

All values are synthetic, created only for demonstration; no human data were used, and no ethical approval or consent is required.

Source

Simulated data generated by the author.

Examples

```
read.csv(system.file("extdata", "t-test.csv", package = "AssumpSure"))
```

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