

Package ‘oxcovid19’

October 29, 2020

Type Package

Title An R API to the Oxford COVID-19 Database

Version 0.1.2

Description The OxCOVID19 Project <<https://covid19.eng.ox.ac.uk>> aims to increase our understanding of the COVID-19 pandemic and elaborate possible strategies to reduce the impact on the society through the combined power of statistical, mathematical modelling, and machine learning techniques. The OxCOVID19 Database is a large, single-centre, multimodal relational database consisting of information (using acknowledged sources) related to COVID-19 pandemic. This package provides an R-specific interface to the OxCOVID19 Database based on widely-used data handling and manipulation approaches in R.

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Depends R (>= 2.10)

Imports DBI, RPostgres, dplyr, sf, dbplyr, lubridate, countrycode, magrittr

Suggests testthat, covr, knitr, rmarkdown, rvest, stringr, RColorBrewer, ggplot2, DiagrammeR, spelling

Encoding UTF-8

Language en-GB

LazyData true

URL <https://github.com/como-ph/oxcovid19>

BugReports <https://github.com/como-ph/oxcovid19/issues>

RoxygenNote 7.1.1

VignetteBuilder knitr

NeedsCompilation no

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Date/Publication 2020-10-29 05:20:03 UTC

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cite_sources	<i>Cite data sources</i>
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Description

Cite data sources

Usage

```
cite_sources(x)
```

Arguments

x An object of class `tbl` produced by `get_data()`

Value

A tibble containing information on data source and relevant terms of use.

Author(s)

Ernest Guevarra

Examples

```
epidata <- get_data_epidemiology(ccode = "UK", adm = 0)
cite_sources(x = epidata)
```

connect_oxcovid19 *Initiate a connection to the OxCOVID19 PostgreSQL database*

Description

Initiate a connection to the OxCOVID19 PostgreSQL database

Usage

```
connect_oxcovid19(  
    dbname = "covid19",  
    host = "covid19db.org",  
    port = 5432,  
    user = "covid19",  
    password = "covid19"  
)
```

Arguments

dbname	Name of database. Default is "covid19". Unless OxCOVID19 Project changes database details, this should be kept as default.
host	Name of database host. Default is "covid19db.org". Unless OxCOVID19 Project changes database details, this should be kept as default.
port	Port specifications. Default is 5432. Unless OxCOVID19 Project changes database details, this should be kept as default.
user	User specifications. Default is "covid19". Unless OxCOVID19 Project changes database details, this should be kept as default.
password	Password specifications. Default is "covid19". Unless OxCOVID19 Project changes database details, this should be kept as default.

Value

A PostgreSQL connection to OxCOVID19 database

Author(s)

Ernest Guevarra

Examples

```
connect_oxcovid19()
```

data_sources *Data sources for OxCOVID19 Database*

Description

Data sources for OxCOVID19 Database

Usage

data_sources

Format

A named list of 6 tibbles of data sources for **OxCOVID19 Database**

Table name	Description
epidemiology	Tibble of sources for epidemiology table
government_response	Tibble of sources for government response table
country_statistics	Tibble of sources for country statistics table
mobility	Tibble of sources for mobility table
weather	Tibble of sources for weather table
administrative_division	Tibble of sources for administrative division table

Source

https://covid19.eng.ox.ac.uk/data_sources.html

Examples

data_sources

data_structures *Data structures for OxCOVID19 Database*

Description

Data structures for OxCOVID19 Database

Usage

data_structures

Format

A named list of 6 tibbles of data structures for **OxCOVID19 Database**

Table name	Description
epidemiology	Tibble of description of fields for epidemiology table
government_response	Tibble of description of fields for government response table
country_statistics	Tibble of description for fields for country statistics table
mobility	Tibble of description for fields for mobility table
weather	Tibble of description for fields for weather table
administrative_division	Tibble of description for fields for administrative division table

Source

https://covid19.eng.ox.ac.uk/data_schema.html

Examples

```
data_structures
```

get_data

Get data from specified table based on specified query parameters

Description

Get data from specified table based on specified query parameters

Usage

```
get_data(
  tbl_name,
  .source = NULL,
  ccode = NULL,
  .start = NULL,
  .end = Sys.Date(),
  adm = NULL
)

get_data_epidemiology(
  .source = NULL,
  ccode = NULL,
  .start = NULL,
  .end = Sys.Date(),
  adm = NULL
)

get_data_weather(
  .source = NULL,
  ccode = NULL,
```

```

    .start = NULL,
    .end = Sys.Date(),
    adm = NULL
  )

  get_data_mobility(
    .source = NULL,
    ccode = NULL,
    .start = NULL,
    .end = Sys.Date(),
    adm = NULL
  )

  get_data_response(ccode = NULL, .start = NULL, .end = Sys.Date(), adm = NULL)

```

Arguments

tbl_name	Name of table available in OxCOVID19 Database . Should be one of the table names given by a call to list_tables() .
.source	Source of data. Should be specified as per source code shown in data_sources for specified table. Default is NULL which returns data from specified table from all data sources.
ccode	A character value of country name specified as either a two character ISO country code, or a three character ISO country code, or any of the country names specified in the countrycode package, or a vector of country names using a combination of these country name variants. Defaults to NULL which returns data for all countries in the database.
.start	Starting date (in YYYY-MM-DD character format) of data to retrieve. Defaults to NULL which returns data from the earliest date available.
.end	End date (in YYYY-MM-DD character format) of data to retrieve. Defaults to current date as specified by Sys.Date() .
adm	Numeric value for administrative level data required. Possible values are 0 for whole country, 1 for administrative level 1, 2 for administrative level 2 and 3 for administrative level 3. Default is NULL which returns data for all administrative divisions.

Value

A tibble of specified table dataset based on specified parameters. If all parameters are kept to default, output is the same as that when [get_table\(\)](#) is used with `tbl_name` based on specified table. However, this function will retrieve the full data into a local tibble which will take considerable time. It is therefore recommended that this function be used when the specific data requirements are already clearly determined. For data exploration, [get_table\(\)](#) should be used instead.

Author(s)

Ernest Guevarra

Examples

```

## Get epidemiology data for the the whole of the UK from the ECDC for all
## available dates
get_data(tbl_name = "epidemiology",
        .source = "WRD_ECDC",
        ccode = "GBR",
        adm = 0)

## Get epidemiology data for the the whole of the UK from the ECDC for all
## available dates
get_data_epidemiology(.source = "WRD_ECDC",
                    ccode = "UK",
                    adm = 0)

## Get weather data for the the whole of the UK for all available dates
get_data_weather(ccode = "GBR",
                adm = 0)

## Get mobility data for the the whole of the UK from Apple for all
## available dates
get_data_mobility(.source = "APPLE_MOBILITY",
                 ccode = "United Kingdom",
                 adm = 0)

## Get government response data for the the whole of the UK for all
## available dates
get_data_response(ccode = "UK",
                 adm = 0)

```

get_layer

Get specified spatial layer from OxCOVID19 Database

Description

Get specified spatial layer from OxCOVID19 Database

Usage

```
get_layer(con, layer = "administrative_division", ccode, adm)
```

Arguments

con	Connection to OxCOVID19 Database . This can be specified using the connect_oxcovid19() function.
layer	Name of spatial layer available in OxCOVID19 Database . Currently, only administrative_division is a spatial layer.
ccode	Three character ISO country code for required country layers.

adm Numeric value for administrative level layer required. Possible values are 0 for whole country, 1 for administrative level 1, 2 for administrative level 2 and 3 for administrative level 3. Default is 0 for country borders.

Value

An object of sf class of the specified spatial layer

Author(s)

Ernest Guevarra

Examples

```
con <- connect_oxcovid19()
get_layer(con = con, ccode = "CHN", adm = 1)
```

get_metadata	<i>Get remote table metadata</i>
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Description

Get remote table metadata

Usage

```
get_metadata(x)
```

Arguments

x An object of class tbl_lazy produced by [get_table\(\)](#)

Value

A named list of remote table metadata

Author(s)

Ernest Guevarra

Examples

```
x <- get_table(con = connect_oxcovid19(), tbl_name = "epidemiology")
get_metadata(x)
```

get_table	<i>Get specified table from OxCOVID19 Database</i>
-----------	--

Description

Get specified table from OxCOVID19 Database

Usage

```
get_table(con, tbl_name)
```

```
get_tables(con, tbl_names)
```

Arguments

con	Connection to OxCOVID19 Database . This can be specified using the connect_oxcovid19() function.
tbl_name	Name of table available in OxCOVID19 Database . Should be one of the table names given by a call to list_tables() .
tbl_names	Name of tables available in OxCOVID19 Database . Should be a character vector of names of tables found in the table names given by a call to list_tables() .

Value

For [get_table\(\)](#), an RPostgres_tbl object of the specified **OxCOVID19 Database** table. For [get_tables\(\)](#), an RPostgres_tbl object containing a named list of the specified **OxCOVID19 Database** tables.

Author(s)

Ernest Guevarra

Examples

```
## Create a connection to OxCOVID19 Database
con <- connect_oxcovid19()

## Get epidemiology table
get_table(con = con, tbl_name = "epidemiology")

## Get epidemiology and weather tables
get_tables(con = con, tbl_names = c("epidemiology", "weather"))
```

list_fields	<i>List out field names of specific tables available from OxCOVID19 Database</i>
-------------	--

Description

List out field names of specific tables available from OxCOVID19 Database

Usage

```
list_fields(con = connect_oxcovid19(), tab = list_tables())
```

Arguments

con	A PqConnection class object specifying the PostgreSQL connection to OxCOVID19 Database . This is produced by <code>connect_oxcovid19()</code> function
tab	A character vector specifying table name/s to extract field names from. Must be a value included when a call to <code>list_tables()</code> is issued. Default is character vector of all table names specified by <code>list_tables()</code> .

Value

A named list of field names per specified table available from **OxCOVID19 Database**

Author(s)

Ernest Guevarra

Examples

```
list_fields()
```

list_tables	<i>List out names of tables available from OxCOVID19 Database</i>
-------------	---

Description

List out names of tables available from OxCOVID19 Database

Usage

```
list_tables(con = connect_oxcovid19())
```

Arguments

con A PqConnection class object specifying the PostgreSQL connection to **OxCOVID19 Database**. This is produced by [connect_oxcovid19\(\)](#) function

Value

A vector of table names available from **OxCOVID19 Database**

Author(s)

Ernest Guevarra

Examples

```
list_tables()
```

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