Package 'crsra'

October 12, 2022

Title Tidying and Analyzing 'Coursera' Research Export Data

Version 0.2.3

Description Tidies and performs preliminary analysis of 'Coursera' research
export data. These export data can be downloaded by anyone who has classes
on Coursera and wants to analyze the data. Coursera is one of the leading
providers of MOOCs and was launched in January 2012. With over 25 million
learners, Coursera is the most popular provider in the world being followed
by EdX, the MOOC provider that was a result of a collaboration between
Harvard University and MIT, with over 10 million users. Coursera has over
150 university partners from 29 countries and offers a total of 2000+
courses from computer science to philosophy. Besides, Coursera offers 180+
specialization, Coursera's credential system, and four fully online Masters
degrees. For more information about Coursera check Coursera's
About page on <https://blog.coursera.org/about/>.

Depends R (>= 2.10)

License GPL-2

Encoding UTF-8

LazyData true

Suggests utils, testthat, rmarkdown

Imports dplyr, purrr, readr, digest, tidytext, tibble, rcorpora, knitr

BugReports <https://github.com/jhudsl/crsra/issues>

RoxygenNote 6.0.1.9000

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

Date/Publication 2018-05-05 06:25:58 UTC

R topics documented:

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crsra_anonymize	*Anonymizes ID variables (such as Partner hashed user ids) throughout the data set. The function is based on the function* digest *from the package* digest.

Description

This function will still keep the relationship between tables, i.e. it will change a specific id across all tables to the same id.

Usage

```
crsra_anonymize(all_tables,
  col_to_mask = attributes(all_tables)$partner_user_id, algorithm = "crc32")
```

Arguments

all_tables	A list from crsra_import_course or crsra_import
col_to_mask	The name of id column to mask.
algorithm	The algorithms to be used for anonymization; for currently available choices, see digest.

Value

A list that contains all the tables within each course.

Examples

```
res = crsra_anonymize(example_course_import,
col_to_mask = "jhu_user_id",
algorithm = "crc32")
```

crsra_assessmentskips   *Frequencies of skipping an peer-assessed submission*

Description

Frequencies of skipping an peer-assessed submission

Usage

```
crsra_assessmentskips(all_tables, bygender = FALSE, wordcount = TRUE,
  n = 20)
```

Arguments

all_tables	A list from `crsra_import_course` or `crsra_import`
bygender	A logical value indicating whether results should be broken down by gender
wordcount	A logical value indicating whether word count should be shown in the results; default is true
n	An integer indicating the number of rows for the word count

Value

The outputs are frequency tables (tibble).and are shown for each specific course

Examples

```
crsra_assessmentskips(example_course_import)
crsra_assessmentskips(example_course_import, bygender = TRUE, n = 10)
```

---

crsra_delete_user	*Deletes a specific user from all tables in the data in case Coursera data privacy laws require you to delete a specific (or set of) user(s) from your data.*

Description

Deletes a specific user from all tables in the data in case Coursera data privacy laws require you to delete a specific (or set of) user(s) from your data.

Usage

```
crsra_delete_user(all_tables, users)
```

Arguments

all_tables	A list from crsra_import_course or crsra_import
users	A vector of user ids to delete

Value

A list that contains all the tables within each course.

Examples

```
del_user = example_course_import$users$jhu_user_id[1]
del_user %in% example_course_import$users$jhu_user_id
res = crsra_delete_user(example_course_import, users = del_user)
del_user %in% res$users$jhu_user_id
```

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crsra_gradesummary	*The average course grade across different groups*

Description

The average course grade across different groups

Usage

```
crsra_gradesummary(all_tables, groupby = c("total", "country", "language",
  "gender", "empstatus", "education", "stustatus"))
```

Arguments

all_tables	A list from [crsra_import_course](#) or [crsra_import](#)
groupby	A character string indicating the how to break down grades. The default is set to total and returns the grade summary for each course. Other values are gender (for grouping by gender), education (for grouping by education level), stustatus (for grouping by student status), empstatus (for grouping by employment status), and country (for grouping by country). Note that this grouping uses the entries in the table users that is not fully populated so by grouping you lose some observations.

Value

A table which indicates the average grade across specified groups for each course

Examples

```
crsra_gradesummary(example_course_import)
crsra_gradesummary(example_course_import, groupby = "education")
```

---

crsra_import	*Imports all the .csv files into one list consisting of all the courses and all the tables within each course.*

Description

Imports all the .csv files into one list consisting of all the courses and all the tables within each course.

Usage

```
crsra_import(workdir = ".", ...)
```

Arguments

workdir	A character string vector indicating the directory where all the unzipped course directories are stored.
...	Additional arguments to pass to [crsra_import_course](#)

Examples

```
zip_file = system.file("extdata", "fake_course_7051862327916.zip",
package = "crsra")
bn = basename(zip_file)
bn = sub("[.]zip$", "", bn)
res = unzip(zip_file, exdir = tempdir(), overwrite = TRUE)
example_import = crsra_import(workdir = tempdir(),
check_problems = FALSE)
```

---

crsra_import_as_course

Convert a Coursera Course to Coursera Import

Description

Convert a Coursera Course to Coursera Import

Usage

```
crsra_import_as_course(x)
```

Arguments

x   object of class `coursera_import` or `coursera_course_import`

Value

object of class `coursera_import`

---

crsra_import_course   *Imports all the .csv files into one list consisting of all the tables within the course.*

Description

Imports all the .csv files into one list consisting of all the tables within the course.

Usage

```
crsra_import_course(workdir = ".", add_course_name = FALSE,
  change_pid_column = FALSE, check_problems = TRUE)
```

Arguments

workdir   A character string vector indicating the directory where the unzipped course is
                    stored.

add_course_name

                    Should a column of the course name be added to all the `data.frames`

change_pid_column

                    Should the `partner_user_id` column be changed to simply say "partner_user_id"?

check_problems   Should problems with reading in the data be checked?

Examples

```
zip_file = system.file("extdata", "fake_course_7051862327916.zip",
package = "crsra")
bn = basename(zip_file)
bn = sub("[.]zip$", "", bn)
res = unzip(zip_file, exdir = tempdir(), overwrite = TRUE)
workdir = file.path(tempdir(), bn)
course_tables = crsra_import_course(workdir,
check_problems = FALSE)
```

---

crsra_membershares   *The share of learners in each course based on specific characteristics.*

Description

The share of learners in each course based on specific characteristics.

Usage

```
crsra_membershares(all_tables, groupby = c("roles", "country", "language",
  "gender", "empstatus", "education", "stustatus"), remove_missing = TRUE)
```

Arguments

all_tables	A list from `crsra_import_course` or `crsra_import`
groupby	A character string indicating the how to break down learners in each course. The default is set to `roles` and returns the share of students in each category such as Learner, Not Enrolled, Pre-Enrolled Learner, Mentor, Browser, and Instructor. Other values are `country` (for grouping based on country), `language` (for grouping based on language), `gender` (for grouping by gender), `education` (for grouping by education level), `stustatus` (for grouping by student status), `empstatus` (for grouping by employment status), and `country` (for grouping by country). Note that this grouping uses the entries in the table `users` that is not fully populated so by grouping you lose some observations.
remove_missing	Should the `NA` be removed from the `groupby` column?

Value

A table which indicates the total number and the share of students in each group for each course

Examples

```
crsra_membershares(
example_course_import,
groupby = "country")
crsra_membershares(
example_course_import,
groupby = "roles", remove_missing = FALSE)
```

```
crsra_membershares(
example_course_import,
groupby = "roles", remove_missing = TRUE)
```

---

crsra_progress   *Ordered list of course items and the number and share of learners who*
                          have completed the item

Description

Ordered list of course items and the number and share of learners who have completed the item

Usage

```
crsra_progress(all_tables)
```

Arguments

all_tables   A list from crsra_import_course or crsra_import

Value

A table which lists all the item within a course and the total number of learners and the share of
learners who have completed the item.

Examples

```
crsra_progress(example_course_import)
```

---

crsra_tabledesc   *Returns description for a table*

Description

Returns description for a table

Usage

```
crsra_tabledesc(x)
```

Arguments

x   Name of the table to get the description

Value

The description for a table based on the description provided by Coursera in the data exports

Examples

```
crsra_tabledesc("assessments")
```

---

crsra_timetofinish   *Time that took each learner (in days) to finish a course*

Description

Time that took each learner (in days) to finish a course

Usage

```
crsra_timetofinish(all_tables)
```

Arguments

all_tables   A list from [crsra_import_course](#) or [crsra_import](#)

Value

A table containing hashed_user_ids with a column indicating the time (in days) that took each user to complete a course. The time is calculated as the difference between the last and first activity in the a course.

Examples

```
crsra_timetofinish(example_course_import)
```

---

crsra_whichtable   *Returns a list of tables a variable appears in*

Description

Returns a list of tables a variable appears in

Usage

```
crsra_whichtable(all_tables, col_name)
```

Arguments

all_tables   A list from [crsra_import_course](#) or [crsra_import](#)

col_name   The name of the column/variable to look for

Value

A list of tables that a specific variable appears in

Examples

```
crsra_whichtable(example_course_import, "assessment_id")
```

---

example_course_import   *Example Import of a Coursera Course*

Description

Example Import of a Coursera Course

Usage

```
example_course_import
```

Format

A list with 100 elements, which are `data.frames` imported from a fake Coursera class:

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tabdesc   *Table Descriptions*

Description

Table Descriptions

Usage

```
tabdesc
```

Format

A vector table descriptions, where the names of the table descriptions is the name of the tables in an import.

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