Package 'gtrendshealth'

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Type Package

Title Query the 'Google Trends for Health' API

Version 1.0.1

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Description Connects to the 'Google Trends for Health' API hosted at <https://trends.google.com/trends/>, allowing projects authorized to use the health research data to query 'Google Trends'.

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URL https://github.com/CDCgov/gtrendshealth

Imports utils, jsonlite, httr

Encoding UTF-8

Depends R (>= 4.1.0)

Suggests testthat (>= 3.0.0)

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BugReports https://github.com/CDCgov/gtrendshealth/issues

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NeedsCompilation no

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get_gt_api_key *Read the GOOGLE TRENDS FOR HEALTH API Key*

Description

This function will read your GOOGLE TRENDS FOR HEALTH API key from the environment variables. If you do not have an `.Renviron` file, the function will create one for you. If you already have an `.Renviron` file, the function will append the key to your existing file, while making a backup of your original file for recovery purposes.

Usage

```
get_gt_api_key(key = NULL)
```

Arguments

`key`	The API key from your Google Developer project authorized for Google Trends for Health API use, formatted in quotes. A key can be acquired by requesting access at https://support.google.com/trends/contact/trends_api and following the setup instructions.

Value

Returns the API key that is set in the GOOGLE_TRENDS_FOR_HEALTH_API_KEY environment variable.

Examples

```
tryCatch(
  get_gt_api_key(),
  error = function(e) cat("You need to set up a valid key")
)
```

get_health_trends *Query the Google Trends for Health API*

Description

For health research only, fetches a graph of search volumes per time within a set of restrictions. Each term will result in a timeline of search over time. Note the data is sampled and Google can't guarantee the accuracy of the numbers. This service is closed to a subset of Health researchers. The quota provision is individually maintained by the Trends team.

Usage

```
get_health_trends(
  terms,
  resolution,
  start,
  end,
  country = NULL,
  region = NULL,
  dma = NULL,
  key = get_gt_api_key(),
  wait = TRUE
)
```

Arguments

terms	Required. Search terms the user wishes to explore. Up to 30 queries can be sent. Term format can be either a query or entity (e.g. /m/0d2p9p) and can include ORs using '+' sign. Example: "/m/0d2p9p + /m/0nd4ffr + awesomeness" will return a combined timeline of the three terms (which obviously differs from "/m/0d2p9p, /m/0nd4ffr, awesomeness" that returns 3 different timelines.)
resolution	One of day, week, month, or year. Week is default for the API, but required here to protect the quotas.
start	A date object representing the start of the query period. The default for the API is 2004-01-01, but a value is required here.
end	A date object representing the start of the query period. The default for the API is today, but a value is required here.
country, region, dma	Only one field of GeoRestriction should be filled. Country format is ISO-3166-2 (2-letters), e.g. US. Region format is ISO-3166-2 (4-letters), e.g. US-NY (see more examples here: en.wikipedia.org/wiki/ISO_3166-2:US). DMA is nielsen dma id, e.g. 501 (support.google.com/richmedia/answer/2745487).
key	The API key from your Google Developer project authorized for Google Trends for Health API use, as a character. Defaults to using the API key set up for this package, if any. A key can be acquired by requesting access at https://support.google.com/trends/contact/trends_api and following the setup instructions.
wait	Wait before submitting the query, to protect the API quotas. The Google Trends for Gealth API is limited to 2 queries per second.

Value

A data.frame with one row per term and period, with the probability of the term being included in a search, for the specified geographic restriction and dates range. The probabilities are provided by the API as values multiplied by 1e7.

Examples

```
if(Sys.getenv("GOOGLE_TRENDS_FOR_HEALTH_API_KEY")==""){
  # Set up your API if not installed
  set_gt_api_key("<your-valid-api-key>")
}

# run this example if you have set up a valid API key
tryCatch({
  # Query the Google Trends for Health service
  monthly_trends <- get_health_trends(
    terms = "fever",
    resolution = "month",
    start = as.Date("2024-01-01"),
    end = as.Date("2024-12-31"),
    country = "US"
  )

  # set a date for each monthly observation
  # using the 15th of each month for the day
  monthly_trends$date <- as.Date(
    strptime(
      paste("15", monthly_trends$period),
       format = "%d %b %Y"
    )
  )

  print(monthly_trends)

  # Query the Google Trends for Health service
  daily_trends <- get_health_trends(
    terms = "fever",
    resolution = "day",
    start = as.Date("2024-01-01"),
    end = as.Date("2024-12-31"),
    country = "US"
  )

  head(daily_trends)

  # plot the time series
  plot(
    daily_trends$date, daily_trends$value, type = "l", col = "blue",
    xlab = "Date",
    ylab = "Value",
    main = "Daily and Monthly Trends for Fever"
  )
  lines(monthly_trends$date, monthly_trends$value, col = "red", lwd = 2)
  legend("topright", legend = c("Daily Trends", "Monthly Trends"),
    col = c("blue", "red"), lty = 1, lwd = c(1, 2))
}, error = function(e) cat("\nYou need to set up a valid API key")
)
```

`set_gt_api_key` *Set up a GOOGLE TRENDS FOR HEALTH API Key for Repeated Use*

Description

This function will set your GOOGLE TRENDS FOR HEALTH API key as an environment variable. If using `install = TRUE` then the key will also be saved to your `.Renviron` file so it can be called securely without being stored in your code. After you have installed your key, it can be called any time by typing `Sys.getenv("GOOGLE_TRENDS_FOR_HEALTH_API_KEY")` and can be used in package functions by simply typing GOOGLE_TRENDS_FOR_HEALTH_API_KEY If you do not have an `.Renviron` file, the function will create one for you. If you already have an `.Renviron` file, the function will append the key to your existing file, while making a backup of your original file for recovery purposes.

Usage

```
set_gt_api_key(key, overwrite = FALSE, install = FALSE, path = "HOME")
```

Arguments

`key`	The API key from your Google Developer project authorized for Google Trends for Health API use, formatted in quotes. A key can be acquired by requesting access at https://support.google.com/trends/contact/trends_api and following the setup instructions.
`overwrite`	If this is set to TRUE, it will overwrite an existing CENSUS_API_KEY that you already have in your `.Renviron` file.
`install`	if TRUE, will install the key in your `.Renviron` file for use in future sessions. Defaults to FALSE.
`path`	Path to install the API key into.

Value

Returns the API key that was saved to the GOOGLE_TRENDS_FOR_HEALTH_API_KEY environment variable. If `install = TRUE`, it saves the API key in the specified .Renviron file.

Examples

```
set_gt_api_key("111111abc", install = TRUE, path = tempdir())
# The first time, reload your environment so you can use the key without
# restarting R.
readRenviron("~/.Renviron")
# You can check it with:
Sys.getenv("GOOGLE_TRENDS_FOR_HEALTH_API_KEY")

# If you need to overwrite an existing key:
set_gt_api_key(
  "111111abc", overwrite = TRUE, install = TRUE, path = tempdir()
```

```
)
# The first time, reload your environment so you can use the key without
# restarting R.
readRenviron("~/.Renviron")
# You can check it with:
Sys.getenv("GOOGLE_TRENDS_FOR_HEALTH_API_KEY")

# clean up
unlink(
list.files(tempdir(), all.files = TRUE, full.names = TRUE, pattern = ".Renv")
)
```

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