

Package ‘mrap’

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Title Machine-Readable Data Analysis Results with Function Wrappers

Version 1.0.0

Description You can use the set of wrappers for analytical schemata to reduce the effort in writing machine-readable data. The set of all-in-one wrappers will cover widely used functions from data analysis packages.

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Encoding UTF-8

RoxygenNote 7.2.3

URL <https://gitlab.com/TIBHannover/lki/knowledge-loom/mrap-r>

BugReports <https://gitlab.com/TIBHannover/lki/knowledge-loom/mrap-r/-/issues>

Imports dtreg, jsonlite, stringr

Suggests knitr, lme4, rmarkdown, testthat (>= 3.0.0)

Config/testthat.edition 3

VignetteBuilder knitr

NeedsCompilation no

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algorithm_evaluation *Create an algorithm_evaluation instance*

Description

Create an algorithm_evaluation instance

Usage

```
algorithm_evaluation(code_string, input_data, named_list_results)
```

Arguments

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
named_list_results	A named list with metrics and values

Value

An algorithm_evaluation instance

Examples

```
res <- list(F1= 0.46, recall = 0.51)
inst_ae <- algorithm_evaluation("N/A", "data_url", res)
```

class_discovery	<i>Create a class_discovery instance</i>
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Description

Create a class_discovery instance

Usage

```
class_discovery(code_string, input_data, test_results)
```

Arguments

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

Value

A class_discovery instance

Examples

```
clust_data <- iris[-5]
res <- data.frame(result_1 = 1, result_2 = 2)
inst_cd <- class_discovery(
  "stats::kmeans(clust_data, 3)",
  iris,
  res
)
```

class_prediction	<i>Create a class_prediction instance</i>
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Description

Create a class_prediction instance

Usage

```
class_prediction(code_string, input_data, test_results)
```

Arguments

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

Value

A class_prediction instance

Examples

```
res <- data.frame(result_1 = 1, result_2 = 2)
inst_cp <- class_prediction(
  "stats::glm(Species ~ Petal.Width + Petal.Length, family='binomial', iris)",
  iris,
  res
)
```

correlation_analysis *Create a correlation_analysis instance*

Description

Create a correlation_analysis instance

Usage

```
correlation_analysis(code_string, input_data, test_results)
```

Arguments

- code_string A line of code as a string, or "N/A" if not given
- input_data A data frame, a named list, or a URL as a string
- test_results A data frame or a list of data frames

Value

A correlation_analysis instance

Examples

```
res <- data.frame(result_1 = 1, result_2 = 2)
inst_ca <- correlation_analysis(
  "stats::cor.test(iris$Petal.Length, iris$Sepal.Length)",
  iris,
  res
)
```

data_analysis	<i>Create a data_analysis instance</i>
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Description

Create a data_analysis instance

Usage

```
data_analysis(instances, code_reference = NULL)
```

Arguments

instances	Analytic instance or a list of instances
code_reference	A URL of the code implementing data analysis

Value

A data analysis instance

Examples

```
res <- data.frame(mean = 3.758)
inst_ds <- descriptive_statistics(
  "base::mean(iris$Petal.Length)",
  iris,
  res
)
inst_da <- data_analysis(inst_ds)
```

descriptive_statistics	<i>Create a descriptive_statistics instance</i>
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Description

Create a descriptive_statistics instance

Usage

```
descriptive_statistics(code_string, input_data, test_results)
```

Arguments

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

Value

A descriptive_statistics instance

Examples

```
res <- data.frame(mean = 3.758)
inst_ds <- descriptive_statistics(
  "base::mean(iris$Petal.Length)",
  iris,
  res
)
```

factor_analysis	<i>Create a factor_analysis instance</i>
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Description

Create a factor_analysis instance

Usage

```
factor_analysis(code_string, input_data, test_results)
```

Arguments

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

Value

A factor_analysis instance

Examples

```
fa_data <- iris[-5]
res <- data.frame(result_1 = 1, result_2 = 2)
inst_fa <- factor_analysis(
  "stats::princomp(fa_data)",
  iris,
  res
)
```

group_comparison	<i>Create a group_comparison instance</i>
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Description

Create a group_comparison instance

Usage

```
group_comparison(code_string, input_data, test_results)
```

Arguments

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

Value

A group_comparison instance

Examples

```
res <- data.frame(result_1 = 1, result_2 = 2)
inst_gc <- group_comparison(
  "stats::aov(Petal.Length ~ Species, data = iris)",
  iris,
  res
)
```

multilevel_analysis	<i>Create a multilevel_analysis instance</i>
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Description

Create a multilevel_analysis instance

Usage

```
multilevel_analysis(code_string, input_data, test_results)
```

Arguments

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

Value

A multilevel_analysis instance

Examples

```
code_string <- "lme4::lmer(math ~ homework + (1 | schid))"
res <- data.frame(result_1 = 1, result_2 = 2)
inst <- multilevel_analysis(code_string, "data_url", res)
```

`regression_analysis` *Create a regression_analysis instance*

Description

Create a regression_analysis instance

Usage

```
regression_analysis(code_string, input_data, test_results)
```

Arguments

<code>code_string</code>	A line of code as a string, or "N/A" if not given
<code>input_data</code>	A data frame, a named list, or a URL as a string
<code>test_results</code>	A data frame or a list of data frames

Value

A regression_analysis instance

Examples

```
res <- data.frame(result_1 = 1, result_2 = 2)
inst_ra <- regression_analysis(
  "stats::lm(Petal.Length ~ Sepal.Length, data = iris)",
  iris,
  res
)
```

stats_aov

Wrap stats::aov function

Description

Wrap stats::aov function

Usage

`stats_aov(...)`

Arguments

... the same arguments as in the wrapped function

Value

a list of ANOVA object and R6 class instance

Examples

```
results <- stats_aov(Petal.Length ~ Species, data = iris)
```

to_jsonld

Write an instance in JSON-LD format

Description

This function is imported from dtreg for ease-of-use

Usage

`to_jsonld(instance)`

Arguments

instance An instance of an R6 class

Value

JSON string in JSON-LD format

Examples

```
res <- data.frame(mean = 3.758)
inst_ds <- descriptive_statistics(
  "base::mean(iris$Petal.Length)",
  iris,
  res
)
json <- to_jsonld(inst_ds)
```

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