

Package ‘qualitycontrol’

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Title Unified Framework for Data Quality Control

Version 0.1.0

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Description An easy framework to set a quality control workflow on a dataset.
Includes a various range of functions that allow to establish an adaptable data quality control.

Imports dplyr, stringr, janitor, openxlsx, readxl

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Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

URL <https://github.com/luisgarcez11/qualitycontrol>

BugReports <https://github.com/luisgarcez11/qualitycontrol/issues>

Suggests knitr, rmarkdown, testthat

Depends R (>= 2.10)

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

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| als_data | <i>Amyotrophic lateral sclerosis Example dataset</i> |
|----------|--|

Description

An Amyotrophic lateral sclerosis related example dataset.

Usage

als_data

Format

A list

- subjidSubject ID
- p1ALSFRS-R 1
- p2ALSFRS-R 2
- p3ALSFRS-R 3
- p4ALSFRS-R 4
- p5ALSFRS-R 5
- p6ALSFRS-R 6
- p7ALSFRS-R 7
- p8ALSFRS-R 8
- p9ALSFRS-R 9
- x1rALSFRS-R R1
- x2rALSFRS-R R2
- x3rALSFRS-R R3
- age_at_baselineAge at baseline
- age_at_onsetAge at onsite
- onsetRegion of onset
- baseline_dateBaseline date3
- death_dateDeath date

als_data_qc_mapping *An example dataset containing a Quality Control mapping*

Description

An example dataset containing a Quality Control mapping

Usage

```
als_data_qc_mapping
```

Format

A list of 3 tibbles.

- missingTable with all the 'missing' tests.
- inconsistenciesTable with all the 'inconsistencies' tests.
- rangeTable with all the 'out of range' tests.

qc_data *QC dataset using a specific variable mapping*

Description

QC dataset using a specific variable mapping

Usage

```
qc_data(data, qc_mapping, output_file = NULL)
```

Arguments

| | |
|-------------|---|
| data | A data frame, data frame extension (e.g. a tibble) to be quality controlled. |
| qc_mapping | A list of data frame or data frame extension (e.g. a tibble) specifying the tests. Each data frame row represents a test to the data. |
| output_file | (optional) File path ended in .xlsx or .xls. If is not null, findings table to be written to this path. |

Value

A data frame containing all the findings.

Examples

```
qc_data(als_data, als_data_qc_mapping)
```

| | |
|-----------------|--|
| read_qc_mapping | <i>Read Quality Control mapping file</i> |
|-----------------|--|

Description

read_qc_mapping reads an .xlsx file that contains the QC mapping.

Usage

```
read_qc_mapping(path)
```

Arguments

path excel file path to be read. Each tab should contain 3 tabs with the names missing, inconsistencies and range. Each tab will correspond to one QC mapping table. QC mapping excel file should contain 3 tabs:

- missing: columns should be named as "qc_type", "variable" and "type".
- inconsistencies: columns should be named as "qc_type", "variable1", "type1", "relation", "variable2" and "type2".
- range: columns should be named as "qc_type", "variable", "type", "lower_value", "upper_value" and "categories".

The columns specified above should contain specific values:

- qc_type: "missing", "duplicated", "inconsistent_values" and "range"
- variable, variable1, variable2: variable name that is included in data.
- type, type1, type2: "numeric", "text", "categorical", "date"
- relation: expected relation between variable1 and variable2 which can be "greater_than", "greater_than_or_equal", "lower_than", "lower_than_or_equal" or "equal".
- lower_value, upper_value: expected numeric values representing ranges
- categories: expected variable categories

Value

A list containing all the QC mapping tables

| | |
|-----------------|---|
| test_duplicated | <i>Test if variable values are duplicated</i> |
|-----------------|---|

Description

Test if variable values are duplicated

Usage

```
test_duplicated(data, variable)
```

Arguments

| | |
|----------|----------------------------|
| data | data to be tested. |
| variable | The variable to be tested. |

Value

A data frame containing all the findings regarding the applied test.

Examples

```
test_duplicated(als_data, 'subjid')
```

| | |
|----------------------|--|
| test_inconsistencies | <i>Test the inconsistencies between variables on a dataset</i> |
|----------------------|--|

Description

Test the inconsistencies between variables on a dataset

Usage

```
test_inconsistencies(data, variable1, variable2, relation)
```

Arguments

| | |
|-----------|--|
| data | data to be tested. |
| variable1 | The variable to be tested. |
| variable2 | The variable to be tested. |
| relation | String such as 'greater_than', 'greater_than_or_equal' 'lower_than_or_equal' and 'lower_than'. |

Value

A data frame containing all the findings regarding the applied test.

Examples

```
test_inconsistencies(als_data, 'baseline_date', 'death_date', relation = 'lower_than')
test_inconsistencies(als_data, 'age_at_baseline', 'age_at_onset', relation = 'greater_than')
```

| | |
|--------------|---|
| test_missing | <i>Test the variable missingness on a dataset</i> |
|--------------|---|

Description

Test the variable missingness on a dataset

Usage

```
test_missing(data, variable)
```

Arguments

| | |
|----------|----------------------------|
| data | data to be tested. |
| variable | The variable to be tested. |

Value

A data frame containing all the findings regarding the applied test.

Examples

```
test_missing(als_data, 'p8')
test_missing(als_data, 'p1')
```

| | |
|------------|--|
| test_range | <i>Test the range of a variable on a dataset</i> |
|------------|--|

Description

Test the range of a variable on a dataset

Usage

```
test_range(
  data,
  variable,
  type,
  categories = NULL,
  lower_value = NULL,
  upper_value = NULL
)
```

Arguments

| | |
|--------------------------|---|
| <code>data</code> | data to be tested. |
| <code>variable</code> | The variable to be tested. |
| <code>type</code> | String such as 'categorical', 'date' or 'numeric' |
| <code>categories</code> | Only to be filled if type is 'categorical'. String of categories. |
| <code>lower_value</code> | Only to be filled if type is 'numeric' or 'date'. Can be numeric or string. |
| <code>upper_value</code> | Only to be filled if type is 'numeric' or 'date'. Can be numeric or string. |

Value

A data frame containing all the findings regarding the applied test.

Examples

```
test_range(als_data, 'onset', c('bulbar','respiratory', 'spinal'), type = 'categorical')
test_range(als_data, 'age_at_baseline', lower_value = 20, upper_value = 100,
type = 'numeric')
test_range(als_data, 'age_at_onset', lower_value = 20, upper_value = 100,
type = 'numeric')
test_range(als_data, 'baseline_date', lower_value = '2000-01-01', upper_value = '2022-01-01',
type = 'date')
test_range(als_data, 'death_date', lower_value = '2000-01-01', upper_value = '2022-01-01',
type = 'date')
```

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