Package: lookupTable (via r-universe)

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Type Package

Title Look-Up Tables using S4

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Description Fits look-up tables by filling entries with the mean or
median values of observations fall in partitions of the feature
space. Partitions can be determined by user of the package
using input argument feature.boundaries, and dimensions of the
feature space can be any combination of continuous and
categorical features provided by the data set. A Predict
function directly fetches corresponding entry value, and a
default value is defined as the mean or median of all available
observations. The table and other components are represented
using the S4 class lookupTable.

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LazyData TRUE

Imports dplyr, methods

Depends data.table

Suggests testthat

Repository https://enzochia.r-universe.dev

RemoteUrl https://github.com/enzochia/lookuptable

RemoteRef HEAD

RemoteSha ad3e9079979053f962796ad2468c49571845ae6b

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Initialize and construct a lookupTable object

Description

Initialize and construct a lookupTable object

Usage

```
## S4 method for signature 'lookupTable'
initialize(.Object, df.input, response,
  feature.boundaries, features.con = character(0),
  features.cat = character(0), fill.method = "mean")
```

Arguments

`.Object`	the prototype object
`df.input`	training data set containing columns with names found in features.con and features.cat vectors
`response`	name of the response variable
`feature.boundaries`	
	a list of thresholds for each continuous feature (names contained in feature.con) to construct bins. Should use -Inf and Inf as the first and last values, respectively.
`features.con`	a vector of continuous feature names
`features.cat`	a vector of categorical feature names
`fill.method`	the method to fill entries of the table ('mean' or 'median')

Value

A lookupTable object with a table trained with df.input data

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lookupTable-class	*An S4 class that defines the look-up table and all other components required for prediction using this table.*

Description

An S4 class that defines the look-up table and all other components required for prediction using this table.

Slots

table the look-up table with entries to be retrieved as prediction results

feature.con a vector of continuous feature names

feature.cat a vector of categorical feature names

feature.boundaries a list of boundaries for each input feature (inferred during construction from input data)

response the name of the response variable for the look-up table

default the default value for cells corresponding to a missing combination of input values

response.categories sequence of all categories (order-dependent) for the response variable, if it's categorical

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predict.lookupTable   *Predictions from a look-up table*

Description

predict method for lookupTable objects

Usage

```
## S3 method for class 'lookupTable'
predict(object, newdata, newparams = NULL,
  allow.new.levels = FALSE, na.action = na.pass, ...)
```

Arguments

object	a fitted lookupTable object
newdata	data.frame from which to evaluate predictions
newparams	new parameters to use in evaluating predictions
allow.new.levels	
	(logical) if FALSE (default), then any new levels (or NA values) detected in newdata will trigger an error; if TRUE, then the prediction will use the unconditional (population-level) values for data with previously unobserved levels (or NAs)
na.action	function determining what should be done with missing values for fixed effects in newdata. The default is to predict NA: see na.pass.
...	optional additional parameters. None are used at present.

Value

a numeric vector of predicted values

Examples

```
df.input <- cars
response <- 'dist'
feature.boundaries <- list(c(-Inf, 5, 10, 15, 20, 25, Inf))
features.con <- c('speed')
dist.table <- lookupTable(df.input, response, feature.boundaries, features.con)
df.test <- data.frame(speed = c(2, 23, 41, 5, 9, 8))
predict(dist.table, df.test)
```

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