## Package 'radiant.basics'

May 6, 2018

```
Type Package
Title Basics Menu for Radiant: Business Analytics using R and Shiny
Version 0.9.3.1
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Description The Radiant Basics menu includes interfaces for probability
     calculation, central limit theorem simulation, comparing means and proportions,
     goodness-of-fit testing, cross-tabs, and correlation. The application extends
     the functionality in radiant.data.
Depends R (>= 3.4.0),
     radiant.data (>= 0.9.3.1)
Imports ggplot2 (>= 2.2.1),
     gridExtra (\geq 2.0.0),
     scales (>= 0.4.0),
     dplyr (>= 0.7.4),
     tidyr (>= 0.8.0),
     magrittr (>= 1.5),
     shiny (>= 1.0.5),
     psych (>= 1.8.3.3),
     import (>= 1.1.0),
     rstudioapi (>= 0.7),
     methods
Suggests testthat (>= 2.0.0)
URL https://github.com/radiant-rstats/radiant.basics,
      https://radiant-rstats.github.io/radiant.basics,
      https://radiant-rstats.github.io/docs
BugReports https://github.com/radiant-rstats/radiant.basics/issues
License AGPL-3 | file LICENSE
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```

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clt

Central Limit Theorem simulation

### Description

Central Limit Theorem simulation

### Usage

```
clt(dist, n = 100, m = 100, norm_mean = 0, norm_sd = 1,
  binom_size = 10, binom_prob = 0.2, unif_min = 0, unif_max = 1,
  expo_rate = 1)
```

### Arguments

| dist       | Distribution to simulate                       |
|------------|--|
| n          | Sample size                                    |
| m          | Number of samples                              |
| norm_mean  | Mean for the normal distribution               |
| norm_sd    | Standard deviation for the normal distribution |
| binom_size | Size for the binomial distribution             |
| binom_prob | Probability for the binomial distribution      |
| unif_min   | Minimum for the uniform distribution           |
| unif_max   | Maximum for the uniform distribution           |
| expo_rate  | Rate for the exponential distribution          |
|            |  |

### **Details**

See https://radiant-rstats.github.io/docs/basics/clt.html for an example in Radiant

### Value

A list with the name of the Distribution and a matrix of simulated data

```
clt("Uniform", 10, 10, unif_min = 10, unif_max = 20)
```

4 compare\_means

| compare_means | Compare means for two or more variables |
|---------------|---|
|---------------|---|

### Description

Compare means for two or more variables

### Usage

```
compare_means(dataset, var1, var2, samples = "independent",
  alternative = "two.sided", conf_lev = 0.95, comb = "",
  adjust = "none", test = "t", data_filter = "")
```

### **Arguments**

| dataset     | Dataset  |
|-------------|--|
| var1        | A numeric variable or factor selected for comparison   |
| var2        | One or more numeric variables for comparison. If var1 is a factor only one variable can be selected and the mean of this variable is compared across (factor) levels of va1r |
| samples     | Are samples independent ("independent") or not ("paired")  |
| alternative | The alternative hypothesis ("two.sided", "greater" or "less")  |
| conf_lev    | Span of the confidence interval  |
| comb        | Combinations to evaluate   |
| adjust      | Adjustment for multiple comparisons ("none" or "bonf" for Bonferroni)  |
| test        | t-test ("t") or Wilcox ("wilcox")  |
| data_filter | Expression entered in, e.g., Data > View to filter the dataset in Radiant. The expression should be a string (e.g., "price > 10000")   |

### **Details**

```
See https://radiant-rstats.github.io/docs/basics/compare\_means.html \ for \ an \ example in \ Radiant
```

### Value

A list of all variables defined in the function as an object of class compare\_means

#### See Also

```
summary.compare_means to summarize results
plot.compare_means to plot results
```

```
compare_means(diamonds, "cut", "price") %>% str()
```

compare\_props 5

| compare_props | Compare proportions across groups |  |
|---------------|-----------------------------------|--|
|               |                                   |  |

### Description

Compare proportions across groups

### Usage

```
compare_props(dataset, var1, var2, levs = "", alternative = "two.sided",
  conf_lev = 0.95, comb = "", adjust = "none", data_filter = "")
```

### Arguments

| dataset     | Dataset  |
|-------------|--|
| var1        | A grouping variable to split the data for comparisons  |
| var2        | The variable to calculate proportions for  |
| levs        | The factor level selected for the proportion comparison  |
| alternative | The alternative hypothesis ("two.sided", "greater" or "less")  |
| conf_lev    | Span of the confidence interval  |
| comb        | Combinations to evaluate   |
| adjust      | Adjustment for multiple comparisons ("none" or "bonf" for Bonferroni)  |
| data_filter | Expression entered in, e.g., Data > View to filter the dataset in Radiant. The expression should be a string (e.g., "price > 10000") |

### **Details**

See  $https://radiant-rstats.github.io/docs/basics/compare\_props.html \ for \ an \ example in \ Radiant$ 

### Value

A list of all variables defined in the function as an object of class compare\_props

### See Also

```
summary.compare_props to summarize results
plot.compare_props to plot results
```

```
compare_props(titanic, "pclass", "survived")
```

6 correlation

|     |     | - 1 |   |   |
|-----|-----|-----|---|---|
| COL | nsi | d   | e | r |

Car brand consideration

### Description

Car brand consideration

### Usage

```
data(consider)
```

#### **Format**

A data frame with 1000 rows and 2 variables

### **Details**

Survey data of consumer purchase intentions. Description provided in attr(consider, "description")

| -     |        |
|-------|--------|
| corre | lation |

Calculate correlations for two or more variables

### Description

Calculate correlations for two or more variables

### Usage

```
correlation(dataset, vars = "", method = "pearson", data_filter = "")
```

### Arguments

| dataset     | Dataset  |
|-------------|--|
| vars        | Variables to include in the analysis. Default is all but character and factor variables with more than two unique values are removed |
| method      | Type of correlations to calculate. Options are "pearson", "spearman", and "kendall". "pearson" is the default                        |
| data_filter | Expression entered in, e.g., Data > View to filter the dataset in Radiant. The expression should be a string (e.g., "price > 10000") |

#### **Details**

See  $\verb|https://radiant-rstats.github.io/docs/basics/correlation.html| for an example in Radiant$ 

### Value

A list with all variables defined in the function as an object of class compare\_means

cross\_tabs 7

#### See Also

```
summary.correlation to summarize results
plot.correlation to plot results
```

### **Examples**

```
correlation(diamonds, c("price", "carat")) %>% str()
correlation(diamonds, "x:z") %>% str()
```

cross\_tabs

Evaluate associations between categorical variables

### **Description**

Evaluate associations between categorical variables

### Usage

```
cross_tabs(dataset, var1, var2, tab = NULL, data_filter = "")
```

#### **Arguments**

dataset Dataset (i.e., a data.frame or table)

var1 A categorical variable var2 A categorical variable

tab Table with frequencies as alternative to dataset

expression should be a string (e.g., "price > 10000")

### **Details**

See https://radiant-rstats.github.io/docs/basics/cross\_tabs.html for an example in Radiant

### Value

A list of all variables used in cross\_tabs as an object of class cross\_tabs

#### See Also

```
summary.cross_tabs to summarize results plot.cross_tabs to plot results
```

```
cross_tabs(newspaper, "Income", "Newspaper") %>% str()
table(select(newspaper, Income, Newspaper)) %>% cross_tabs(tab = .)
```

8 goodness

| demand_uk Den | nand in the UK |
|---------------|----------------|
|---------------|----------------|

### Description

Demand in the UK

### Usage

```
data(demand_uk)
```

#### **Format**

A data frame with 1000 rows and 2 variables

### **Details**

Survey data of consumer purchase intentions. Description provided in attr(demand\_uk,"description")

| goodness | Evaluate if sample data for a categorical variable is consistent wtih a hypothesized distribution |
|----------|---|
|          |   |

### Description

Evaluate if sample data for a categorical variable is consistent with a hypothesized distribution

### Usage

```
goodness(dataset, var, p = NULL, tab = NULL, data_filter = "")
```

### Arguments

| dataset     | Dataset  |
|-------------|--|
| var         | A categorical variable   |
| p           | Hypothesized distribution as a number, fraction, or numeric vector. If unspecified, defaults to an even distribution                 |
| tab         | Table with frequencies as alternative to dataset   |
| data_filter | Expression entered in, e.g., Data > View to filter the dataset in Radiant. The expression should be a string (e.g., "price > 10000") |

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/goodness.html\ for\ an\ example\ in\ Radiant$ 

### Value

A list of all variables used in goodness as an object of class goodness

newspaper 9

#### See Also

```
summary.goodness to summarize results
plot.goodness to plot results
```

### **Examples**

```
goodness(newspaper, "Income") %>% str()
table(select(newspaper, Income)) %>% goodness(tab = .)
```

newspaper

Newspaper readership

### Description

Newspaper readership

### Usage

```
data(newspaper)
```

#### **Format**

A data frame with 580 rows and 2 variables

#### **Details**

Newspaper readership data for 580 consumers. Description provided in attr(newspaper,"description")

plot.clt

Plot method for the Central Limit Theorem function

### **Description**

Plot method for the Central Limit Theorem function

### Usage

```
## S3 method for class 'clt'
plot(x, stat = "sum", bins = 15, ...)
```

### Arguments

| X    | Return value from clt          |
|------|--------------------------------|
| stat | Statistic to use (sum or mean) |
| bins | Number of bins to use          |

... further arguments passed to or from other methods

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#### **Details**

See https://radiant-rstats.github.io/docs/basics/clt.html for an example in Radiant

### **Examples**

```
clt("Uniform", 100, 100, unif_min = 10, unif_max = 20) %>% plot()
```

plot.compare\_means

Plot method for the compare\_means function

### **Description**

Plot method for the compare\_means function

### Usage

```
## S3 method for class 'compare_means'
plot(x, plots = "scatter", shiny = FALSE,
    custom = FALSE, ...)
```

### Arguments

| Х      | Return value from compare_means  |
|--------|--|
| plots  | One or more plots ("bar", "density", "box", or "scatter")  |
| shiny  | Did the function call originate inside a shiny app   |
| custom | Logical (TRUE, FALSE) to indicate if ggplot object (or list of ggplot objects) should be returned. This opion can be used to customize plots (e.g., add a title, change x and y labels, etc.). See examples and http://docs.ggplot2.org/for options. |
|        | further arguments passed to or from other methods  |

### **Details**

See https://radiant-rstats.github.io/docs/basics/compare\_means.html for an example in Radiant

### See Also

```
compare_means to calculate results
summary.compare_means to summarize results
```

```
result <- compare_means(diamonds, "cut", "price")
plot(result, plots = c("bar", "density"))</pre>
```

plot.compare\_props 11

plot.compare\_props Plot method for the compare\_props function

### Description

Plot method for the compare\_props function

### Usage

```
## S3 method for class 'compare_props'
plot(x, plots = "bar", shiny = FALSE,
    custom = FALSE, ...)
```

### **Arguments**

| x      | Return value from compare_props  |
|--------|--|
| plots  | One or more plots of proportions ("bar" or "dodge")  |
| shiny  | Did the function call originate inside a shiny app   |
| custom | Logical (TRUE, FALSE) to indicate if ggplot object (or list of ggplot objects) should be returned. This opion can be used to customize plots (e.g., add a title, change x and y labels, etc.). See examples and http://docs.ggplot2.org/for options. |
|        | further arguments passed to or from other methods  |

### **Details**

See  $https://radiant-rstats.github.io/docs/basics/compare\_props.html \ for \ an \ example in \ Radiant$ 

### See Also

```
compare_props to calculate results
summary.compare_props to summarize results
```

```
result <- compare_props(titanic, "pclass", "survived")
plot(result, plots = c("bar", "dodge"))</pre>
```

plot.cross\_tabs

plot.correlation

Plot method for the correlation function

### **Description**

Plot method for the correlation function

### Usage

```
## S3 method for class 'correlation'
plot(x, nrobs = -1, jit = 0.3, ...)
```

### **Arguments**

| X     | Return value from correlation  |
|-------|--|
| nrobs | Number of data points to show in scatter plots (-1 for all)                        |
| jit   | Level of jittering to apply to scatter plot. Default is .3. Use 0 for no jittering |
|       | further arguments passed to or from other methods.                                 |

#### **Details**

See https://radiant-rstats.github.io/docs/basics/correlation.html for an example in Radiant

### See Also

```
correlation to calculate results summary.correlation to summarize results
```

### **Examples**

```
result <- correlation(diamonds, c("price", "carat", "table"))
plot(result)</pre>
```

plot.cross\_tabs

Plot method for the cross\_tabs function

### Description

Plot method for the cross\_tabs function

### Usage

```
## $3 method for class 'cross_tabs'
plot(x, check = "", shiny = FALSE, custom = FALSE,
...)
```

plot.goodness 13

#### **Arguments**

x Return value from cross\_tabs

check Show plots for variables var1 and var2. "observed" for the observed frequencies

table, "expected" for the expected frequencies table (i.e., frequencies that would be expected if the null hypothesis holds), "chi\_sq" for the contribution to the overall chi-squared statistic for each cell (i.e., (o - e)^2 / e), "dev\_std" for the standardized differences between the observed and expected frequencies (i.e., (o - e) / sqrt(e)), and "row\_perc", "col\_perc", and "perc" for row, column, and table

percentages respectively

shiny Did the function call originate inside a shiny app

custom Logical (TRUE, FALSE) to indicate if ggplot object (or list of ggplot objects)

should be returned. This opion can be used to customize plots (e.g., add a title, change x and y labels, etc.). See examples and http://docs.ggplot2.org/

for options.

... further arguments passed to or from other methods

#### **Details**

See https://radiant-rstats.github.io/docs/basics/cross\_tabs.html for an example in Radiant

#### See Also

```
cross_tabs to calculate results
summary.cross_tabs to summarize results
```

### **Examples**

```
result <- cross_tabs(newspaper, "Income", "Newspaper")
plot(result, check = c("observed","expected","chi_sq"))</pre>
```

plot.goodness

Plot method for the goodness function

### **Description**

Plot method for the goodness function

#### Usage

```
## S3 method for class 'goodness'
plot(x, check = "", fillcol = "blue", shiny = FALSE,
    custom = FALSE, ...)
```

14 plot.prob\_binom

# Arguments x

Return value from goodness
 Show plots for variable var. "observed" for the observed frequencies table, "expected" for the expected frequencies table (i.e., frequencies that would be expected if the null hypothesis holds), "chi\_sq" for the contribution to the overall

pected if the expected frequencies that would be expected if the null hypothesis holds), "chi\_sq" for the contribution to the overall chi-squared statistic for each cell (i.e., (o - e)^2 / e), and "dev\_std" for the standardized differences between the observed and expected frequencies (i.e., (o - e)

/ sqrt(e))

fillcol Color used for bar plots

shiny Did the function call originate inside a shiny app

custom Logical (TRUE, FALSE) to indicate if ggplot object (or list of ggplot objects)

should be returned. This opion can be used to customize plots (e.g., add a title, change x and y labels, etc.). See examples and http://docs.ggplot2.org/

for options.

... further arguments passed to or from other methods

#### **Details**

See https://radiant-rstats.github.io/docs/basics/goodness for an example in Radiant

#### See Also

```
goodness to calculate results summary.goodness to summarize results
```

### **Examples**

```
result <- goodness(newspaper, "Income")
plot(result, check = c("observed", "expected", "chi_sq"))
goodness(newspaper, "Income") %>% plot(c("observed", "expected"))
```

plot.prob\_binom

Plot method for the probability calculator function (binomial)

#### **Description**

Plot method for the probability calculator function (binomial)

### Usage

```
## S3 method for class 'prob_binom'
plot(x, type = "values", ...)
```

### Arguments

x Return value from prob\_binom

type Probabilities or values

... further arguments passed to or from other methods

plot.prob\_chisq 15

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

plot.prob\_chisq

Plot method for the probability calculator (Chi-squared distribution)

#### **Description**

Plot method for the probability calculator (Chi-squared distribution)

### Usage

```
## S3 method for class 'prob_chisq'
plot(x, type = "values", ...)
```

### Arguments

x Return value from prob\_chisq

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

plot.prob\_disc

Plot method for the probability calculator function (discrete)

### Description

Plot method for the probability calculator function (discrete)

### Usage

```
## S3 method for class 'prob_disc'
plot(x, type = "values", ...)
```

#### **Arguments**

x Return value from prob\_disc

type Probabilities or values

... further arguments passed to or from other methods

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

16 plot.prob\_fdist

#### **Examples**

```
result <- prob_disc(v = "5 6 7 8 9 10 11 ", p = ".1 .2 .3 .15 .1 .1 .05", pub = 0.95) plot(result, type = "probs")
```

plot.prob\_expo

Plot method for the probability calculator (Exponential distribution)

### **Description**

Plot method for the probability calculator (Exponential distribution)

### Usage

```
## S3 method for class 'prob_expo'
plot(x, type = "values", ...)
```

### **Arguments**

x Return value from prob\_expo

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

plot.prob\_fdist

Plot method for the probability calculator (F-distribution)

### Description

Plot method for the probability calculator (F-distribution)

#### Usage

```
## S3 method for class 'prob_fdist'
plot(x, type = "values", ...)
```

### **Arguments**

x Return value from prob\_fdist

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

plot.prob\_lnorm 17

plot.prob\_lnorm

Plot method for the probability calculator (log normal)

### Description

Plot method for the probability calculator (log normal)

### Usage

```
## S3 method for class 'prob_lnorm'
plot(x, type = "values", ...)
```

#### **Arguments**

x Return value from prob\_norm

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

plot.prob\_norm

Plot method for the probability calculator (normal)

### Description

Plot method for the probability calculator (normal)

### Usage

```
## S3 method for class 'prob_norm'
plot(x, type = "values", ...)
```

### **Arguments**

x Return value from prob\_norm

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

#### See Also

```
prob_norm to calculate results
summary.prob_norm to summarize results
```

plot.prob\_tdist

#### **Examples**

```
result <- prob_norm(mean = 0, stdev = 1, ub = 0)
plot(result)</pre>
```

plot.prob\_pois

Plot method for the probability calculator function (Poisson distribution)

#### **Description**

Plot method for the probability calculator function (Poisson distribution)

#### Usage

```
## S3 method for class 'prob_pois'
plot(x, type = "values", ...)
```

### **Arguments**

x Return value from prob\_pois

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

See https://radiant-rstats.github.io/docs/basics/prob\_calc.html for an example in Radiant

plot.prob\_tdist

Plot method for the probability calculator (t-distribution)

#### **Description**

Plot method for the probability calculator (t-distribution)

#### Usage

```
## S3 method for class 'prob_tdist'
plot(x, type = "values", ...)
```

### **Arguments**

x Return value from prob\_tdist

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

plot.prob\_unif

| plot.prob_unif | Plot method for the probability calculator (uniform) |
|----------------|--|
|----------------|--|

### Description

Plot method for the probability calculator (uniform)

### Usage

```
## S3 method for class 'prob_unif'
plot(x, type = "values", ...)
```

### **Arguments**

x Return value from prob\_unif type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

plot.single\_mean

Plot method for the single\_mean function

### Description

Plot method for the single\_mean function

### Usage

```
## S3 method for class 'single_mean'
plot(x, plots = "hist", shiny = FALSE,
    custom = FALSE, ...)
```

### Arguments

| х      | Return value from single_mean   |
|--------|---|
| plots  | Plots to generate. "hist" shows a histogram of the data along with vertical lines that indicate the sample mean and the confidence interval. "simulate" shows the location of the sample mean and the comparison value (comp_value). Simulation is used to demonstrate the sampling variability in the data under the null-hypothesis |
| shiny  | Did the function call originate inside a shiny app  |
| custom | Logical (TRUE, FALSE) to indicate if ggplot object (or list of ggplot objects) should be returned. This opion can be used to customize plots (e.g., add a title, change x and y labels, etc.). See examples and http://docs.ggplot2.org/for options.  |

further arguments passed to or from other methods

20 plot.single\_prop

#### **Details**

See https://radiant-rstats.github.io/docs/basics/single\_mean.html for an example in Radiant

#### See Also

```
single_mean to generate the result
summary.single_mean to summarize results
```

### **Examples**

```
result <- single_mean(diamonds, "price", comp_value = 3500)
plot(result, plots = c("hist", "simulate"))</pre>
```

plot.single\_prop

Plot method for the single\_prop function

### Description

Plot method for the single\_prop function

### Usage

```
## S3 method for class 'single_prop'
plot(x, plots = "bar", shiny = FALSE,
    custom = FALSE, ...)
```

### **Arguments**

| X      | Return value from single_prop  |
|--------|--|
| plots  | Plots to generate. "bar" shows a bar chart of the data. The "simulate" chart shows the location of the sample proportion and the comparison value (comp_value). Simulation is used to demonstrate the sampling variability in the data under the null-hypothesis |
| shiny  | Did the function call originate inside a shiny app   |
| custom | Logical (TRUE, FALSE) to indicate if ggplot object (or list of ggplot objects) should be returned. This opion can be used to customize plots (e.g., add a title, change x and y labels, etc.). See examples and http://docs.ggplot2.org/for options.             |

#### **Details**

See https://radiant-rstats.github.io/docs/basics/single\_prop.html for an example in Radiant

further arguments passed to or from other methods

#### See Also

```
single_prop to generate the result
summary.single_prop to summarize the results
```

print.correlation 21

#### **Examples**

```
result <- single_prop(diamonds,"clarity", lev = "IF", comp_value = 0.05)
plot(result, plots = c("bar", "simulate"))
result <- single_prop(titanic,"pclass", lev = "1st")
plot(result, plots = c("bar","simulate"))</pre>
```

print.correlation

Print method for radiant.basics::correlation

### Description

Print method for radiant.basics::correlation

### Usage

```
## S3 method for class 'correlation' print(x, ...)
```

### **Arguments**

x Return value from correlation

... further arguments passed to or from other methods

prob\_binom

Probability calculator for the binomial distribution (binomial)

### Description

Probability calculator for the binomial distribution (binomial)

### Usage

```
prob_binom(n, p, lb = NA, ub = NA, plb = NA, pub = NA, dec = 3)
```

#### **Arguments**

| n   | Number of trials                       |
|-----|--|
| р   | Probability                            |
| lb  | Lower bound on the number of successes |
| ub  | Upper bound on the number of successes |
| plb | Lower probability bound                |
| pub | Upper probability bound                |
| dec | Number of decimals to show             |

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

22 prob\_disc

| prob_chisq | Probability calculator for the chi-squared distribution |
|------------|---|
|            |   |

### Description

Probability calculator for the chi-squared distribution

### Usage

```
prob_chisq(df, lb = NA, ub = NA, plb = NA, pub = NA, dec = 3)
```

### Arguments

| df  | Degrees of freedom           |
|-----|------------------------------|
| lb  | Lower bound (default is 0)   |
| ub  | Upper bound (default is Inf) |
| plb | Lower probability bound      |
| pub | Upper probability bound      |
| dec | Number of decimals to show   |

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

prob\_disc

Probability calculator for the discrete distribution (discrete)

### Description

Probability calculator for the discrete distribution (discrete)

### Usage

```
prob_disc(v, p, lb = NA, ub = NA, plb = NA, pub = NA, dec = 3)
```

### Arguments

| V   | Values                                 |
|-----|--|
| p   | Probabilities                          |
| 1b  | Lower bound on the number of successes |
| ub  | Upper bound on the number of successes |
| plb | Lower probability bound                |
| pub | Upper probability bound                |
| dec | Number of decimals to show             |

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

prob\_expo 23

| prob_expo | Probability calculator for the exponential distribution |  |
|-----------|---|--|
|           |   |  |

### Description

Probability calculator for the exponential distribution

### Usage

```
prob_expo(rate, lb = NA, ub = NA, plb = NA, pub = NA, dec = 3)
```

### Arguments

| rate | Rate                         |
|------|------------------------------|
| 1b   | Lower bound (default is 0)   |
| ub   | Upper bound (default is Inf) |
| plb  | Lower probability bound      |
| pub  | Upper probability bound      |
| dec  | Number of decimals to show   |

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

| prob_fdist  | Probability calculator for the F-distribution    |
|-------------|--|
| p. 05 410 t | 1 roodottity editettidior for the 1 distribution |

### Description

Probability calculator for the F-distribution

### Usage

```
prob_fdist(df1, df2, lb = NA, ub = NA, plb = NA, pub = NA, dec = 3)
```

### Arguments

| df1 | Degrees of freedom           |
|-----|------------------------------|
| df2 | Degrees of freedom           |
| lb  | Lower bound (default is 0)   |
| ub  | Upper bound (default is Inf) |
| plb | Lower probability bound      |
| pub | Upper probability bound      |
| dec | Number of decimals to show   |

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

24 prob\_norm

### Description

Probability calculator for the log normal distribution

### Usage

```
prob_lnorm(meanlog, sdlog, lb = NA, ub = NA, plb = NA, pub = NA,
  dec = 3)
```

### Arguments

| meanlog Mean of the distribution on the log scale          |     |
|--|-----|
| sdlog Standard deviation of the distribution on the log sc | ale |
| lb Lower bound (default is -Inf)                           |     |
| ub Upper bound (default is Inf)                            |     |
| plb Lower probability bound                                |     |
| pub Upper probability bound                                |     |
| dec Number of decimals to show                             |     |

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

| prob_norm       | Probability calculator for the normal distribution |
|-----------------|--|
| F * * * = * * * | · · · · · · · · · · · · · · · · · · ·              |

### Description

Probability calculator for the normal distribution

### Usage

```
prob_norm(mean, stdev, lb = NA, ub = NA, plb = NA, pub = NA, dec = 3)
```

### **Arguments**

| mean  | Mean                          |
|-------|-------------------------------|
| stdev | Standard deviation            |
| lb    | Lower bound (default is -Inf) |
| ub    | Upper bound (default is Inf)  |
| plb   | Lower probability bound       |
| pub   | Upper probability bound       |
| dec   | Number of decimals to show    |

prob\_pois 25

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

### See Also

```
summary.prob_norm to summarize results
plot.prob_norm to plot results
```

### **Examples**

```
prob_norm(mean = 0, stdev = 1, ub = 0)
```

prob\_pois

Probability calculator for the poisson distribution

### Description

Probability calculator for the poisson distribution

### Usage

```
prob_pois(lambda, lb = NA, ub = NA, plb = NA, pub = NA, dec = 3)
```

### **Arguments**

| lambda | Rate                         |
|--------|------------------------------|
| 1b     | Lower bound (default is 0)   |
| ub     | Upper bound (default is Inf) |
| plb    | Lower probability bound      |
| pub    | Upper probability bound      |
| dec    | Number of decimals to show   |

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

26 prob\_unif

| prob_tdist | prob_tdist | Probability calculator for the t distribution |  |
|------------|------------|---|--|
|------------|------------|---|--|

### Description

Probability calculator for the t distribution

### Usage

```
prob_tdist(df, mean = 0, stdev = 1, lb = NA, ub = NA, plb = NA,
    pub = NA, dec = 3)
```

### Arguments

| df    | Degrees of freedom            |
|-------|-------------------------------|
| mean  | Mean                          |
| stdev | Standard deviation            |
| 1b    | Lower bound (default is -Inf) |
| ub    | Upper bound (default is Inf)  |
| plb   | Lower probability bound       |
| pub   | Upper probability bound       |
| dec   | Number of decimals to show    |
|       |                               |

### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

| prob_unif | Probability calculator for the uniform distribution |
|-----------|---|
|           |   |

### Description

Probability calculator for the uniform distribution

### Usage

```
prob_unif(min, max, 1b = NA, ub = NA, plb = NA, pub = NA, dec = 3)
```

### **Arguments**

| 2   | M:                           |
|-----|------------------------------|
| min | Minmum value                 |
| max | Maximum value                |
| lb  | Lower bound (default = $0$ ) |
| ub  | Upper bound (default = $1$ ) |
| plb | Lower probability bound      |
| pub | Upper probability bound      |
| dec | Number of decimals to show   |

radiant.basics 27

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

radiant.basics

radiant.basics

### Description

radiant.basics

Launch radiant.basics in the default browser

### Usage

```
radiant.basics()
```

### **Details**

See https://radiant-rstats.github.io/docs for documentation and tutorials

### **Examples**

```
## Not run:
radiant.basics()
## End(Not run)
```

radiant.basics\_viewer Launch radiant.basics in the Rstudio viewer

### Description

Launch radiant.basics in the Rstudio viewer

### Usage

```
radiant.basics_viewer()
```

#### **Details**

See https://radiant-rstats.github.io/docs for documentation and tutorials

```
## Not run:
radiant.basics_viewer()
## End(Not run)
```

28 salary

radiant.basics\_window Launch radiant.basics in an Rstudio window

### Description

Launch radiant, basics in an Rstudio window

### Usage

```
radiant.basics_window()
```

### **Details**

See https://radiant-rstats.github.io/docs for documentation and tutorials

### **Examples**

```
## Not run:
radiant.basics_window()
## End(Not run)
```

salary

Salaries for Professors

### Description

Salaries for Professors

### Usage

```
data(salary)
```

### **Format**

A data frame with 397 rows and 6 variables

### **Details**

2008-2009 nine-month salary for professors in a college in the US. Description provided in attr(salary,description")

single\_mean 29

| single_mean | Compare a sample mean to a population mean |  |
|-------------|--|--|
|             |  |  |

### Description

Compare a sample mean to a population mean

### Usage

```
single_mean(dataset, var, comp_value = 0, alternative = "two.sided",
  conf_lev = 0.95, data_filter = "")
```

### Arguments

| dataset     | Dataset  |
|-------------|--|
| var         | The variable selected for the mean comparison  |
| comp_value  | Population value to compare to the sample mean   |
| alternative | The alternative hypothesis ("two.sided", "greater", or "less")   |
| conf_lev    | Span for the confidence interval   |
| data_filter | Expression entered in, e.g., Data > View to filter the dataset in Radiant. The expression should be a string (e.g., "price > 10000") |

#### **Details**

See  $https://radiant-rstats.github.io/docs/basics/single\_mean.html \ for \ an \ example \ in \ Radiant$ 

### Value

A list of variables defined in single\_mean as an object of class single\_mean

### See Also

```
summary.single_mean to summarize results
plot.single_mean to plot results
```

```
single_mean(diamonds, "price")
```

30 single\_prop

| single_prop | Compare a sample proportion to a population proportion |  |
|-------------|--|--|
|             |  |  |

### Description

Compare a sample proportion to a population proportion

### Usage

```
single_prop(dataset, var, lev = "", comp_value = 0.5,
   alternative = "two.sided", conf_lev = 0.95, data_filter = "")
```

### Arguments

| dataset     | Dataset  |
|-------------|--|
| var         | The variable selected for the proportion comparison  |
| lev         | The factor level selected for the proportion comparison  |
| comp_value  | Population value to compare to the sample proportion   |
| alternative | The alternative hypothesis ("two.sided", "greater", or "less")   |
| conf_lev    | Span of the confidence interval  |
| data_filter | Expression entered in, e.g., Data > View to filter the dataset in Radiant. The expression should be a string (e.g., "price > 10000") |

#### **Details**

```
See \verb|https://radiant-rstats.github.io/docs/basics/single_prop.html| for an example in Radiant
```

### Value

A list of variables used in single\_prop as an object of class single\_prop

### See Also

```
summary.single_prop to summarize the results
plot.single_prop to plot the results
```

```
result <- single_prop(diamonds, "cut")
result <- single_prop(diamonds, "clarity", lev = "IF", comp_value = 0.05)</pre>
```

summary.compare\_means Summary method for the compare\_means function

### Description

Summary method for the compare\_means function

### Usage

```
## S3 method for class 'compare_means'
summary(object, show = FALSE, dec = 3, ...)
```

#### **Arguments**

object Return value from compare\_means
show Show additional output (i.e., t.value, df, and confidence interval)
dec Number of decimals to show

... further arguments passed to or from other methods

### **Details**

See  $https://radiant-rstats.github.io/docs/basics/compare\_means.html \ for \ an \ example in \ Radiant$ 

### See Also

```
compare_means to calculate results
plot.compare_means to plot results
```

### **Examples**

```
result <- compare_means(diamonds, "cut", "price")
summary(result)</pre>
```

summary.compare\_props Summary method for the compare\_props function

### Description

Summary method for the compare\_props function

### Usage

```
## S3 method for class 'compare_props'
summary(object, show = FALSE, dec = 3, ...)
```

32 summary.correlation

#### **Arguments**

. . .

object Return value from compare\_props Show additional output (i.e., chisq.value, df, and confidence interval) show dec Number of decimals to show further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/compare\_props.html \ for \ an \ example$ in Radiant

#### See Also

```
compare_props to calculate results
plot.compare_props to plot results
```

### **Examples**

```
result <- compare_props(titanic, "pclass", "survived")</pre>
summary(result)
```

summary.correlation

Summary method for the correlation function

#### **Description**

Summary method for the correlation function

### Usage

```
## S3 method for class 'correlation'
summary(object, cutoff = 0, covar = FALSE, dec = 2,
  ...)
```

#### **Arguments**

covar

object Return value from correlation cutoff Show only corrlations larger than the cutoff in absolute value. Default is a cutoff

Show the covariance matrix (default is FALSE)

Number of decimals to show dec

further arguments passed to or from other methods. . . .

### **Details**

See https://radiant-rstats.github.io/docs/basics/correlation.html for an example in Radiant

summary.cross\_tabs 33

#### See Also

```
correlation to calculate results plot.correlation to plot results
```

#### **Examples**

```
result <- correlation(diamonds, c("price", "carat", "table"))
summary(result, cutoff = .3)</pre>
```

summary.cross\_tabs

Summary method for the cross\_tabs function

### **Description**

Summary method for the cross\_tabs function

### Usage

```
## S3 method for class 'cross_tabs'
summary(object, check = "", dec = 2, ...)
```

#### **Arguments**

object Return value from cross\_tabs

check Show table(s) for variables var1 and var2. "observed" for the observed frequen-

cies table, "expected" for the expected frequencies table (i.e., frequencies that would be expected if the null hypothesis holds), "chi\_sq" for the contribution to the overall chi-squared statistic for each cell (i.e., (o - e)^2 / e), "dev\_std" for the standardized differences between the observed and expected frequencies (i.e., (o - e) / sqrt(e)), and "dev\_perc" for the percentage difference between the

observed and expected frequencies (i.e., (o - e) / e)

dec Number of decimals to show

... further arguments passed to or from other methods.

#### **Details**

See https://radiant-rstats.github.io/docs/basics/cross\_tabs.html for an example in Radiant

#### See Also

```
cross_tabs to calculate results
plot.cross_tabs to plot results
```

```
result <- cross_tabs(newspaper, "Income", "Newspaper")
summary(result, check = c("observed", "expected", "chi_sq"))</pre>
```

34 summary.goodness

summary.goodness

Summary method for the goodness function

### Description

Summary method for the goodness function

### Usage

```
## S3 method for class 'goodness'
summary(object, check = "", dec = 2, ...)
```

### **Arguments**

object Return value from goodness

check Show table(s) for the selected variable (var). "observed" for the observed fre-

quencies table, "expected" for the expected frequencies table (i.e., frequencies that would be expected if the null hypothesis holds), "chi\_sq" for the contribution to the overall chi-squared statistic for each cell (i.e.,  $(o - e)^2 / e$ ), "dev\_std" for the standardized differences between the observed and expected frequencies (i.e., (o - e) / sqrt(e)), and "dev\_perc" for the percentage difference between the

observed and expected frequencies (i.e., (o - e) / e)

dec Number of decimals to show

... further arguments passed to or from other methods.

#### **Details**

See https://radiant-rstats.github.io/docs/basics/goodness for an example in Radiant

### See Also

```
goodness to calculate results plot.goodness to plot results
```

```
result <- goodness(newspaper, "Income", c(.3, .7))
summary(result, check = c("observed", "expected", "chi_sq"))
goodness(newspaper, "Income", "1/3 2/3") %>% summary("observed")
```

summary.prob\_binom 35

summary.prob\_binom

Summary method for the probability calculator function

### Description

Summary method for the probability calculator function

### Usage

```
## S3 method for class 'prob_binom'
summary(object, type = "values", ...)
```

#### **Arguments**

object Return value from prob\_binom

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

summary.prob\_chisq

Summary method for the probability calculator function (Chi-squared distribution)

### Description

Summary method for the probability calculator function (Chi-squared distribution)

### Usage

```
## S3 method for class 'prob_chisq'
summary(object, type = "values", ...)
```

### **Arguments**

object Return value from prob\_chisq

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

36 summary.prob\_expo

summary.prob\_disc

Summary method for the probability calculator function (discrete)

### **Description**

Summary method for the probability calculator function (discrete)

### Usage

```
## S3 method for class 'prob_disc'
summary(object, type = "values", ...)
```

#### **Arguments**

object Return value from prob\_disc

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

### **Examples**

```
result <- prob_disc(v = "5 6 7 8 9 10 11 ", p = ".1 .2 .3 .15 .1 .1 .05", pub = 0.95) summary(result, type = "probs")
```

summary.prob\_expo

Summary method for the probability calculator function (Exponential distribution)

### **Description**

Summary method for the probability calculator function (Exponential distribution)

### Usage

```
## S3 method for class 'prob_expo'
summary(object, type = "values", ...)
```

### Arguments

object Return value from prob\_expo

type Probabilities or values

... further arguments passed to or from other methods

### **Details**

See  $\verb|https://radiant-rstats.github.io/docs/basics/prob_calc.html| for an example in Radiant$ 

summary.prob\_fdist 37

| summary.prob_fdist | Summary method | for th | he probability | calculator | function | (F- |
|--------------------|----------------|--------|----------------|------------|----------|-----|
|                    | distribution)  |        |                |            |          |     |

### Description

Summary method for the probability calculator function (F-distribution)

### Usage

```
## S3 method for class 'prob_fdist'
summary(object, type = "values", ...)
```

### **Arguments**

object Return value from prob\_fdist

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

summary.prob\_lnorm

Summary method for the probability calculator function (log normal)

### Description

Summary method for the probability calculator function (log normal)

### Usage

```
## S3 method for class 'prob_lnorm'
summary(object, type = "values", ...)
```

### **Arguments**

object Return value from prob\_norm

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

38 summary.prob\_pois

summary.prob\_norm

Summary method for the probability calculator function (normal)

### **Description**

Summary method for the probability calculator function (normal)

### Usage

```
## S3 method for class 'prob_norm'
summary(object, type = "values", ...)
```

### **Arguments**

object Return value from prob\_norm

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

#### See Also

```
prob_norm to calculate results
plot.prob_norm to plot results
```

### **Examples**

```
result <- prob_norm(mean = 0, stdev = 1, ub = 0)
summary(result)</pre>
```

summary.prob\_pois

Summary method for the probability calculator function (Poisson distribution)

### **Description**

Summary method for the probability calculator function (Poisson distribution)

### Usage

```
## S3 method for class 'prob_pois'
summary(object, type = "values", ...)
```

summary.prob\_tdist 39

#### **Arguments**

object Return value from prob\_pois

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

summary.prob\_tdist Summary method for the probability calculator function (t-distribution)

#### **Description**

Summary method for the probability calculator function (t-distribution)

### Usage

```
## S3 method for class 'prob_tdist'
summary(object, type = "values", ...)
```

### Arguments

object Return value from prob\_tdist

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html\ for\ an\ example\ in\ Radiant$ 

summary.prob\_unif

Summary method for the probability calculator function (uniform)

### Description

Summary method for the probability calculator function (uniform)

### Usage

```
## S3 method for class 'prob_unif'
summary(object, type = "values", ...)
```

### **Arguments**

object Return value from prob\_unif

type Probabilities or values

... further arguments passed to or from other methods

#### **Details**

 $See \ https://radiant-rstats.github.io/docs/basics/prob\_calc.html \ for \ an \ example \ in \ Radiant$ 

summary.single\_mean

Summary method for the single\_mean function

### Description

Summary method for the single\_mean function

### Usage

```
## S3 method for class 'single_mean'
summary(object, dec = 3, ...)
```

### **Arguments**

object Return value from single\_mean dec Number of decimals to show

... further arguments passed to or from other methods

### **Details**

See https://radiant-rstats.github.io/docs/basics/single\_mean.html for an example in Radiant

### See Also

```
single_mean to generate the results
plot.single_mean to plot results
```

```
result <- single_mean(diamonds, "price")
summary(result)
diamonds %>% single_mean("price") %>% summary()
```

summary.single\_prop 41

summary.single\_prop Summary method for the single\_prop function

### **Description**

Summary method for the single\_prop function

#### Usage

```
## S3 method for class 'single_prop'
summary(object, dec = 3, ...)
```

### **Arguments**

object Return value from single\_prop
dec Number of decimals to show

... further arguments passed to or from other methods

#### **Details**

See  $\verb|https://radiant-rstats.github.io/docs/basics/single_prop.html| for an example in Radiant$ 

### See Also

```
single_prop to generate the results
plot.single_prop to plot the results
```

```
result <- single_prop(diamonds,"clarity", lev = "IF", comp_value = 0.05)
summary(result)
diamonds %>% single_prop("clarity", lev = "IF", comp_value = 0.05) %>% summary()
```

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