# Package 'radiant.model'

September 28, 2016

```
Type Package
Title Model Menu for Radiant: Business Analytics using R and Shiny
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Description The Radiant Model menu includes interfaces for linear and logistic
      regression, Neural Networks, model evaluation, decision analysis, and
      simulation. The application extends the functionality in radiant.data.
Depends R (>= 3.3.0),
      radiant.data (>= 0.6.0)
Imports radiant.basics (>= 0.6.0),
      shiny (>= 0.14),
      nnet (>= 7.3.12),
      NeuralNetTools (>= 1.4.0),
      sandwich (>= 2.3.4),
      car (>= 2.1.3),
      ggplot2 (>= 2.1.0),
      gridExtra (\geq 2.0.0),
      data.tree (>= 0.4.0),
      yam1 (>= 2.1.13),
      stringr (>= 1.1.0),
      pryr (>= 0.1.2),
      lubridate (>= 1.6.0),
      tidyr (>= 0.6.0),
      dplyr (>= 0.5),
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      DiagrammeR(>= 0.8.4),
      import (>= 1.1.0),
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Suggests testthat (>= 1.0.0),
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URL https://github.com/radiant-rstats/radiant.model
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ann

Artificial Neural Networks

### Description

Artificial Neural Networks

# Usage

```
ann(dataset, rvar, evar, type = "classification", lev = "", size = 1,
  decay = 0.5, wts = "None", seed = NA, check = "standardize",
  data_filter = "")
```

# Arguments

dataset	Dataset name (string). This can be a dataframe in the global environment or an element in an r_data list from Radiant
rvar	The response variable in the logit (probit) model
evar	Explanatory variables in the model
type	Model type (i.e., "classification" or "regression")
lev	The level in the response variable defined as _success_
size	Number of units (nodes) in the hidden layer
decay	Paramater decay
wts	Weights to use in estimation
seed	Random seed to use as the starting point
check	Optional estimation parameters ("standardize" 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")

4 auc

#### **Details**

See http://radiant-rstats.github.io/docs/model/ann.html for an example in Radiant

#### Value

A list with all variables defined in ann as an object of class ann

#### See Also

```
summary.ann to summarize results plot.ann to plot results predict.ann for prediction
```

#### **Examples**

```
result <- ann("titanic", "survived", c("pclass", "sex"), lev = "Yes")
result <- ann("titanic", "survived", c("pclass", "sex"))
result <- ann("diamonds", "price", c("carat", "clarity"), type = "regression")</pre>
```

auc

Area Under the Curve (AUC)

#### **Description**

Area Under the Curve (AUC)

#### Usage

```
auc(pred, rvar, lev)
```

#### **Arguments**

pred Prediction or predictor rvar Response variable

lev The level in the response variable defined as \_success\_

#### **Details**

See http://radiant-rstats.github.io/docs/model/evalbin.html for an example in Radiant

#### Value

**AUC** statistic

# See Also

```
evalbin to calculate results
summary.evalbin to summarize results
plot.evalbin to plot results
```

catalog 5

### **Examples**

```
auc(mtcars$mpg, mtcars$vs, 1)
```

catalog

Catalog sales for men's and women's apparel

#### **Description**

Catalog sales for men's and women's apparel

#### Usage

```
data(catalog)
```

#### **Format**

A data frame with 200 rows and 5 variables

#### **Details**

Description provided in attr(catalog, "description")

 $confint\_robust$ 

Confidence interval for robust estimators

#### **Description**

Confidence interval for robust estimators

#### Usage

```
confint_robust(object, parm, level = 0.95, vcov = NULL, ...)
```

#### **Arguments**

object A fitted model object

parm A specification of which parameters are to be given confidence intervals, either a

vector of numbers or a vector of names. If missing, all parameters are considered

level The confidence level required

vcov Covariance matrix generated by, e.g., sandwich::vcovHC

... Additional argument(s) for methods

### **Details**

Wrapper for confint.default with robust standard errors. See http://stackoverflow.com/a/3820125/1974918

6 confusion

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Confusion matrix

# Description

Confusion matrix

### Usage

```
confusion(dataset, pred, rvar, lev = "", margin = 1, cost = 1,
  train = "", method = "xtile", data_filter = "", ...)
```

# Arguments

dataset	Dataset name (string). This can be a dataframe in the global environment or an element in an r_data list from Radiant
pred	Predictions or predictors
rvar	Response variable
lev	The level in the response variable defined as _success_
margin	Margin on each customer purchase
cost	Cost for each connection (e.g., email or mailing)
train	Use data from training ("Training"), validation ("Validation"), both ("Both"), or all data ("All") to evaluate model evalbin
method	Use either ntile or xtile to split the data (default is xtile)
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")
	further arguments passed to or from other methods

### **Details**

 $See \ http://radiant-rstats.github.io/docs/model/evalbin.html \ for \ an \ example \ in \ Radiant$ 

### Value

A list of results

### See Also

```
summary.evalbin to summarize results plot.evalbin to plot results
```

### **Examples**

```
result <- evalbin("titanic", c("age", "fare"), "survived")</pre>
```

crs 7

crs

Collaborative Filtering

# Description

Collaborative Filtering

# Usage

```
crs(dataset, id, prod, pred, rate, name = "pred", data_filter = "")
```

### **Arguments**

dataset	Dataset name (string). This can be a dataframe in the global environment or an element in an r_data list from Radiant
id	String with name of the variable containing user ids
prod	String with name of the variable with product ids
pred	Products to predict for
rate	String with name of the variable with product ratings
name	Name for the prediction variable
data_filter	Expression entered in, e.g., Data > View to filter the dataset in Radiant. The

#### **Details**

See http://radiant-rstats.github.io/docs/model/crs.html for an example in Radiant

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

#### Value

A data.frame with the original data and a new column with predicted ratings

direct_marketing Direct	marketing data	
-------------------------	----------------	--

# Description

Direct marketing data

# Usage

```
data(direct_marketing)
```

#### **Format**

A data frame with 1,000 rows and 12 variables

### **Details**

Description provided in attr(direct\_marketing,"description")

8 dtree\_parser

dtree

Create a decision tree

### **Description**

Create a decision tree

#### Usage

```
dtree(y1, opt = "max")
```

#### **Arguments**

yl A yaml string or a list (e.g., from yaml::yaml.load\_file())

opt Find the maximum ("max") or minimum ("min") value for each decision node

#### **Details**

See http://radiant-rstats.github.io/docs/model/dtree.html for an example in Radiant

#### Value

A list with the initial tree and the calculated tree

#### See Also

```
summary.dtree to summarize results plot.dtree to plot results sensitivity.dtree to plot results
```

dtree\_parser

Parse yaml input for dtree to provide (more) useful error messages

# Description

Parse yaml input for dtree to provide (more) useful error messages

### Usage

```
dtree_parser(y1)
```

### Arguments

yl

A yaml string

### Details

See http://radiant-rstats.github.io/docs/model/dtree.html for an example in Radiant

dvd 9

#### Value

An updated yaml string or a vector messages to return to the users

#### See Also

```
dtree to calculate tree
summary.dtree to summarize results
plot.dtree to plot results
```

dvd

Data on DVD sales

### **Description**

Data on DVD sales

### Usage

data(dvd)

#### **Format**

A data frame with 20,000 rows and 4 variables

### Details

Binary purchase response to coupon value. Description provided in attr(dvd,"description")

evalbin

Model evalbin

### Description

Model evalbin

### Usage

```
evalbin(dataset, pred, rvar, lev = "", qnt = 10, margin = 1, cost = 1,
    train = "", method = "xtile", data_filter = "")
```

10 evalreg

#### **Arguments**

dataset Dataset name (string). This can be a dataframe in the global environment or an element in an r\_data list from Radiant Predictions or predictors pred Response variable rvar The level in the response variable defined as \_success\_ lev Number of bins to create qnt margin Margin on each customer purchase Cost for each connection (e.g., email or mailing) cost Use data from training ("Training"), validation ("Validation"), both ("Both"), or train all data ("All") to evaluate model evalbin method Use either ntile or xtile to split the data (default is xtile) Expression entered in, e.g., Data > View to filter the dataset in Radiant. The data\_filter

#### **Details**

See http://radiant-rstats.github.io/docs/model/evalbin.html for an example in Radiant

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

#### Value

A list of results

#### See Also

```
summary.evalbin to summarize results plot.evalbin to plot results
```

### **Examples**

```
result <- evalbin("titanic", c("age","fare"), "survived")</pre>
```

evalreg	Model evalreg

### Description

Model evalreg

### Usage

```
evalreg(dataset, pred, rvar, train = "", data_filter = "")
```

find\_max 11

#### **Arguments**

dataset Dataset name (string). This can be a dataframe in the global environment or an

element in an r\_data list from Radiant

pred Predictions or predictors

rvar Response variable

train Use data from training ("Training"), validation ("Validation"), both ("Both"), or

all data ("All") to evaluate model evalreg

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

#### **Details**

See http://radiant-rstats.github.io/docs/model/evalreg.html for an example in Radiant

#### Value

A list of results

#### See Also

```
summary.evalreg to summarize results
plot.evalreg to plot results
```

find\_max

Find maxium value of a vector

#### **Description**

Find maxium value of a vector

### Usage

```
find_max(var, val = "")
```

# Arguments

var Variable to find the maximum for

val Variable to find the value for at the maxium of var

#### Value

Value of val at the maximum of var

houseprices

find\_min

Find minimum value of a vector

# Description

Find minimum value of a vector

### Usage

```
find_min(var, val = "")
```

# Arguments

var Variable to find the minimum for

val Variable to find the value for at the maxium of var

#### Value

Value of val at the minimum of var

houseprices

Houseprices

# Description

Houseprices

### Usage

```
data(houseprices)
```

# **Format**

A data frame with 128 home sales and 6 variables

### **Details**

Description provided in attr(houseprices,"description")

ideal 13

ideal	Ideal data for linear regression
-------	----------------------------------

### **Description**

Ideal data for linear regression

### Usage

```
data(ideal)
```

#### **Format**

A data frame with 1,000 rows and 4 variables

# **Details**

Description provided in attr(ideal, "description")

logistic

Generalized linear models (GLM)

### Description

Generalized linear models (GLM)

### Usage

```
logistic(dataset, rvar, evar, lev = "", int = "", wts = "None",
  check = "", data_filter = "")
```

# Arguments

dataset	Dataset name (string). This can be a dataframe in the global environment or an element in an r_data list from Radiant
rvar	The response variable in the logit (probit) model
evar	Explanatory variables in the model
lev	The level in the response variable defined as _success_
int	Interaction term to include in the model
wts	Weights to use in estimation
check	Optional estimation parameters. "standardize" to output standardized coefficient estimates. "stepwise" to apply step-wise selection of variables
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 http://radiant-rstats.github.io/docs/model/logistic.html for an example in Radiant

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#### Value

A list with all variables defined in logistic as an object of class logistic

#### See Also

```
summary.logistic to summarize the results
plot.logistic to plot the results
predict.logistic to generate predictions
plot.model.predict to plot prediction output
```

#### **Examples**

```
result <- logistic("titanic", "survived", c("pclass", "sex"), lev = "Yes")
result <- logistic("titanic", "survived", c("pclass", "sex"))</pre>
```

plot.ann

Plot method for the ann function

### **Description**

Plot method for the ann function

#### Usage

```
## S3 method for class 'ann'
plot(x, shiny = FALSE, ...)
```

#### **Arguments**

x Return value from ann
 shiny Did the function call originate inside a shiny app
 further arguments passed to or from other methods

#### **Details**

See http://radiant-rstats.github.io/docs/model/ann.html for an example in Radiant

#### See Also

```
ann to generate results
summary.ann to summarize results
predict.ann for prediction
```

### Examples

```
result <- ann("titanic", "survived", c("pclass", "sex"), lev = "Yes")
plot(result, plots = c("imp", "net"))</pre>
```

plot.confusion 15

plot.confusion	Plot method for the confusion matrix
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### **Description**

Plot method for the confusion matrix

#### Usage

```
## S3 method for class 'confusion'
plot(x, scale_y = FALSE, shiny = FALSE, ...)
```

#### **Arguments**

X	Return value from evalreg
scale_y	Free scale in faceted plot of the confusion matrix (TRUE or FALSE)
shiny	Did the function call originate inside a shiny app
	further arguments passed to or from other methods

#### **Details**

See http://radiant-rstats.github.io/docs/model/evalreg.html for an example in Radiant

#### See Also

```
evalreg to generate results
summary.evalreg to summarize results
```

plot.crs

Plot method for the crs function

### Description

Plot method for the crs function

# Usage

```
## S3 method for class 'crs'
plot(x, shiny = FALSE, ...)
```

### **Arguments**

Х	Return value from crs
shiny	Did the function call originate inside a shiny app
	further arguments passed to or from other methods

### Details

See http://radiant-rstats.github.io/docs/model/crs.html for an example in Radiant

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#### See Also

```
crs to generate results
summary.crs to summarize results
```

plot.dtree

Plot method for the dtree function

### Description

Plot method for the dtree function

### Usage

```
## S3 method for class 'dtree'
plot(x, symbol = "$", dec = 2, final = FALSE,
  orient = "LR", shiny = FALSE, ...)
```

# Arguments

X	Return value from dtree
symbol	Monetary symbol to use (\$ is the default)
dec	Decimal places to round results to
final	If TRUE plot the decision tree solution, else the initial decision tree
orient	Plot orientation: LR for vertical and TD for horizontal
shiny	Did the function call originate inside a shiny app
	further arguments passed to or from other methods

#### **Details**

See http://radiant-rstats.github.io/docs/model/dtree.html for an example in Radiant

### See Also

```
dtree to generate the result
summary.dtree to summarize results
sensitivity.dtree to plot results
```

plot.evalbin 17

plot.evalbin

Plot method for the evalbin function

### **Description**

Plot method for the evalbin function

#### Usage

```
## S3 method for class 'evalbin'
plot(x, plots = c("lift", "gains"), shiny = FALSE, ...)
```

### **Arguments**

```
x Return value from evalbin
plots Plots to return
shiny Did the function call originate inside a shiny app
... further arguments passed to or from other methods
```

#### **Details**

See http://radiant-rstats.github.io/docs/model/evalbin.html for an example in Radiant

### See Also

```
evalbin to generate results summary. evalbin to summarize results
```

#### **Examples**

```
evalbin("titanic", "age", "survived") %>% plot
evalbin("titanic", c("age", "fare"), "survived") %>% plot
evalbin("titanic", c("age", "fare"), "survived", method = "xtile") %>% plot
evalbin("titanic", c("age", "fare"), "survived") %>% summary
```

plot.evalreg

Plot method for the evalreg function

#### **Description**

Plot method for the evalreg function

#### Usage

```
## S3 method for class 'evalreg'
plot(x, shiny = FALSE, ...)
```

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#### **Arguments**

X	Return value from evalreg
shiny	Did the function call originate inside a shiny app
	further arguments passed to or from other methods

### **Details**

 $See \ http://radiant-rstats.github.io/docs/model/evalreg.html \ for \ an \ example \ in \ Radiant$ 

#### See Also

```
evalreg to generate results summary. evalreg to summarize results
```

plot.logistic

Plot method for the logistic function

#### **Description**

Plot method for the logistic function

# Usage

```
## S3 method for class 'logistic'
plot(x, plots = "", conf_lev = 0.95, intercept = FALSE,
    shiny = FALSE, custom = FALSE, ...)
```

# Arguments

x	Return value from logistic
plots	Plots to produce for the specified GLM model. Use "" to avoid showing any plots (default). "hist" shows histograms of all variables in the model. "scatter" shows scatter plots (or box plots for factors) for the response variable with each explanatory variable. "dashboard" is a series of four plots used to visually evaluate model. "coef" provides a coefficient plot
conf_lev	Confidence level to use for coefficient and odds confidence intervals (.95 is the default)
intercept	Include the intercept in the coefficient plot (TRUE or FALSE). FALSE is the default
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 <a href="http://docs.ggplot2.org/for options">http://docs.ggplot2.org/for options</a> .
	further arguments passed to or from other methods

#### **Details**

See http://radiant-rstats.github.io/docs/model/logistic.html for an example in Radiant

plot.model.predict 19

#### See Also

```
logistic to generate results
plot.logistic to plot results
predict.logistic to generate predictions
plot.model.predict to plot prediction output
```

#### **Examples**

```
result <- logistic("titanic", "survived", c("pclass", "sex"), lev = "Yes")
plot(result, plots = "coef")</pre>
```

plot.model.predict

Plot method for model.predict functions

### Description

Plot method for model.predict functions

### Usage

```
## S3 method for class 'model.predict'
plot(x, xvar = "", facet_row = ".",
  facet_col = ".", color = "none", conf_lev = 0.95, ...)
```

# Arguments

Χ	Return value from predict functions (e.g., predict.regress)
xvar	Variable to display along the X-axis of the plot
facet_row	Create vertically arranged subplots for each level of the selected factor variable
facet_col	Create horizontally arranged subplots for each level of the selected factor variable
color	Adds color to a scatter plot to generate a heat map. For a line plot one line is created for each group and each is assigned a different colour
conf_lev	Confidence level to use for prediction intervals (.95 is the default)
	further arguments passed to or from other methods

#### See Also

```
predict.regress to generate predictions
predict.logistic to generate predictions
```

# Examples

```
regress("diamonds", "price", c("carat", "clarity")) %>%
  predict(pred_cmd = "carat = 1:10") %>%
  plot(xvar = "carat")
logistic("titanic", "survived", c("pclass", "sex", "age"), lev = "Yes") %>%
  predict(pred_cmd="pclass=levels(pclass), sex=levels(sex), age=seq(0,100,20)") %>%
  plot(xvar = "age", color = "sex", facet_col = "pclass")
```

20 plot.regress

n	10+	regress	
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Plot method for the regress function

#### **Description**

Plot method for the regress function

### Usage

```
## S3 method for class 'regress'
plot(x, plots = "", lines = "", conf_lev = 0.95,
  intercept = FALSE, shiny = FALSE, custom = FALSE, ...)
```

Return value from regress

# Arguments

Х

• •	
plots	Regression plots to produce for the specified regression model. Enter "" to avoid showing any plots (default). "hist" to show histograms of all variables in the model. "correlations" for a visual representation of the correlation matrix selected variables. "scatter" to show scatter plots (or box plots for factors) for the response variable with each explanatory variable. "dashboard" for a series of six plots that can be used to evaluate model fit visually. "resid_pred" to plot the explanatory variables against the model residuals. "coef" for a coefficient plot with adjustable confidence intervals. "leverage" to show leverage plots for each explanatory variable
lines	Optional lines to include in the select plot. "line" to include a line through a scatter plot. "loess" to include a polynomial regression fit line. To include both use c("line", "loess")
conf_lev	Confidence level used to estimate confidence intervals (.95 is the default)
intercept	Include the intercept in the coefficient plot (TRUE, FALSE). FALSE is the default
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,

#### **Details**

. . .

See http://radiant-rstats.github.io/docs/model/regress.html for an example in Radiant

further arguments passed to or from other methods

change x and y labels, etc.). See examples and http://docs.ggplot2.org/

### See Also

```
regress to generate the results
summary.regress to summarize results
predict.regress to generate predictions
```

for options.

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#### **Examples**

```
result <- regress("diamonds", "price", c("carat","clarity"))
plot(result, plots = "dashboard", lines = c("line","loess"))
plot(result, plots = "coef", conf_lev = .99, intercept = TRUE)
plot(result, plots = "hist")
plot(result, plots = "scatter", lines = c("line","loess"))
plot(result, plots = "correlations")
plot(result, plots = "resid_pred", lines = "line")</pre>
```

plot.repeater

Plot repeated simulation

#### **Description**

Plot repeated simulation

### Usage

```
## S3 method for class 'repeater'
plot(x, shiny = FALSE, ...)
```

# Arguments

x	Return value from repeater
shiny	Did the function call originate inside a shiny app
	further arguments passed to or from other methods

plot.simulater

Plot method for the simulater function

### Description

Plot method for the simulater function

# Usage

```
## S3 method for class 'simulater'
plot(x, shiny = FALSE, ...)
```

### Arguments

x Return value from simulater
 shiny Did the function call originate inside a shiny app
 ... further arguments passed to or from other methods

#### **Details**

See http://radiant-rstats.github.io/docs/model/simulater for an example in Radiant

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#### See Also

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

#### **Examples**

predict.ann

Predict method for the ann function

# Description

Predict method for the ann function

### Usage

```
## S3 method for class 'ann'
predict(object, pred_data = "", pred_cmd = "",
   conf_lev = 0.95, se = FALSE, dec = 3, ...)
```

#### **Arguments**

object	Return value from ann
pred_data	Provide the name of a dataframe to generate predictions (e.g., "titanic"). The dataset must contain all columns used in the estimation
pred_cmd	Generate predictions using a command. For example, 'pclass = levels(pclass)' would produce predictions for the different levels of factor 'pclass'. To add another variable use a ',' (e.g., 'pclass = levels(pclass), age = $seq(0,100,20)$ ')
conf_lev	Confidence level used to estimate confidence intervals (.95 is the default)
se	Logical that indicates if prediction standard errors should be calculated (default = FALSE)
dec	Number of decimals to show
	further arguments passed to or from other methods

#### **Details**

```
See http://radiant-rstats.github.io/docs/model/ann.html for an example in Radiant
```

#### See Also

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

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#### **Examples**

```
result <- logistic("titanic", "survived", c("pclass", "sex"), lev = "Yes")
predict(result, pred_cmd = "pclass = levels(pclass)")
logistic("titanic", "survived", c("pclass", "sex"), lev = "Yes") %>%
    predict(pred_cmd = "sex = c('male', 'female')")
logistic("titanic", "survived", c("pclass", "sex"), lev = "Yes") %>%
    predict(pred_data = "titanic")
```

predict.logistic

Predict method for the logistic function

#### **Description**

Predict method for the logistic function

### Usage

```
## $3 method for class 'logistic'
predict(object, pred_data = "", pred_cmd = "",
    conf_lev = 0.95, se = FALSE, dec = 3, ...)
```

#### **Arguments**

object	Return value from logistic
pred_data	Provide the name of a dataframe to generate predictions (e.g., "titanic"). The dataset must contain all columns used in the estimation
pred_cmd	Generate predictions using a command. For example, 'pclass = levels(pclass)' would produce predictions for the different levels of factor 'pclass'. To add another variable use a ',' (e.g., 'pclass = levels(pclass), age = seq(0,100,20)')
conf_lev	Confidence level used to estimate confidence intervals (.95 is the default)
se	Logical that indicates if prediction standard errors should be calculated (default = FALSE)
dec	Number of decimals to show
	further arguments passed to or from other methods

### **Details**

See  $\verb|http://radiant-rstats.github.io/docs/model/logistic.html| for an example in Radiant$ 

### See Also

```
logistic to generate the result
summary.logistic to summarize results
plot.logistic to plot results
plot.model.predict to plot prediction output
```

24 predict.model

#### **Examples**

```
result <- logistic("titanic", "survived", c("pclass", "sex"), lev = "Yes")
predict(result, pred_cmd = "pclass = levels(pclass)")
logistic("titanic", "survived", c("pclass", "sex"), lev = "Yes") %>%
    predict(pred_cmd = "sex = c('male', 'female')")
logistic("titanic", "survived", c("pclass", "sex"), lev = "Yes") %>%
predict(pred_data = "titanic")
```

predict.model

Predict method for model functions

### **Description**

Predict method for model functions

### Usage

```
## S3 method for class 'model'
predict(object, pfun, mclass, pred_data = "", pred_cmd = "",
    conf_lev = 0.95, se = FALSE, dec = 3, ...)
```

# Arguments

object	Return value from regress
pfun	Function to use for prediction
mclass	Model class to attach
pred_data	Name of the dataset to use for prediction
pred_cmd	Command used to generate data for prediction
conf_lev	Confidence level used to estimate confidence intervals (.95 is the default)
se	Logical that indicates if prediction standard errors should be calculated (default = FALSE)
dec	Number of decimals to show
• • •	further arguments passed to or from other methods

### **Details**

See http://radiant-rstats.github.io/docs/model/regress.html for an example in Radiant

predict.regress 25

Predict method for the regress function

### Description

Predict method for the regress function

### Usage

```
## S3 method for class 'regress'
predict(object, pred_data = "", pred_cmd = "",
    conf_lev = 0.95, se = TRUE, dec = 3, ...)
```

#### **Arguments**

object	Return value from regress
pred_data	Name of the dataset to use for prediction
pred_cmd	Command used to generate data for prediction
conf_lev	Confidence level used to estimate confidence intervals (.95 is the default)
se	Logical that indicates if prediction standard errors should be calculated (default = FALSE)
dec	Number of decimals to show
	further arguments passed to or from other methods

#### **Details**

 $See \ http://radiant-rstats.github.io/docs/model/regress.html \ for an \ example \ in \ Radiant$ 

# See Also

```
regress to generate the result
summary.regress to summarize results
plot.regress to plot results
```

### **Examples**

```
result <- regress("diamonds", "price", c("carat","clarity"))
predict(result, pred_cmd = "carat = 1:10")
predict(result, pred_cmd = "clarity = levels(clarity)")
result <- regress("diamonds", "price", c("carat","clarity"), int = c("carat:clarity"))
dpred <<- getdata("diamonds") %>% slice(1:10)
predict(result, pred_data = "dpred")
rm(dpred, envir = .GlobalEnv)
```

26 print.logistic.predict

print.ann.predict

Print method for predict.ann

### Description

Print method for predict.ann

### Usage

```
## S3 method for class 'ann.predict'
print(x, ..., n = 10)
```

### **Arguments**

x Return value from prediction method

... further arguments passed to or from other methods

n Number of lines of prediction results to print. Use -1 to print all lines

```
print.logistic.predict
```

Print method for logistic.predict

# Description

Print method for logistic.predict

# Usage

```
## S3 method for class 'logistic.predict'
print(x, ..., n = 10)
```

### **Arguments**

x Return value from prediction method

... further arguments passed to or from other methods

n Number of lines of prediction results to print. Use -1 to print all lines

print.model.predict 27

# Description

Print method for the model prediction

### Usage

```
## S3 method for class 'model.predict'
print(x, ..., n = 10, header = "", lev = "")
```

#### **Arguments**

х	Return value from prediction method
	further arguments passed to or from other methods
n	Number of lines of prediction results to print. Use -1 to print all lines
header	Header line
lev	The level in the response variable defined as _success_ for classification models

```
print.regress.predict Print method for predict.regress
```

# Description

Print method for predict.regress

# Usage

```
## S3 method for class 'regress.predict' print(x, ..., n = 10)
```

### Arguments

- x Return value from prediction method
- ... further arguments passed to or from other methods
- n Number of lines of prediction results to print. Use -1 to print all lines

28 regress

radiant.model

radiant.model

### Description

radiant.model

Launch Radiant in the default browser

### Usage

```
radiant.model()
```

#### **Details**

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

radiant.model-deprecated

Deprecated function(s) in the radiant.model package

## Description

These functions are provided for compatibility with previous versions of radiant. They will eventually be removed.

#### Usage

```
regression(...)
```

### **Arguments**

Parameters to be passed to the updated functions

### **Details**

regression is now a synonym for regress glm\_reg is now a synonym for logistic performance is now a synonym for evalbin

regress

Linear regression using OLS

### **Description**

Linear regression using OLS

render.DiagrammeR 29

#### Usage

```
regress(dataset, rvar, evar, int = "", check = "", data_filter = "")
```

#### **Arguments**

dataset Dataset name (string). This can be a dataframe in the global environment or an

element in an r\_data list from Radiant

rvar The response variable in the regression evar Explanatory variables in the regression int Interaction terms to include in the model

check "standardize" to see standardized coefficient estimates. "stepwise" to apply step-

wise selection of variables in estimation

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 http://radiant-rstats.github.io/docs/model/regress.html for an example in Radiant

#### Value

A list of all variables variables used in the regress function as an object of class regress

#### See Also

```
summary.regress to summarize results plot.regress to plot results predict.regress to generate predictions
```

#### **Examples**

```
result <- regress("diamonds", "price", c("carat", "clarity"))
result <- regress("diamonds", "price", c("carat", "clarity"), check = "standardize")</pre>
```

render.DiagrammeR

Method to render DiagrammeR plots

#### **Description**

Method to render DiagrammeR plots

#### Usage

```
## S3 method for class 'DiagrammeR'
render(object, ...)
```

#### **Arguments**

object DiagrammeR plot
... Additional arguments

30 repeater

repeater	Repeat simulation
repeater	repeat simulation

### Description

Repeat simulation

# Usage

```
repeater(nr = 12, vars = "", grid = "", sum_vars = "", byvar = "sim",
  fun = "sum_rm", form = "", seed = "", name = "", sim = "")
```

# **Arguments**

nr	Number times to repeat the simulation
vars	Variables to use in repeated simulation
grid	Expression to use in grid search for constants
sum_vars	(Numeric) variables to summaries
byvar	Variable(s) to group data by before summarizing
fun	Functions to use for summarizing
form	A string with the formula to apply to the summarized data
seed	To repeat a simulation with the same randomly generated values enter a number into Random seed input box.
name	To save the simulated data for further analysis specify a name in the Sim name input box. You can then investigate the simulated data by choosing the specified name from the Datasets dropdown in any of the other Data tabs.
sim	Return value from the simulater function

### **Examples**

scaledf 31

sca	ledt

Center or standardize variables in a data frame

### Description

Center or standardize variables in a data frame

#### Usage

```
scaledf(dat, center = TRUE, scale = TRUE, sf = 2, wts = NULL,
  calc = TRUE)
```

## Arguments

dat	Data frame
center	Center data (TRUE or FALSE)
scale	Scale data (TRUE or FALSE)
sf	Scaling factor (default is 2)
wts	Weights to use (default is NULL for no weights)

calc Calculate mean and sd or use available attributes

#### Value

Scaled data frame

sdw

Standard deviation of weighted sum of variables

### Description

Standard deviation of weighted sum of variables

### Usage

```
sdw(...)
```

### Arguments

... A matched number of weights and stocks

#### Value

A vector of standard deviation estimates

32 sensitivity.dtree

sensitivity

Method to evaluate sensitivity of an analysis

#### **Description**

Method to evaluate sensitivity of an analysis

#### Usage

```
sensitivity(object, ...)
```

### Arguments

object Object of relevant class for which to evaluate sensitivity

... Additional arguments

sensitivity.dtree

Evaluate sensitivity of the decision tree

### **Description**

Evaluate sensitivity of the decision tree

#### Usage

```
## S3 method for class 'dtree'
sensitivity(object, vars = NULL, decs = NULL,
    shiny = FALSE, ...)
```

#### **Arguments**

object Return value from dtree

vars Variables to include in the sensitivity analysis

decs Decisions to include in the sensitivity analysis

shiny Did the function call originate inside a shiny app

... Additional arguments

#### **Details**

```
See http://radiant-rstats.github.io/docs/model/dtree.html for an example in Radiant
```

#### See Also

```
dtree to generate the result
plot.dtree to summarize results
summary.dtree to summarize results
```

simulater 33

simulater	Simulate data for decision analysis

# Description

Simulate data for decision analysis

# Usage

```
simulater(const = "", lnorm = "", norm = "", unif = "", discrete = "",
binom = "", sequ = "", grid = "", data = "", form = "", seed = "",
name = "", nr = 1000, dat = NULL)
```

# Arguments

•	<b>-</b>	
	const	A string listing the constants to include in the analysis (e.g., " $cost = 3$ ; $size = 4$ ")
	lnorm	A string listing the log-normally distributed random variables to include in the analysis (e.g., "demand 2000 1000" where the first number is the log-mean and the second is the log-standard deviation)
	norm	A string listing the normally distributed random variables to include in the analysis (e.g., "demand 2000 1000" where the first number is the mean and the second is the standard deviation)
	unif	A string listing the uniformly distributed random variables to include in the analysis (e.g., "demand 0 1" where the first number is the minimum value and the second is the maximum value)
	discrete	A string listing the random variables with a discrete distribution to include in the analysis (e.g., "price $5\ 8\ .3\ .7$ " where the first set of numbers are the values and the second set the probabilities
	binom	A string listing the random variables with a binomail distribution to include in the analysis (e.g., "crash $100.01$ ") where the first number is the number of trials and the second is the probability of success)
	sequ	A string listing the start and end for a sequence to include in the analysis (e.g., "trend 1 $1001$ "). The number of 'steps' is determined by the number of simulations.
	grid	A string listing the start, end, and step for a set of sequences to include in the analysis (e.g., "trend 1 $1001$ "). The number of rows in the expanded will over ride the number of simulations
	data	Name of a dataset to be used in the calculations
	form	A string with the formula to evaluate (e.g., "profit = demand * (price - cost)")
	seed	To repeat a simulation with the same randomly generated values enter a number into Random seed input box.
	name	To save the simulated data for further analysis specify a name in the Sim name input box. You can then investigate the simulated data by choosing the specified name from the Datasets dropdown in any of the other Data tabs.
	nr	Number of simulations
	dat	Data list from previous simulation. Used by repeater function

sim\_cleaner

#### **Details**

See  $http://radiant-rstats.github.io/docs/model/simulater.html \ for \ an \ example \ in \ Radiant$ 

### Value

A data.frame with the created variables

#### See Also

```
summary.simulater to summarize results
plot.simulater to plot results
```

### **Examples**

sim\_cleaner

Clean input command string

### Description

Clean input command string

# Usage

```
sim_cleaner(x)
```

### **Arguments**

Χ

Input string

#### Value

Cleaned string

sim\_splitter 35

sim\_splitter

Split input command string

# Description

Split input command string

### Usage

```
sim_splitter(x, symbol = " ")
```

# Arguments

x Input string

symbol Symbol used to split the command string

#### Value

Split input command string

sim\_summary

Print simulation summary

# **Description**

Print simulation summary

# Usage

```
sim_summary(dat, dc = getclass(dat), fun = "", dec = 4)
```

# Arguments

dat	Simulated data
dc	Variable classes
fun	Summary function to apply

dec Number of decimals to show

36 store.model.predict

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Store residuals from a model

#### **Description**

Store residuals from a model

#### Usage

```
## S3 method for class 'model'
store(object, ..., name = "residuals")
```

#### **Arguments**

object Return value from a model function

... Additional arguments

name Variable name(s) assigned to predicted values

#### **Details**

See http://radiant-rstats.github.io/docs/model/regress.html for an example in Radiant

### **Examples**

```
regress(diamonds, rvar = "price", evar = c("carat","cut")) %>%
  store %>% head
```

store.model.predict

Store predicted values generated in model functions

### Description

Store predicted values generated in model functions

# Usage

```
## S3 method for class 'model.predict'
store(object, ..., data = attr(object, "pred_data"),
   name = "prediction")
```

#### **Arguments**

object Return value from model function

... Additional arguments

data Data or dataset name (e.g., data = mtcars or data = "mtcars")

name Variable name(s) assigned to predicted values

store\_ann 37

#### **Details**

See http://radiant-rstats.github.io/docs/model/regress.html for an example in Radiant

#### **Examples**

```
regress(diamonds, rvar = "price", evar = c("carat","cut")) %>%
  predict(diamonds) %>%
  store(name = "pred, pred_low, pred_high") %>% head
```

store\_ann

Deprecated function to store predictions from an ANN

# **Description**

Deprecated function to store predictions from an ANN

# Usage

```
store_ann(object, data = object$dataset, name = paste0("predict_ann"))
```

### **Arguments**

object Return value from predict.ann

data Dataset name

name Variable name assigned to the residuals or predicted values

#### **Details**

Use store.model.predict or store.model instead

 $store\_crs$ 

Store predicted values generated in the crs function

# **Description**

Store predicted values generated in the crs function

# Usage

```
store_crs(pred, data, name = "pred_crs")
```

# Arguments

pred Return value from predict.nnet

data Dataset name

name Variable name assigned to the predicted values

### **Details**

See http://radiant-rstats.github.io/docs/model/crs.html for an example in Radiant

38 store\_reg

store_glm	Deprecated function to store logistic regression residuals and predictions
Store_gim	. 1

# **Description**

Deprecated function to store logistic regression residuals and predictions

# Usage

```
store_glm(object, data = object$dataset, type = "residuals",
  name = paste0(type, "_logit"))
```

#### **Arguments**

object Return value from logistic or predict.logistic

data Dataset name

type Residuals ("residuals") or predictions ("predictions"). For predictions the dataset

name must be provided

name Variable name assigned to the residuals or predicted values

#### **Details**

Use store.model.predict or store.model instead

store\_reg

Deprecated function to store regression residuals and predictions

# Description

Deprecated function to store regression residuals and predictions

### Usage

```
store_reg(object, data = object$dataset, type = "residuals",
  name = paste0(type, "_reg"))
```

# **Arguments**

object Return value from regress or predict.regress

data Dataset name

type Residuals ("residuals") or predictions ("predictions"). For predictions the dataset

name must be provided

name Variable name assigned to the residuals or predicted values

# **Details**

Use store.model.predict or store.model instead

summary.ann 39

summary.ann

Summary method for the ann function

# **Description**

Summary method for the ann function

#### Usage

```
## S3 method for class 'ann'
summary(object, ...)
```

# Arguments

object Return value from ann

... further arguments passed to or from other methods

#### **Details**

```
See http://radiant-rstats.github.io/docs/model/ann.html for an example in Radiant
```

#### See Also

```
ann to generate esults
plot.ann to plot results
predict.ann for prediction
```

# **Examples**

```
result <- ann("titanic", "survived", "pclass", lev = "Yes")
summary(result)</pre>
```

summary.crs

Summary method for Collaborative Filter

# Description

Summary method for Collaborative Filter

# Usage

```
## S3 method for class 'crs'
summary(object, ...)
```

# **Arguments**

object Return value from crs

... further arguments passed to or from other methods

40 summary.evalbin

#### **Details**

See http://radiant-rstats.github.io/docs/model/crs.html for an example in Radiant

# See Also

```
crs to generate the results
plot.crs to plot results
```

summary.dtree

Summary method for the dtree function

# **Description**

Summary method for the dtree function

# Usage

```
## S3 method for class 'dtree'
summary(object, ...)
```

# **Arguments**

object Return value from simulater

... further arguments passed to or from other methods

# **Details**

See http://radiant-rstats.github.io/docs/model/dtree.html for an example in Radiant

## See Also

```
dtree to generate the results
plot.dtree to plot results
sensitivity.dtree to plot results
```

summary.evalbin

Summary method for the evalbin function

# **Description**

Summary method for the evalbin function

# Usage

```
## S3 method for class 'evalbin'
summary(object, prn = TRUE, ...)
```

summary.evalreg 41

# **Arguments**

object Return value from evalbin

prn Print model evalbin results (default is TRUE)

... further arguments passed to or from other methods

#### **Details**

See http://radiant-rstats.github.io/docs/model/evalbin.html for an example in Radiant

#### See Also

```
evalbin to summarize results plot.evalbin to plot results
```

# **Examples**

```
evalbin("titanic", "age", "survived") %>% summary
evalbin("titanic", c("age","fare"), "survived") %>% summary
```

summary.evalreg

Summary method for the evalreg function

# **Description**

Summary method for the evalreg function

# Usage

```
## S3 method for class 'evalreg'
summary(object, ...)
```

#### **Arguments**

object Return value from evalreg

... further arguments passed to or from other methods

# **Details**

See http://radiant-rstats.github.io/docs/model/evalreg.html for an example in Radiant

# See Also

```
evalreg to summarize results plot.evalreg to plot results
```

42 summary.logistic

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Summary method for the logistic function

# **Description**

Summary method for the logistic function

# Usage

```
## $3 method for class 'logistic'
summary(object, sum_check = "", conf_lev = 0.95,
  test_var = "", dec = 3, ...)
```

# **Arguments**

object	Return value from logistic
sum_check	Optional output. "vif" to show multicollinearity diagnostics. "confint" to show coefficient confidence interval estimates. "odds" to show odds ratios and confidence interval estimates.
conf_lev	Confidence level to use for coefficient and odds confidence intervals (.95 is the default)
test_var	Variables to evaluate in model comparison (i.e., a competing models Chi-squared test)
dec	Number of decimals to show
	further arguments passed to or from other methods

# **Details**

```
See http://radiant-rstats.github.io/docs/model/logistic.html for an example in Radiant
```

# See Also

```
logistic to generate the results
plot.logistic to plot the results
predict.logistic to generate predictions
plot.model.predict to plot prediction output
```

```
result <- logistic("titanic", "survived", "pclass", lev = "Yes")
summary(result, test_var = "pclass")
res <- logistic("titanic", "survived", c("pclass", "sex"), int="pclass:sex", lev="Yes")
summary(res, sum_check = c("vif", "confint", "odds"))
titanic %>% logistic("survived", c("pclass", "sex", "age"), lev = "Yes") %>% summary("vif")
```

summary.regress 43

summary	/.r	egr	ess

Summary method for the regress function

# Description

Summary method for the regress function

# Usage

```
## S3 method for class 'regress'
summary(object, sum_check = "", conf_lev = 0.95,
  test_var = "", dec = 3, ...)
```

# **Arguments**

object	Return value from regress
sum_check	Optional output. "rsme" to show the root mean squared error and the standard deviation of the residuals. "sumsquares" to show the sum of squares table. "vif" to show multicollinearity diagnostics. "confint" to show coefficient confidence interval estimates.
conf_lev	Confidence level used to estimate confidence intervals (.95 is the default)
test_var	Variables to evaluate in model comparison (i.e., a competing models F-test)
dec	Number of decimals to show
	further arguments passed to or from other methods

# Details

See http://radiant-rstats.github.io/docs/model/regress.html for an example in Radiant

# See Also

```
regress to generate the results

plot.regress to plot results

predict.regress to generate predictions
```

```
result <- regress("diamonds", "price", c("carat","clarity"))
summary(result, sum_check = c("rmse","sumsquares","vif","confint"), test_var = "clarity")
result <- regress("ideal", "y", c("x1","x2"))
summary(result, test_var = "x2")
ideal %>% regress("y", "x1:x3") %>% summary
```

44 summary.simulater

summary.repeater

Summarize repeated simulation

# Description

Summarize repeated simulation

# Usage

```
## S3 method for class 'repeater'
summary(object, dec = 4, ...)
```

# Arguments

object Return value from repeater dec Number of decimals to show

... further arguments passed to or from other methods

summary.simulater

Summary method for the simulater function

# **Description**

Summary method for the simulater function

# Usage

```
## S3 method for class 'simulater'
summary(object, dec = 4, ...)
```

# **Arguments**

object Return value from simulater dec Number of decimals to show

... further arguments passed to or from other methods

# **Details**

```
See http://radiant-rstats.github.io/docs/model/simulater.html \ for \ an \ example \ in \ Radiant
```

## See Also

```
simulater to generate the results plot.simulater to plot results
```

```
result <- simulater(norm = "demand 2000 1000")
summary(result)</pre>
```

test\_specs 45

tact	specs
LESL_	_Specs

Add interaction terms to list of test variables if needed

#### **Description**

Add interaction terms to list of test variables if needed

# Usage

```
test_specs(test_var, int)
```

# **Arguments**

test\_var List of variables to use for testing for regress or logistic

int Interaction terms specified

# **Details**

 $See \ http://radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ for \ example \ example \ for \ example \ example \ for \ example \ examp$ 

#### Value

A vector of variables names to test

# **Examples**

```
test_specs("a", c("a:b", "b:c"))
```

var\_check

Check if main effects for all interaction effects are included in the model If ':' is used to select a range \_evar\_ is updated

# Description

Check if main effects for all interaction effects are included in the model If ':' is used to select a range \_evar\_ is updated

## Usage

```
var_check(ev, cn, intv = "")
```

# **Arguments**

ev List of explanatory variables provided to \_regress\_ or \_logistic\_

cn Column names for all explanatory variables in \_dat\_

intv Interaction terms specified

var\_check

# **Details**

 $See \ http://radiant-rstats.github.io/docs/model/regress.html \ for \ an \ example \ in \ Radiant$ 

#### Value

'vars' is a vector of right-hand side variables, possibly with interactions, 'iv' is the list of explanatory variables, and into are interaction terms

```
var_check("a:d", c("a","b","c","d"))
var_check(c("a", "b"), c("a", "b"), "a:c")
```

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