

Package ‘stats19’

April 3, 2019

Title Work with Open Road Traffic Casualty Data from Great Britain

Version 0.2.1

Description

Tools to help download, process and analyse the UK road collision data collected using the 'STATS19' form. The data are provided as 'CSV' files with detailed road safety data about the circumstances of car crashes and other incidents on the roads resulting in casualties in Great Britain from 1979, the types (including make and model) of vehicles involved and the consequential casualties. The statistics relate only to personal casualties on public roads that are reported to the police, and subsequently recorded, using the 'STATS19' accident reporting form. See the Department for Transportation website <https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data> for more information on these data.

Depends R (>= 3.5.0)

License GPL-3

URL <https://itsleeds.github.io/stats19/>

BugReports <https://github.com/ropensci/stats19/issues>

Encoding UTF-8

LazyData true

Imports sf, readr

Suggests curl (>= 3.2), dplyr, ggplot2, knitr, lubridate, rmarkdown, stringr, testthat, tidyr, pkgdown, kableExtra, leaflet, geojsonsf, htmltools

VignetteBuilder knitr

RoxygenNote 6.1.1

Language en-US

X-schema.org-keywords stats19, road-safety, transport, car-crashes, ropensci, data

NeedsCompilation no

Author Robin Lovelace [aut, cre] (<<https://orcid.org/0000-0001-5679-6536>>),
 Malcolm Morgan [aut] (<<https://orcid.org/0000-0002-9488-9183>>),
 Layik Hama [aut] (<<https://orcid.org/0000-0003-1912-4890>>),
 Mark Padgham [aut] (<<https://orcid.org/0000-0003-2172-5265>>),
 David Ranzolin [rev],
 Adam Sparks [rev, ctb] (<<https://orcid.org/0000-0002-0061-8359>>)

Maintainer Robin Lovelace <rob00x@gmail.com>

Repository CRAN

Date/Publication 2019-04-03 08:40:03 UTC

R topics documented:

accidents_sample	3
casualties_sample	3
check_input_file	4
check_year	4
dl_stats19	5
file_names	6
find_file_name	6
format_accidents	7
format_casualties	7
format_column_names	8
format_sf	9
format_vehicles	9
get_stats19	10
get_url	11
locate_files	11
locate_one_file	12
phrase	13
police_boundaries	13
read_accidents	14
read_casualties	14
read_vehicles	15
schema_original	16
select_file	16
stats19_schema	17
vehicles_sample	17

Index 18

accidents_sample	<i>Sample of stats19 data (2017 accidents)</i>
------------------	--

Description

Sample of stats19 data (2017 accidents)

Format

A data frame

Note

These were generated using the script in the data-raw directory (misc.Rmd file).

Examples

```
nrow(accidents_sample_raw)
accidents_sample_raw
```

casualties_sample	<i>Sample of stats19 data (2017 casualties)</i>
-------------------	---

Description

Sample of stats19 data (2017 casualties)

Format

A data frame

Note

These were generated using the script in the data-raw directory (misc.Rmd file).

Examples

```
nrow(casualties_sample_raw)
casualties_sample_raw
```

check_input_file *Local helper to be reused.*

Description

Local helper to be reused.

Usage

```
check_input_file(filename = NULL, type = NULL, data_dir = NULL,
                 year = NULL)
```

Arguments

filename	Character string of the filename of the .csv to read, if this is given, type and years determine whether there is a target to read, otherwise disk scan would be needed.
type	The type of file to be downloaded (e.g. 'Accidents', 'Casualties' or 'Vehicles'). Not case sensitive and searches using regular expressions ('acc' will work).
data_dir	Where sets of downloaded data would be found.
year	Single year for which data are to be read

check_year *check and convert year argument*

Description

check and convert year argument

Usage

```
check_year(year)
```

Arguments

year	Single year for which file is to be downloaded.
------	---

Examples

```
# check_year("2018") # fails
# check_year(2017)
# check_year(2006)
# check_year(1985)
```

`dl_stats19`*Download STATS19 data for a year or range of two years.*

Description

Download STATS19 data for a year or range of two years.

Usage

```
dl_stats19(year = NULL, type = NULL, data_dir = tempdir(),
           file_name = NULL, ask = TRUE)
```

Arguments

<code>year</code>	Single year for which file is to be downloaded.
<code>type</code>	One of 'Accidents', 'Casualties', 'Vehicles'; defaults to 'Accidents'. Or any variation of to search the file names with such as "acc" or "accid".
<code>data_dir</code>	Parent directory for all downloaded files. Defaults to <code>tempdir()</code> .
<code>file_name</code>	The file name (DfT named) to download.
<code>ask</code>	Should you be asked whether or not to download the files? TRUE by default.

Details

This function downloads and unzips UK road crash data. It results in unzipped .csv files that are put in the temporary directory specified by `tempdir()` or provided `data_dir`.

The file downloaded would be for a specific year (e.g. 2017). It could also be a file containing data for a range of two (e.g. 2005-2014).

The `dl_*` functions can download many MB of data so ensure you have a sufficient internet access and hard disk space.

See Also

[get_stats19\(\)](#)

Examples

```
dl_stats19(year = 2017) # interactively select files...
# now you can read-in the data
dl_stats19(year = 2009)
dl_stats19(year = 2009, type = "casualties")
dl_stats19(type = "casualties")
dl_stats19(year = 1985)
```

file_names	<i>stats19 file names for easy access</i>
------------	---

Description

URL decoded file names. Currently there are 52 file names released by the DfT (Department for Transport) and the details include how these were obtained and would be kept up to date.

Format

A named list

Note

These were generated using the script in the data-raw directory (misc.Rmd file).

Examples

```
## Not run:
length(file_names)
file_names$dftRoadSafetyData_Vehicles_2017.zip

## End(Not run)
```

find_file_name	<i>Find file names within stats19:file_names.</i>
----------------	---

Description

Currently, there are 52 file names to download/read data from.

Usage

```
find_file_name(years = NULL, type = NULL)
```

Arguments

years	Years for which data are to be found
type	One of 'Accidents', 'Casualties', 'Vehicles'; defaults to 'Accidents', ignores case.

Examples

```
find_file_name(2016)
find_file_name(2016, type = "Accidents")
find_file_name(1985, type = "Accidents")
find_file_name(type = "cas")
find_file_name(type = "accid")
find_file_name(2006)
find_file_name(2016:2017)
```

format_accidents	<i>Format STATS19 'accidents' data</i>
------------------	--

Description

Format STATS19 'accidents' data

Usage

```
format_accidents(x)
```

Arguments

x Data frame created with read_accidents()

Details

This is a helper function to format raw STATS19 data

Examples

```
d1_stats19(year = 2017, type = "accident")
x = read_accidents(year = 2017)
crashes = format_accidents(x)
```

format_casualties	<i>Format STATS19 casualties</i>
-------------------	----------------------------------

Description

Format STATS19 casualties

Usage

```
format_casualties(x)
```

Arguments

x Data frame created with read_casualties()

Details

This function formats raw STATS19 data

Examples

```
dl_stats19(year = 2017, type = "casualties")
x = read_casualties(year = 2017)
casualties = format_casualties(x)
```

format_column_names *Format column names of raw STATS19 data*

Description

This function takes messy column names and returns clean ones that work well with R by default. Names that are all lower case with no R-unfriendly characters such as spaces and - are returned.

Usage

```
format_column_names(column_names)
```

Arguments

column_names Column names to be cleaned

Value

Column names cleaned.

Examples

```
crashes_raw = read_accidents(year = 2017)
column_names = names(crashes_raw)
column_names
format_column_names(column_names = column_names)
```

format_sf	<i>Format convert STATS19 data into spatial (sf) object</i>
-----------	---

Description

Format convert STATS19 data into spatial (sf) object

Usage

```
format_sf(x, lonlat = FALSE)
```

Arguments

x	Data frame created with read_accidents()
lonlat	Should the results be returned in longitude/latitude? By default FALSE, meaning the British National Grid (EPSG code: 27700) is used.

Examples

```
x_sf = format_sf(accidents_sample)
sf::plot.sf(x_sf)
```

format_vehicles	<i>Format STATS19 vehicles data</i>
-----------------	-------------------------------------

Description

Format STATS19 vehicles data

Usage

```
format_vehicles(x)
```

Arguments

x	Data frame created with read_vehicles()
---	---

Details

This function formats raw STATS19 data

Examples

```
dl_stats19(year = 2017, type = "vehicles", ask = FALSE)
x = read_vehicles(year = 2017, format = FALSE)
vehicles = format_vehicles(x)
```

`get_stats19`*Download, read and format STATS19 data in one function.*

Description

Download, read and format STATS19 data in one function.

Usage

```
get_stats19(year = NULL, type = "accidents", data_dir = tempdir(),  
            file_name = NULL, format = TRUE, ask = TRUE)
```

Arguments

<code>year</code>	Single year for which file is to be downloaded.
<code>type</code>	One of 'Accidents', 'Casualties', 'Vehicles'; defaults to 'Accidents'. Or any variation of to search the file names with such as "acc" or "accid".
<code>data_dir</code>	Parent directory for all downloaded files. Defaults to <code>tempdir()</code> .
<code>file_name</code>	The file name (DfT named) to download.
<code>format</code>	Switch to return raw read from file, default is TRUE.
<code>ask</code>	Should you be asked whether or not to download the files? TRUE by default.

Details

This function utilizes `dl_stats19` and `read_*` functions and returns a `df`. The file downloaded would be for a specific year (e.g 2017).

As this function uses `dl_stats19` function, it can download many MB of data so ensure you have a sufficient disk space.

See Also

[dl_stats19\(\)](#)
[read_accidents\(\)](#)

Examples

```
get_stats19(year = 2017)  
get_stats19(year = 2009)
```

get_url	<i>Convert file names to urls</i>
---------	-----------------------------------

Description

Convert file names to urls

Usage

```
get_url(file_name = "",
        domain = "http://data.dft.gov.uk.s3.amazonaws.com",
        directory = "road-accidents-safety-data")
```

Arguments

file_name	Optional file name to add to the url returned (empty by default)
domain	The domain from where the data will be downloaded
directory	The subdirectory of the url

Details

This function returns urls that allow data to be downloaded from the pages:

http://data.dft.gov.uk/road-accidents-safety-data/road-accidents-safety-data/RoadSafetyData_2015.zip

http://data.dft.gov.uk.s3.amazonaws.com/road-accidents-safety-data/dftRoadSafety_Accidents_2016

Last updated: 22nd Nov 2018. Files available from the s3 url in the default domain argument.

Examples

```
# get_url(find_file_name(1985))
```

locate_files	<i>Locate a file on disk</i>
--------------	------------------------------

Description

Helper function to locate files. Given below params, the function returns 0 or more files found at location/names given.

Usage

```
locate_files(data_dir = tempdir(), type = NULL, years = NULL,
            quiet = FALSE)
```

Arguments

data_dir	Super directory where dataset(s) were first downloaded to.
type	One of 'Accidents', 'Casualties', 'Vehicles'; defaults to 'Accidents', ignores case.
years	Years for which data are to be found
quiet	Print out messages (files found)

Value

Character string representing the full path of a single file found, list of directories where data from the Department for Transport (stats19::filenames) have been downloaded, or NULL if no files were found.

locate_one_file	<i>Pin down a file on disk from four parameters.</i>
-----------------	--

Description

Pin down a file on disk from four parameters.

Usage

```
locate_one_file(filename = NULL, data_dir = tempdir(), year = NULL,
               type = NULL)
```

Arguments

filename	Character string of the filename of the .csv to read, if this is given, type and years determine whether there is a target to read, otherwise disk scan would be needed.
data_dir	Where sets of downloaded data would be found.
year	Single year for which file is to be found.
type	One of: 'Accidents', 'Casualties', 'Vehicles'; ignores case.

Value

One of: path for one file, a message `More than one file found` or error if none found.

Examples

```
locate_one_file()
locate_one_file(filename = "Cas.csv")
```

phrase	<i>Generate a phrase for data download purposes</i>
--------	---

Description

Generate a phrase for data download purposes

Usage

```
phrase()
```

Examples

```
stats19:::phrase()
```

police_boundaries	<i>Police force boundaries in England (2016)</i>
-------------------	--

Description

This dataset represents the 43 police forces in England and Wales. These are described on the [Wikipedia page](#) on UK police forces.

Format

An sf data frame

Details

The geographic boundary data were taken from the UK government's official geographic data portal. See <http://geoportal.statistics.gov.uk/>

Note

These were generated using the script in the data-raw directory (misc.Rmd file) in the package's GitHub repo: github.com/ITSLeeds/stats19.

Examples

```
nrow(police_boundaries)
police_boundaries[police_boundaries$pfa16nm == "West Yorkshire", ]
sf:::plot.sf(police_boundaries)
```

read_accidents	<i>Read in STATS19 road safety data from .csv files downloaded.</i>
----------------	---

Description

Read in STATS19 road safety data from .csv files downloaded.

Usage

```
read_accidents(year = NULL, filename = "", data_dir = tempdir(),
  format = TRUE)
```

Arguments

year	Single year for which data are to be read
filename	Character string of the filename of the .csv to read, if this is given, type and years determine whether there is a target to read, otherwise disk scan would be needed.
data_dir	Where sets of downloaded data would be found.
format	Switch to return raw read from file, default is TRUE.

Details

This is a wrapper function to access and load stats 19 data in a user-friendly way. The function returns a data frame, in which each record is a reported incident in the STATS19 data.

Examples

```
dl_stats19(year = 2011, type = "Accidents")
ac = read_accidents(year = 2011)

dl_stats19(year = 2009, type = "Accidents")
ac_2009 = read_accidents(year = 2009)
```

read_casualties	<i>Read in STATS19 road safety data from .csv files downloaded.</i>
-----------------	---

Description

Read in STATS19 road safety data from .csv files downloaded.

Usage

```
read_casualties(year = NULL, filename = "", data_dir = tempdir(),
  format = TRUE)
```

Arguments

year	Single year for which data are to be read
filename	Character string of the filename of the .csv to read, if this is given, type and years determine whether there is a target to read, otherwise disk scan would be needed.
data_dir	Where sets of downloaded data would be found.
format	Switch to return raw read from file, default is TRUE.

Details

The function returns a data frame, in which each record is a reported casualty in the STATS19 dataset.

Examples

```
dl_stats19(year = 2017, type = "casualties")
casualties = read_casualties(year = 2017)
```

read_vehicles	<i>Read in stats19 road safety data from .csv files downloaded.</i>
---------------	---

Description

Read in stats19 road safety data from .csv files downloaded.

Usage

```
read_vehicles(year = NULL, filename = "", data_dir = tempdir(),
  format = TRUE)
```

Arguments

year	Single year for which data are to be read
filename	Character string of the filename of the .csv to read, if this is given, type and years determine whether there is a target to read, otherwise disk scan would be needed.
data_dir	Where sets of downloaded data would be found.
format	Switch to return raw read from file, default is TRUE.

Details

The function returns a data frame, in which each record is a reported vehicle in the STATS19 dataset for the data_dir and filename provided.

Examples

```
dl_stats19(year = 2009, type = "vehicles")
ve = read_vehicles(year = 2009)
```

schema_original	<i>Schema for stats19 data (UKDS)</i>
-----------------	---------------------------------------

Description

Schema for stats19 data (UKDS)

Format

A data frame

select_file	<i>Interactively select from options</i>
-------------	--

Description

Interactively select from options

Usage

```
select_file(fnames)
```

Arguments

fnames File names to select from

Examples

```
# fnames = c("f1", "f2")
# stats19::select_file(fnames)
```

stats19_schema	<i>Stats19 schema and variables</i>
----------------	-------------------------------------

Description

stats19_schema and stats19_variables contain metadata on **stats19** data. stats19_schema is a look-up table matching codes provided in the raw stats19 dataset with character strings.

Note

The schema data can be (re-)generated using the script in the data-raw directory.

vehicles_sample	<i>Sample of stats19 data (2017 vehicles)</i>
-----------------	---

Description

Sample of stats19 data (2017 vehicles)

Format

A data frame

Note

These were generated using the script in the data-raw directory (misc.Rmd file).

Examples

```
nrow(vehicles_sample_raw)
vehicles_sample_raw
```

Index

*Topic **datasets**

- accidents_sample, 3
 - casualties_sample, 3
 - file_names, 6
 - police_boundaries, 13
 - schema_original, 16
 - stats19_schema, 17
 - vehicles_sample, 17
- accidents_sample, 3
- accidents_sample_raw
(accidents_sample), 3
- casualties_sample, 3
- casualties_sample_raw
(casualties_sample), 3
- check_input_file, 4
- check_year, 4
- dl_stats19, 5
- dl_stats19(), 10
- file_names, 6
- find_file_name, 6
- format_accidents, 7
- format_casualties, 7
- format_column_names, 8
- format_sf, 9
- format_vehicles, 9
- get_stats19, 10
- get_stats19(), 5
- get_url, 11
- locate_files, 11
- locate_one_file, 12
- phrase, 13
- police_boundaries, 13
- read_accidents, 14
- read_accidents(), 10
- read_casualties, 14
- read_vehicles, 15
- schema_original, 16
- select_file, 16
- stats19_schema, 17
- stats19_variables(stats19_schema), 17
- vehicles_sample, 17
- vehicles_sample_raw(vehicles_sample),
17