

Package ‘harmonydata’

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Type Package

Title R Library for 'Harmony'

Version 0.2.1

Description 'Harmony' is a tool using AI which allows you to compare items from questionnaires and identify similar content. You can try 'Harmony' at <https://harmonydata.ac.uk/app/> and you can read our blog at <https://harmonydata.ac.uk/blog/> or at <https://fastdatascience.com/how-does-harmony-work/>. Documentation at <https://harmonydata.ac.uk/harmony-r-released/>.

URL <https://harmonydata.ac.uk>

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Encoding UTF-8

Imports httr, uuid, base64enc, jsonlite, utils, tools, assertthat, purrr

RoxygenNote 7.2.3

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation no

Author Omar Hassoun [aut, cre],
Thomas Wood [ctb],
Alex, Nikic [ctb],
Ulster University [cph]

Maintainer Omar Hassoun <omtarful@gmail.com>

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create_instrument_from_list
Create instrument from list

Description

This function creates an instrument from a list of questions.

Usage

```
create_instrument_from_list(  
  question_texts,  
  question_numbers = NULL,  
  instrument_name = "My instrument"  
)
```

Arguments

`question_texts` A character vector of question texts.

`question_numbers`
A character vector of question numbers. If not provided, the question number will be the index of the question text.

`instrument_name`
A character string of the instrument name.

Author(s)

Alex Nikic

Examples

```
instrument = create_instrument_from_list(  
  list("How old are you?",  
    "What is your gender?",  
    "What is your name?")  
)
```

`generate_crosswalk_table`*Generate Crosswalk Table Function*

Description

Generate a crosswalk table for a list of instruments, given the similarity matrix that came out of the match function. A crosswalk is a list of pairs of variables from different studies that can be harmonised.

Usage

```
generate_crosswalk_table(  
  instruments,  
  similarity,  
  threshold,  
  is_allow_within_instrument_matches = FALSE,  
  is_enforce_one_to_one = FALSE  
)
```

Arguments

<code>instruments</code>	The original list of instruments, each containing a question. The sum of the number of questions in all instruments is the total number of questions which should equal both the width and height of the similarity matrix.
<code>similarity</code>	The cosine similarity matrix from Harmony
<code>threshold</code>	The minimum threshold that we consider a match. This is applied to the absolute match value. So if a question pair has similarity 0.2 and threshold = 0.5, then that question pair will be excluded. Leave as None if you don't want to apply any thresholding.
<code>is_allow_within_instrument_matches</code>	Defaults to False. If this is set to True, we include crosswalk items that originate from the same instrument, which would otherwise be excluded by default.
<code>is_enforce_one_to_one</code>	Defaults to False. If this is set to True, we force all variables in the crosswalk table to be matched with exactly one other variable.

Value

A crosswalk table as a DataFrame.

Author(s)

Alex Nikic

Examples

```
instrument_A = create_instrument_from_list(list(
    "How old are you?",
    "What is your gender?"
))

instrument_B = create_instrument_from_list(list(
    "Do you smoke?"
))

instruments = list(instrument_A, instrument_B)

match_response = match_instruments(instruments)
instrument_list = match_response$instruments
similarity_matrix = match_response$matches

crosswalk_table.df = generate_crosswalk_table(
    instrument_list, similarity_matrix, threshold = 0.7,
    is_allow_within_instrument_matches = FALSE, is_enforce_one_to_one = TRUE
)
```

get_example_instruments

Retrieve Example Instruments from 'Harmony Data API'

Description

This function retrieves example instruments from the 'Harmony Data API' using an HTTP POST request.

Usage

```
get_example_instruments()
```

Value

A list representing example instruments retrieved from the 'Harmony Data API'.

Author(s)

Ulster University [cph]

Examples

```
# Load required libraries (httr) and call the function
require(httr)
instruments <- get_example_instruments()

# Print the retrieved JSON content
print(instruments)
```

```
load_instruments_from_file
      Load Instruments from File
```

Description

This function loads instruments from a file specified by the path parameter and sends the file content to an API for further processing. It also accepts a URL leading to a file.

Usage

```
load_instruments_from_file(path)
```

Arguments

path The path to the file to load instruments from.

Value

A list of instruments returned from the API.

Author(s)

Ulster University [cph]

Examples

```
# Load instruments from a PDF file
pdf_file <- "https://www.apa.org/depression-guideline/patient-health-questionnaire.pdf"
response <- load_instruments_from_file(pdf_file)
```

match_instruments *Match Instruments Function*

Description

This function takes a list of instruments, converts it to a format acceptable by the database, and matches the instruments using the 'Harmony Data API'. It returns the matched instruments.

Usage

```
match_instruments(instruments, is_negate = TRUE)
```

Arguments

`instruments` A list of instruments to be matched.
`is_negate` A boolean value to toggle question negation. Default is TRUE.

Value

A list of matched instruments returned from the 'Harmony Data API'.

Author(s)

Ulster University [cph]

Examples

```
instrument_A <- create_instrument_from_list(list(
  "How old are you?",
  "What is your gender?"
))

instrument_B <- create_instrument_from_list(list(
  "Do you smoke?"
))

instruments <- list(instrument_A, instrument_B)

matched_instruments <- match_instruments(instruments)
```

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