Package 'PublicWorksFinanceIT'

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Title Soil Defense Investments in Italy: Data Retrieval, Analysis, Visualization

Version 0.3.1

Description Facilitates the retrieval and analysis of financial data related to public works in Italy, focusing on soil defense investments. It extracts data from 'OpenCoesione', 'OpenBDAP', and the 'ReNDiS' database, eliminating the need for direct access to these platforms.
The package boasts a user-friendly design, featuring real time updates and a set of functions tailored for data retrieval and visualization.
See the webpages for further information
<http://www.rendis.isprambiente.it/rendisweb/>,
<https://opencoesione.gov.it/en/>, and
<https://bdap-opendata.rgs.mef.gov.it/>.

Encoding UTF-8

Language EN

LazyData true

LazyDataCompression xz

Imports magrittr, dplyr, ggplot2, httr,leaflet,lubridate, rlang, rvest, scales, sf, tibble, tidyr, plotly, spdep, knitr

RoxygenNote 7.3.0

License GPL (>= 3)

Author Lorena Ricciotti [aut, cre] (<https://orcid.org/0009-0005-7774-3181>), Alessio Pollice [ths] (<https://orcid.org/0000-0002-2818-9373>)

Maintainer Lorena Ricciotti <lorena.ricciotti@uniba.it>

NeedsCompilation no

Repository CRAN

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Contents

`get_codes` *Download ISTAT codes for italian regions, provinces and municipalities.*

Description

get_codes allows to retrieve codes for regions, provinces, and municipality, filtering for the type of codes needed.

Usage

```
get_codes(type)
```

Arguments

`type`	character. The argument can be set to `region`, `province`, or `municipality` according to which codes are needed.

Value

a data.frame object

Author(s)

Lorena Ricciotti

Examples

```
data <- get_codes("region")
```

get_data_OBDAP *Retrieve financial data on public works from the OpenBDAP data base.*

Description

get_data_OBDAP function retrieves data from one or more Italian regions using ISTAT region codes. It allows filtering based on: municipality code, and the project's starting and/or ending dates. Additionally, it provides geospatial references.

Usage

```
get_data_OBDAP(
  cod_reg,
  cod_prov = NULL,
  cod_mun = NULL,
  start = NULL,
  end = NULL,
  geo_ref = NULL,
  soil_defense = FALSE,
  verbose = TRUE
)
```

Arguments

cod_reg	character vector. The ISTAT regional code is used to specify one or more regions of interest when retrieving data. (See get_codes function)
cod_prov	character vector. The ISTAT province code is used to specify one or more provinces of interest when retrieving data. (See get_codes function)
cod_mun	character vector The ISTAT municipal code is used to specify one or more municipalities of interest when retrieving data. (See get_codes function)
start	character (format YYYY-mm-dd). Effective starting date of design refers to the specific phase of a public project that marks the beginning of its design process. This date can be of interest for filtering and analyzing relevant data.
end	character (format YYYY-mm-dd). Effective ending date of design refers to the specific phase of a public project that marks the conclusion of its design process. This date can be of interest for filtering and analyzing relevant data.
geo_ref	character. The georeference data can be specified using the geo_ref argument. If set to A, the function returns shape polygons of each municipality. If set to C, it retrieves the coordinates of the centroids of each municipality.
soil_defense	logical. By default set to FALSE. If only soil defense data are of interest set the argument to TRUE.
verbose	Logic value (TRUE or FALSE). Toggle warnings and messages. If 'verbose = TRUE' (default) the function prints on the screen some messages describing the progress of the tasks. If 'verbose = FALSE' any message about the progression is suppressed.

Value

Object of class `data.frame` showing 22 variables.Descriptive Variables:

- Local Project Code (`character`)
- CUP (`character`)
- Intervention (`character`)

Financial Variables:

- State Funding (`numeric`)
- EU Funding (`numeric`)
- Local Authorities Funding (`numeric`)
- Private Funding (`numeric`)
- Other Funding (`numeric`)

Geographical References:

- DEN_REGION (`character`)
- DEN_PROVINCE (`character`)
- DEN_MUNICIPALITY (`character`)
- COD_REGION (`character`)
- COD_PROVINCE (`character`)
- COD_MUNICIPALITY (`character`)
- geom (`character`)

Legislative process main steps:

- Executive Design Starting Date (`character`)
- Executive Design Ending Date (`character`)
- Works Execution Starting Date (`character`)
- Works Execution Ending Date (`character`)
- Conclusion Starting Date (`character`)
- Conclusion Ending Date (`character`)
- Operability (`character`)

Author(s)

Lorena Ricciotti

References

Open BDAP

Examples

```
data <- get_data_OBDAP("14")
# Retrieve data for one region filtering for soil defense interventions.
```

get_data_region_OC *Retrieve data from the OpenCoesione data base per region.*

Description

The get_data_region_OC function retrieves data from one or more Italian regions using associated region codes. It offers filtering options based on project start/end dates, province, and municipality codes. Additionally, it provides geospatial references.

Usage

```
get_data_region_OC(
  cod_reg,
  cod_prov = NULL,
  cod_mun = NULL,
  start = NULL,
  end = NULL,
  geo_ref = NULL,
  soil_defense = FALSE,
  verbose = TRUE
)
```

Arguments

cod_reg	character. Vector specifying one or more region of interest. To get information about the codes associated to each region use the function get_info_OC
cod_prov	character. The ISTAT province code is used to filter data based on one or more specific provinces of interest.(See get_codes function)
cod_mun	character. The ISTAT municipality code is used to filter data based on one or more specific provinces of interest.(See get_codes function)
start	(format YYYY-mm-dd). Effective starting date of the project. This date can be of interest for filtering and analyzing relevant data.
end	(format YYYY-mm-dd). Effective ending date of the project. This date can be of interest for filtering and analyzing relevant data.
geo_ref	character, The georeference data can be specified using the geo_ref argument. If set to A, the function returns shape polygons of each municipality. If set to C, it retrieves the coordinates of the centroids of each municipality.
soil_defense	Logical. By default set to FALSE. If only soil defense data are of interest set the argument to TRUE.
verbose	Logic value (TRUE or FALSE). Toggle warnings and messages. If 'verbose = TRUE' (default) the function prints on the screen some messages describing the progress of the tasks. If 'verbose = FALSE' any message about the progression is suppressed.

Value

Object of classe `data.frame` showing 42 variables: Descriptive Variables:

- Local Project Code (`character`)
- CUP (`character`)
- Intervention (`character`)

Financial Variables:

- EU Funding (`numeric`)
- FESR EU Funding (`numeric`)
- FSE EU Funding (`numeric`)
- FEASR EU Funding (`numeric`)
- FEAMP EU Funding (`numeric`)
- IOG EU Funding (`numeric`)
- Fondo di Rotazione ITA (`numeric`)
- FSC ITA Funding (`numeric`)
- PAC ITA Funding (`numeric`)
- Completamenti ITA Funding (`numeric`)
- Other Measures ITA Funding (`numeric`)
- Region Funding (`numeric`)
- Province Funding (`numeric`)
- Municipality Funding (`numeric`)
- Released Resources (`numeric`)
- Other Public Funding (`numeric`)
- Foreign State Funding (`numeric`)
- Private Funding (`numeric`)
- Total Public Funding (`numeric`)
- Total Funding (`numeric`)

Geographical References:

- DEN_REGION (`character`)
- DEN_PROVINCE (`character`)
- DEN_MUNICIPALITY (`character`)
- COD_REGION (`character`)
- COD_PROVINCE (`character`)
- COD_MUNICIPALITY (`character`)
- geom (`character`)

Legislative process main steps:

- Feasibility Study Starting Date (character)
- Feasibility Study Ending Date (character)
- Preliminary Design Starting Date (character)
- Preliminary Design Ending Date (character)
- Definitive Design Starting Date (character)
- Definitive Design Ending Date (character)
- Executive Design Starting Date (character)
- Executive Design Ending Date (character)
- Effective Design Starting Date (character)
- Effective Design Ending Date (character)
- Works Execution Starting Date (character)
- Works Execution Ending Date (character)
- Conclusion Starting Date (character)
- Conclusion Ending Date (character)

Author(s)

Lorena Ricciotti

References

Open Coesione

Examples

```
dati_VDA <- get_data_region_OC("VDA", cod_mun = "007002")
# #Retrieving data for the municipality with code 007002 in the Valle d'Aosta region.
```

`get_data_RENDIS` *Retrieve data from the ReNDiS database on soil defense public works.*

Description

The `get_data_RENDIS` function enables the retrieval of data from one or more region or type of intervention using associated codes. It allows filtering based on: municipality code, and the project's starting and/or ending dates. Additionally, it provides geospatial references.

Usage

```
get_data_RENDIS(
  cod_reg,
  cod_prov = NULL,
  cod_mun = NULL,
  start = NULL,
  end = NULL,
  type = NULL,
  geo_ref = NULL
)
```

Arguments

cod_reg	character. The ISTAT regional code is used to filter data based on one or more specific regions of interest. (See get_codes function)
cod_prov	character. The ISTAT province code is used to specify one or more provinces of interest within the region(s) of interest. (See get_codes function)
cod_mun	character. The ISTAT municipality code is used to specify one or more municipalities of interest within the region(s) of interest. (See get_codes function)
start	character (format YYYY-mm-dd). Effective starting date of design refers to the specific phase of a public project that marks the beginning of its design process. This date can be of interest for filtering and analyzing relevant data.
end	character (format YYYY-mm-dd). Effective ending date of design refers to the specific phase of a public project that marks the conclusion of its design process. This date can be of interest for filtering and analyzing relevant data.
type	character. a character string on which type of intervetion data needs to be retrieved. To get information about type see get_type_RENDIS function.
geo_ref	character. The georeference data can be specified using the geo_ref argument. If set to A, the function returns shape polygons of each municipality. If set to C, it retrieves the coordinates of the centroids of each municipality.

Value

Object of class tbl_df, tbl, data.frame showing 25 variables. Descriptive Variables:

- CUP (character)
- Intervention (character)
- Type (character)

Financial Variable:

- Finance (numeric)

Geographical References:

- DEN_REGION (character)
- DEN_PROVINCE (character)

- DEN_MUNICIPALITY (character)
- COD_REGION (character)
- COD_PROVINCE (character)
- COD_MUNICIPALITY (character)
- geom (character)

Legislative process main steps:

- Feasibility Study Starting Date (character)
- Feasibility Study Ending Date (character)
- Preliminary Design Starting Date (character)
- Preliminary Design Ending Date (character)
- Definitive Design Starting Date (character)
- Definitive Design Ending Date (character)
- Executive Design Starting Date (character)
- Executive Design Ending Date (character)
- Works Execution Starting Date (character)
- Works Execution Ending Date (character)
- Conclusion Starting Date (character)
- Conclusion Ending Date (character)
- Intervention Closed (character)
- Operability (character)

Author(s)

Lorena Ricciotti

References

ReNDiS

Examples

```
data_12 <- get_data_RENDIS("12", cod_prov = c("258", "059"), geo_ref = "C")
#Data for the Lazio region filtering for Rome and Latina provinces with point georeferences.
```

get_data_theme_OC *Retrieve Data from OpenCoesione Database by Theme's Project*

Description

The get_data_theme_OC function allows users to fetch data from the OpenCoesione database based on specific themes related to projects.

Usage

```
get_data_theme_OC(
  themes,
  cod_reg = NULL,
  cod_prov = NULL,
  cod_mun = NULL,
  start = NULL,
  end = NULL,
  geo_ref = NULL,
  soil_defense = FALSE,
  verbose = TRUE
)
```

Arguments

themes	character. Vector specifying one or more theme of interest. To get information about the codes associated to each theme use the function get_info_OC.
cod_reg	character. The ISTAT regional code is used to filter data based on one or more specific regions of interest. (See get_codes function)
cod_prov	character. The ISTAT province code is used to filter data based on one or more specific provinces of interest. (See get_codes function)
cod_mun	character. The ISTAT municipality code is used to specify one or more municipalities of interest within the region(s) of interest. (See get_codes function)
start	character (format YYYY-mm-dd). Effective starting date of the project. This date can be of interest for filtering and analyzing relevant data.
end	character (format YYYY-mm-dd). Effective ending date of the project. This date can be of interest for filtering and analyzing relevant data.
geo_ref	character. The georeference data can be specified using the geo_ref argument. If set to A, the function returns shape polygons of each municipality. If set to C, it retrieves the coordinates of the centroids of each municipality.
soil_defense	Logical, default set to FALSE. If only soil defense data are of interest set the argument to TRUE.
verbose	Logic value (TRUE or FALSE). Toggle warnings and messages. If 'verbose = TRUE' (default) the function prints on the screen some messages describing the progress of the tasks. If 'verbose = FALSE' any message about the progression is suppressed.

Value

Object of classe `data.frame` showing 42 variables: Descriptive Variables:

- Local Project Code (`character`)
- CUP (`character`)
- Intervention (`character`)

Financial Variable:

- EU Funding (`numeric`)
- FESR EU Funding (`numeric`)
- FSE EU Funding (`numeric`)
- FEASR EU Funding (`numeric`)
- FEAMP EU Funding (`numeric`)
- IOG EU Funding (`numeric`)
- Fondo di Rotazione ITA (`numeric`)
- FSC ITA Funding (`numeric`)
- PAC ITA Funding (`numeric`)
- Completamenti ITA Funding (`numeric`)
- Other Measures ITA Funding (`numeric`)
- Region Funding (`numeric`)
- Province Funding (`numeric`)
- Municipality Funding (`numeric`)
- Released Resources (`logic`)
- Other Public Funding (`numeric`)
- Foreign State Funding (`numeric`)
- Private Funding (`numeric`)
- Total Public Funding (`numeric`)
- Total Funding (`numeric`)

Geographical References:

- DEN_MUNICIPALITY (`character`)
- DEN_REGION (`character`)
- DEN_PROVINCE (`character`)
- COD_REGION (`character`)
- COD_PROVINCE (`character`)
- COD_MUNICIPALITY (`character`)
- geom (`character`)

Legislative process main steps:

- Feasibility Study Starting Date (integer)
- Feasibility Study Ending Date (integer)
- Preliminary Design Starting Date (integer)
- Preliminary Design Ending Date (integer)
- Definitive Design Starting Date (integer)
- Definitive Design Ending Date (integer)
- Executive Design Starting Date (integer)
- Executive Design Ending Date (integer)
- Works Execution Starting Date (integer)
- Works Execution Ending Date (integer)
- Conclusion Starting Date (character)
- Conclusion Ending Date (character)

Author(s)

Lorena Ricciotti

References

Open Coesione

Examples

```
data <- get_data_theme_OC("AMBIENTE", start = "2022-01-01", end = "2022-12-31")
```

`get_info_OC` *Retrieve information about regional and theme codes for the Open Coesione dataset.*

Description

The `get_info_OC` function allows to get information regarding the codes to use to retrieve data from the Open Coesione database.

Usage

```
get_info_OC(info)
```

Arguments

`info`	character. The argument can be set to `"region"` if the data to be downloaded are based on regional codes, or it can be set to `"theme"` if the data to be downloaded are based on project's theme.

Details

The information obtained can be used in the functions `get_data_OC` or `get_theme_OC`

Value

Return a vector of characters. Regions:

- VDA => Valle d'Aosta
- PIE => Piemonte
- LOM => Lombardia
- TN_BZ => Trentino Alto Adige (Bolzano)
- VEN => Veneto
- FVG => Friuli di Venezia Giulia
- LIG => Liguria
- EMR => Emilia Romagna
- TOS => Toscana
- UMB => Umbria
- MAR => Marche
- LAZ => Lazio
- ABR => Abruzzo
- CAM => Campania
- MOL => Molise
- PUG => Puglia
- CAL => Calabria
- BAS => Basilicata
- SIC => Sicilia
- SAR => Sardegna
- NAZ => National Level
- EST => Estero (Abroad)

Themes:

- RICERCA_INNOVAZIONE => Research and Innovation
- RETI_SERVIZI_DIGITALI => Digital Services
- COMPETITIVITA_IMPRESE => Firms Competition
- ENERGIA => Energy
- AMBIENTE => Environment
- CULTURA_TURISMO => Culture and Tourism
- TRASPORTI" => Transports
- OCCUPAZIONE => Employment
- INCLUSIONE_SOCIALE_SALUTE => Social Inclusion and Health
- ISTRUZIONE_FORMAZIONE => Education
- CAPACITA_AMMINISTRATIVA => Administrative Capacity

Author(s)

Lorena Ricciotti

References

Open Coesione

Examples

```
get_info_OC("region")
```

`get_type_RENDIS` *Retrieve information about soil defense type of the ReNDiS database*

Description

The `get_type_RENDIS` function returns the list of type of interventions for soil defense contained in the ReNDiS database.

Usage

```
get_type_RENDIS()
```

Value

Return an object of class `data.frame`

Types:

- Frana => Landslide
- Non definito => Not defined
- Alluvione => Flooding
- Misto => Mixed
- Valanga => Avalanche
- Incendio => Wildfire
- Costiero => Coastal

Author(s)

Lorena Ricciotti

References

ReNDiS

Examples

```
get_type_RENDIS()
```

`merge_data` *Merging the three financial datasets*

Description

Function to merge the three financial datasets from the three different platforms to obtain a complete dataset to have a comprhensive overview of the investements.

Usage

```
merge_data(data_RENDIS, data_OBDAP, data_OC)
```

Arguments

`data_RENDIS`	Dataset of class 'data.frame'. Specify the dataset obtained from the ReNDiS database by the `get_data_RENDIS` function.
`data_OBDAP`	Dataset of class 'data.frame'. Specify the dataset obtained from the OpenBDAP database by the `get_data_OBDAP` function.
`data_OC`	Dataset of class 'data.frame'. Specify the dataset obtained from the OpenCoesione database by the `get_data_region_OC` or `get_data_theme_OC` function.

Value

Object of class `data.frame` showing 28 variables:

Descriptive Variables:

- CUP (`character`)
- Intervention (`character`)
- Source (`character`)

Financial Variables:

- State Funding (`numeric`)
- EU Funding (`numeric`)
- Local Authorities Funding (`numeric`)
- Private Funding (`numeric`)
- Other Funding (`numeric`)
- Finance (`numeric`)

Geographical References:

- DEN_REGION (`character`)

- DEN_PROVINCE (character)
- DEN_MUNICIPALITY (character)
- COD_REGION (character)
- COD_PROVINCE (character)
- COD_MUNICIPALITY (character)
- geom (character)

Legislative process main steps:

- Feasibility Study Starting Date (character)
- Feasibility Study Ending Date (character)
- Preliminary Design Starting Date (character)
- Preliminary Design Ending Date (character)
- Definitive Design Starting Date (character)
- Definitive Design Ending Date (character)
- Executive Design Starting Date (character)
- Executive Design Ending Date (character)
- Works Execution Starting Date (character)
- Works Execution Ending Date (character)
- Conclusion Starting Date (character)
- Conclusion Ending Date (character)

Author(s)

Lorena Ricciotti

Examples

```
data(OCpoint)
data(OBDAPpoint)
data(RENDISpoint)
data_all <- merge_data(RENDISpoint, OBDAPpoint, OCpoint)
```

OBDAPpoint *Soil Defense Public Work for the Molise.*

Description

Dataset collecting data about soil defense public works in the Molise region retrieved from the Open BDAP repository. Data are georeferenced with point coordinates.

Usage

```
data("OBDAPpoint")
```

Format

A data frame with 722 observations on the following 22 variables.

`LocalProjectCode` a character vector

`CUP` a character vector

`Intervention` a character vector

`EffectiveDesignStartingDate` a character vector

`EffectiveDesignEndingDate` a character vector

`WorksExecutionStartingDate` a character vector

`WorksExecutionEndingDate` a character vector

`ConclusionStartingDate` a character vector

`ConclusionEndingDate` a character vector

`Operability` a character vector

`StateFunding` a numeric vector

`EuFunding` a numeric vector

`LocalAuthoritiesFunding` a numeric vector

`PrivateFunding` a numeric vector

`OtherFunding` a numeric vector

`COD_MUNICIPALITY` a character vector

`COD_PROVINCE` a character vector

`COD_REGION` a character vector

`DEN_MUNICIPALITY` a character vector

`DEN_PROVINCE` a character vector

`DEN_REGION` a character vector

`geom` a character vector

Details

Dataset is obtained using the `get_data_OBDAP` function.

Source

https://openbdap.rgs.mef.gov.it/

Examples

```
data(OBDAPpoint)
```

OCpoint *Soil Defense Public works for the Umbria Region*

Description

Dataset collecting data about soil defense public works in the Umbria region retrieved from the Open Coesione repository. Data are georeferenced with point coordinates.

Usage

```
data("OCpoint")
```

Format

A data frame with 82 observations on the following 44 variables.

`LocalProjectCode` a character vector

`CUP` a character vector

`Intervention` a character vector

`COD_REGION` a character vector

`DEN_REGION` a character vector

`COD_PROVINCE` a character vector

`DEN_PROVINCE` a character vector

`COD_MUNICIPALITY` a character vector

`DEN_MUNICIPALITY` a character vector

`EuFunding` a numeric vector

`FESR_EuFunding` a numeric vector

`FSE_EuFunding` a numeric vector

`FEASR_EuFunding` a numeric vector

`FEAMP_EuFunding` a numeric vector

`IOG_EuFunding` a numeric vector

`FondoDiRotazioneITA` a numeric vector

`FSC_FundingITA` a numeric vector

`PAC_FundingITA` a numeric vector

`CompletamentiFunding_ITA` a numeric vector

`OtherMeasuresFundingITA` a numeric vector

`RegionFunding` a numeric vector

`ProvinceFunding` a numeric vector

`MunicipalityFunding` a numeric vector

`ReleasedResources` a logical vector

`OtherPublicFunding` a numeric vector

`ForeignStateFunding` a logical vector

`PrivateFunding` a numeric vector

`TotalPublicFunding` a numeric vector

`TotalFunding` a numeric vector

`FeasibilityStudyStartingDate` a character vector

`FeasibilityStudyEndingDate` a character vector

`PreliminaryDesignStartingDate` a character vector

`PreliminaryDesignEndingDate` a character vector

`DefinitiveDesignStartingDate` a character vector

`DefinitiveDesignEndingDate` a character vector

`ExecutiveDesignStartingDate` a character vector

`ExecutiveDesignEndingDate` a character vector

`EffectiveDesignStartingDate` a character vector

`EffectiveDesignEndingDate` a character vector

`WorksExecutionStartingDate` a character vector

`WorksExecutionEndingDate` a character vector

`ConclusionStartingDate` a character vector

`ConclusionEndingDate` a character vector

`geom` a character vector

Details

Dataset is obtained using the `get_data_region_OC` function.

Source

https://opencoesione.gov.it/it/

Examples

```
data(OCpoint)
```

plot_funds_bar — *Repartition of Financial Funds Allocation: Investment Amounts Barplot*

Description

The plot_funds_bar function creates a barplot to visually represent the distribution of financial funds allocation across different investment channels.

Usage

```
plot_funds_bar(data, var_col)
```

Arguments

data	Dataset of class 'data.frame'. Specify the dataset from which to take information.
var_col	integer value. Specify the number of the columns associated with the variable to visualize.

Value

An object of class gg and ggplot representing the barplot

Author(s)

Lorena Ricciotti

Examples

```
data(OCpoint)
plot_funds_bar(OCpoint, var_col = c(10:15))
#Barplot visualizing the total amount allocated by each fund.
```

plot_funds_map — *Visual representation by mapping municipalities' polygons and color-coding them according to financial expenditures.*

Description

The plot_funds_map function is designed for visualizing areal data within a region. It generates an informative map where each municipality is represented with a unique color determined by its corresponding financing amount.

Usage

```
plot_funds_map(data, var)
```

Arguments

data	dataset of class 'data.frame'. Specify the dataset from which to take information. The dataset must contain the geometry of the polygons of each municipality.
var	character. Specify the name of the variable to visualize.

Value

Return ggplot object representing an interactive map.

Author(s)

Lorena Ricciotti

Examples

```
#Retrieve data with the polygons of the municipalities
RENDISarea <- get_data_RENDIS("12", geo_ref = "A")
plot_funds_map(RENDISarea, var = "Finance")

#Plotting the map for Lazio region to visualize the total public
#expenditure divided by municipality.
```

---

plot_funds_points *Visualization of point data.*

Description

The plot_funds_points function is designed for visualizing maps of centroids for municipalities using point data. The map colors are determined by the financing amount, and the radius of each point is proportional to the corresponding financing amount.

Usage

```
plot_funds_points(data, var)
```

Arguments

data	Dataset of class 'data.frame' containing the information about the coordinates of municipalities. Data can be retrieved from all the retrieval functions using the geo_ref = "C" argument.
var	character. Specify the variable to visualize.

Value

Return a leaflet object representing an interactive map of centroids of muicipalities.

Author(s)

Lorena Ricciotti

Examples

```
data(RENDISpoint)
plot_funds_points(RENDISpoint, var = "Finance")
#Plotting the points of each municipality of the Basilicata region using the leaflet function.
```

---

plot_prop_NA *Visual representation of NAs proportion over space and time*

Description

The function allows to visualize spatial proportion of NAs and temporal proportion of NAs.

Usage

```
plot_prop_NA(data, variable, time = FALSE, interactive = FALSE, bar = FALSE, map = FALSE)
```

Arguments

data	Dataset of class 'data.frame'. Specify the dataset obtained from the retrieving and the merge_data functions.
variable	character. Specify the name of the variable for which to obtain the NAs proportion.
time	Logical. By default set to FALSE. If the temporal proportion of NAs is required set the argument to TRUE.
interactive	Logical. By default set to FALSE. If interactive plot set the argument to TRUE.
bar	Logical. By default set to FALSE. If set to TRUE a bar plot will be showed.
map	Logical. By default set to FALSE. If set to TRUE a map will be showed.

Value

Object of class gg, ggplot

Author(s)

Lorena Ricciotti

RENDISpoint *Soil Defense Public Works for the Basilicata Region.*

Description

Dataset collecting data about soil defense public works in the Basilicata region retrieved from the ReNDiS repository. Data are georeferenced with point coordinates.

Usage

```
data("RENDISpoint")
```

Format

A data frame with 210 observations on the following 27 variables.

`CUP` a character vector

`Intervention` a character vector

`Type` a character vector

`Finance` a numeric vector

`DEN_MUNICIPALITY` a character vector

`DEN_REGION` a character vector

`COD_REGION` a character vector

`COD_MUNICIPALITY` a character vector

`COD_PROVINCE` a character vector

`DEN_PROVINCE` a character vector

`FeasibilityStudyStartingDate` a character vector

`FeasibilityStudyEndingDate` a character vector

`PreliminaryDesignStartingDate` a character vector

`PreliminaryDesignEndingDate` a character vector

`DefinitiveDesignStartingDate` a character vector

`DefinitiveDesignEndingDate` a character vector

`ExecutiveDesignStartingDate` a character vector

`ExecutiveDesignEndingDate` a character vector

`EffectiveDesignStartingDate` a character vector

`EffectiveDesignEndingDate` a character vector

`WorksExecutionStartingDate` a character vector

`WorksExecutionEndingDate` a character vector

`ConclusionStartingDate` a character vector

`ConclusionEndingDate` a character vector

`InterventionClosed` a character vector

`Operability` a character vector

`geom` a character vector

Details

Dataset is obtained using the get_data_RENDIS function.

Source

http://www.rendis.isprambiente.it/rendisweb/

Examples

```
data(RENDISpoint)
```

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summary_stat *Returns summary statistics of Financial variables*

Description

The function allows to obtain summary statistics for financial variables. Mean and standard deviation are computed by default. If requested spatial autocorrelation is computed through the Moran test.

Usage

```
summary_stat(
data,
corr = FALSE,
variable,
d1,
d2,
plot = FALSE)
```

Arguments

data	Dataset of class 'data.frame'. Specify the dataset obtained from the retrieving and the merge_data functions.
corr	Logical. By default set to FALSE. If spatial autocorrelation is of interest set to TRUE. To compute the spatial autocorrelation point geometries are required.
variable	Character. Specify the name of the variable for which to obtain the spatial autocorrelation.
d1	See dnearneigh function for details.
d2	See dnearneigh function for details.
plot	Logical. By default set to FALSE. If Moran plot for spatial autocorrelation is of interest set the argument to TRUE.

Value

A list with class list containing the following components:

`variable`	the names of the financial variables
`mean`	the value of the mean for each financial variable
`sd`	the value of the standard deviation for each financial variables
`moran.test`	list containing the results of the `moran.test` function

Author(s)

Lorena Ricciotti

References

Moran, Patrick AP (1950). "A test for the serial independence of residuals." Biometrika, 37(1/2), 178–181. JSTOR.

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