Package ‘lookupTable’

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Type Package
Title Look-Up Tables using S4
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Maintainer Enzo Jia <enzo.jia@gmail.com>
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
NeedsCompilation no
Author Enzo Jia [aut, cre],
Marc Maier [aut]
Repository CRAN
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## initialize,lookupTable-method

*Initialize and construct a lookupTable object*

### Description

Initialize and construct a lookupTable object

### Usage

```r
## 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

---

<table>
<thead>
<tr>
<th>lookupTable-class</th>
</tr>
</thead>
<tbody>
<tr>
<td>An S4 class that defines the look-up table and all other components required for prediction using this table.</td>
</tr>
</tbody>
</table>

### Description

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

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

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, ...)

Arguments

object a fitted lookupTable object
newdata data.frame from which to evaluate predictions
newparams new parameters to use in evaluating predictions
... 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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