Package: DrData (via r-universe)

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Title Interactive Statistical Analysis and Machine Learning Platform

Version 0.2.0

Description A 'Shiny'-based interactive platform for end-to-end data science workflows. Provides modules for data import (CSV, 'Excel', RDS, TXT), data preprocessing (missing value imputation, encoding, scaling, outlier removal), exploratory data analysis with interactive plots and normality tests, supervised learning (regression and classification each with eight algorithms), and unsupervised learning (k-means, hierarchical clustering, density-based spatial clustering of applications with noise). Designed for students and practitioners in data science and artificial intelligence.

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Encoding UTF-8

Language en-US

URL https://github.com/mohsenmehdinia/DrData

BugReports https://github.com/mohsenmehdinia/DrData/issues

RoxygenNote 7.3.3

Imports shiny (>= 1.7.0), stats, utils

Suggests shinydashboard, plotly, DT, ggplot2, dplyr, tidyr, readr, readxl, caret, randomForest, rpart, rpart.plot, e1071, class, nnet, colourpicker, glmnet, cluster, dbscan, GGally, gbm, pROC, reshape2, scales, nortest, tseries, testthat (>= 3.0.0), knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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Contents

build_model_formula 2
ml_metrics_regression 3
ml_prepare_data 3
ml_split 4
run_app 4

Index **6**

`build_model_formula` *Build a model formula with optional interaction terms*

Description

Build a model formula with optional interaction terms

Usage

```
build_model_formula(
  target,
  features,
  use_interactions = FALSE,
  interaction_vars = NULL
)
```

Arguments

`target`	Single character: response variable name.
`features`	Character vector of predictor names.
`use_interactions`	Logical; add two-way interactions? Default FALSE.
`interaction_vars`	Character vector of variables to interact.

Value

A `formula` object.

Examples

```
build_model_formula("mpg", c("cyl", "hp", "wt"))
build_model_formula("mpg", c("cyl","hp","wt"), TRUE, c("cyl","hp"))
```

ml_metrics_regression *Compute regression performance metrics*

Description

Compute regression performance metrics

Usage

```
ml_metrics_regression(y_true, y_pred)
```

Arguments

y_true	Numeric vector of observed values.
y_pred	Numeric vector of predicted values.

Value

One-row data.frame with columns RMSE, MAE, R2.

Examples

```
ml_metrics_regression(c(1,2,3,4,5), c(1.1,1.9,3.2,3.8,5.1))
```

ml_prepare_data *Prepare a data frame for machine learning*

Description

Prepare a data frame for machine learning

Usage

```
ml_prepare_data(data, target, features = NULL)
```

Arguments

data	A data.frame.
target	Single character string: the response column name.
features	Character vector of predictor names. Default: all except target.

Value

Named list: data, target, features.

Examples

```
prep <- ml_prepare_data(mtcars, target = "mpg")
names(prep)
```

---

ml_split *Split a data frame into training and test sets*

Description

Split a data frame into training and test sets

Usage

```
ml_split(data, train_ratio = 0.8, seed = 42)
```

Arguments

`data`	A `data.frame` to split.
`train_ratio`	Numeric in (0,1); proportion for training. Default 0.8.
`seed`	Integer random seed. Default 42.

Value

Named list with `train` and `test` data frames.

Examples

```
splits <- ml_split(mtcars, train_ratio = 0.75, seed = 1)
nrow(splits$train)
```

---

run_app *Run the DrData Application*

Description

Launches the 'DrData' interactive 'Shiny' application for statistical analysis and machine learning workflows.

Usage

```
run_app()
```

Value

No return value, called for side effects.

Examples

```
if(interactive()){
  run_app()
}
```

Index

build_model_formula, 2

formula, 2

ml_metrics_regression, 3
ml_prepare_data, 3
ml_split, 4

run_app, 4