Package 'sweidnumbr'

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Type Package

Title Handling of Swedish Identity Numbers

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Description Structural handling of identity numbers used in the Swedish administration such as personal identity numbers ('personnummer') and organizational identity numbers ('organisationsnummer').

VignetteBuilder rmarkdown, knitr

URL https://github.com/rOpenGov/sweidnumbr, http://ropengov.github.io/sweidnumbr/

BugReports https://github.com/rOpenGov/sweidnumbr/issues

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Depends R (>= 3.2)

Encoding UTF-8

Imports lubridate (>= 1.5), stringr, checkmate

Suggests testthat (>= 1.0.0), rmarkdown, knitr

LazyData true

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NeedsCompilation no

Repository CRAN

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R topics documented:

`as.oin` *Parse organizational identity numbers*

Description

Check and convert a vector of organizational identity numbers.

Usage

```
as.oin(oin)
```

Arguments

`oin`	Vector with swedish organizational identity numbers in character format. See details.

Details

The following format is accepted:

- character: `GNNNNN-NNNC`

Value

Character vector (of class `oin` and `AsIs`) with swedish organizational identity numbers.

References

Lag (1974:174) om identitetsbeteckning for juridiska personer m.fl.

Examples

```
ex_oin <- c("556000-4615", "232100-0156", "802002-4280", "8020024280", "AA2002-4280")
as.oin(ex_oin)
```

`as.pin` *Parse personal identity numbers to ABS format*

Description

`as.pin` Converts personal identity numbers of different formats to standard (ABS) pin format `YYYYMMDDNNNC` where `YYYYMMDD` is the date of birth, `NNN` is the birth number and `C` is the control number. `is.pin` checks wether an R object is of class "pin".

Usage

```
as.pin(pin)

is.pin(pin)
```

Arguments

`pin`	Vector with swedish personal identity numbers in character or numeric format. See details.

Details

`as.pin` converts different formats of swedish personal identity numbers to the standard ABS format. The formats that can be converted are:

- numeric: `YYYYMMDDNNNC`
- numeric: `YYMMDDNNNC` (assuming < 100 years of age)
- character: `"YYYYMMDDNNNC"`
- character: `"YYMMDD-NNNC"`, `"YYMMDD+NNNC"`
- character: `"YYYYMMDD-NNNC"`
- character: `"YYMMDDNNNC"` (assuming < 100 years of age)

(where "C" can be substituted by characters "A", "T" or "X" if "YYYY" < 1967).

Value

`as.pin` returns a vector of class "pin" (with additional classes "AsIs" and character) with swedish personal identity numbers with standard ABS format `"YYYYMMDDNNNC"`. `is.pin` returns `TRUE` if `pin` is of class "pin", otherwise `FALSE`.

References

- Skatteverket, *Population registration in Sweden*, SKV 717B (2007)
- Skatteverket, *Personnummer*, SKV 704 (2007)
- SOU 2008:60 : Personnummer och samordningsnummer (2008)
- *Personnummer: information fran Centrala folkbokförings- och uppbördsnämnden.* (1967). Stockholm
- *Den svenska folkbokföringens historia under tre sekel.* (1982). Solna: Riksskatteverket URL

Examples

```
# Examples taken from SKV 704 (see references)
ex_pin1 <- c("196408233234", "640823-3234", "19640823-3234")
as.pin(pin = ex_pin1)
ex_pin2 <- c("6408233234")
as.pin(ex_pin2)
ex_pin3 <- c(6408233234, 196408233234)
as.pin(ex_pin3)
ex_pin4 <-rep(c("20121209-0122", "201212090122", "121209-0122", "1212090122"),250)
as.pin(ex_pin4)
ex_pin5 <-c("205012090122", "186512090122", "121209-0122", "121209-012A")
as.pin(pin = ex_pin5)
pin <-c("201212090122", "201212090122", "121209-0122", "1212090122")

ex_pin <- rpin(3)
is.pin(ex_pin)

ex_pin_char <- as.character(ex_pin)
is.pin(ex_pin_char)
```

---

fake_pins *Fake personal identity numbers and names*

Description

Data set with fake personal identity numbers and names to use as example.

Format

A data frame with 62 rows and 2 variables:

pin Personal identification number, as character

name Fictional Swedish names

format_pin *Formatting pin*

Description

Format pin for pretty printing

Usage

```
format_pin(x, format. = "%Y%m%d%N", ...)
```

Arguments

x	vector of class "pin" (see as.pin) or a vector that can be coerced to such
format.	character string specifying the output format. %N is used as a reference for the last four digits of the pin. Format of the date is handled via strptime. ("%Y%m%d%N" by default). %P is an available shorthand for "(%C) %y-%m-%d - %N", a format aimed for maximal readability when used in long lists
...	arguments passed to format.Date

Value

character vector of same length as x

Examples

```
x <- as.pin(fake_pins$pin[1:10])

# Separate elements with hyphens:
format_pin(x, "%Y-%m-%d-%N")


# Separate even further
format_pin(x, "%C-%y-%m-%d-%N")

# The special P-format for maximal readability
format_pin(x, "%P")

# A custom representation
format_pin(x, "Borned %d of %B in %Y (a %A in week %U) with suffix no: %N")

# Extract only the year
format_pin(x, "%Y")
```

is.oin *Test if a character vector contains correct* oin

Description

Test which elements in a text vector that contains organization identity number.

Usage

```
is.oin(oin)
```

Arguments

oin	Character vector to be tested if it is an oin of the right format.

Value

Logical vector indicating if the elements can be an organization identity number.

Examples

```
ex_oin <- roin(3)
is.oin(ex_oin)

ex_oin_char <- as.character(ex_oin)
is.oin(ex_oin_char)
```

luhn_algo *The Luhn algorithm*

Description

Calculates the control number for a Swedish personal/organisational identity number using the Luhn algorithm.

Usage

```
luhn_algo(id, multiplier)
```

Arguments

id	Element with swedish personal identity number.
multiplier	What should each element in id be multiplied with

Value

The control number (last digit in the personal identification number) calculated from `id` (as integer).

References

- Luhn Algorithm.
- Skatteverket, *Population registration in Sweden*. SKV 717B. (2007)
- Skatteverket, *Personnummer*. SKV 704. (2007)

Examples

```
luhn_algo("121212121212", c(0,0,2,1,2,1,2,1,2,1,2,0))
luhn_algo(  "121212121",  c(      2,1,2,1,2,1,2,1,2))

## If no multiplier, the default is
## to find one that match the format of id
luhn_algo("121212121212")
luhn_algo("12121212121")
luhn_algo("1212121212")
luhn_algo("121212121")

## Also for multiple pin
## (as long they are all of the same format)
luhn_algo(c("12121212121", "19850504333"))
## Not run:
try(luhn_algo(c("12121212121", "850504333"))) ## Different formats should fail!

## End(Not run)
```

`oin_ctrl` *Check the control numbers for* `oin`

Description

Calculates the control number using the Luhn algorithm and compare it with the control number in the organization identity number (oin).

Usage

```
oin_ctrl(oin, force_logical = FALSE)
```

Arguments

`oin`	A vector of class `oin`. See as.oin.
`force_logical`	If TRUE, force all NA in oin to be FALSE. Default is FALSE.

Value

Logical vector indicating if a oin is correct (TRUE) or not (FALSE)

References

Organisationsnummer Skatteverket

Examples

```
ex_oin <- c("556000-4615", "232100-0156", "802002-4280", "232100-0157", "802002-4281")
oin_ctrl(ex_oin)
```

---

oin_group *Calculate organization group from* oin

Description

Calculates the organization group from the organization number.

Usage

```
oin_group(oin)
```

Arguments

oin	A vector of class oin. See as.oin.

Value

Factor with organization categories.

References

Organisationsnummer Skatteverket

Examples

```
ex_oin <- c("556000-4615", "232100-0156", "802002-4280")
oin_group(ex_oin)
```

pin_age *Calculate age of* pin *for a given date*

Description

Calculate the age in full years for a given date.

Usage

```
pin_age(pin, date = Sys.Date(), timespan = "years", verbose = TRUE)
```

Arguments

pin	A vector of class pin. See as.pin.
date	Date at which age is calculated. If a vector is provided it must be of the same length as the pin argument.
timespan	Timespan to use to calculate age. The actual timespans are: • years (Default) • months • weeks • days
verbose	Should messages be printed? Default is TRUE.

Value

Age as an integer vector.

References

- Skatteverket, *Personnummer*. SKV 704. (2007)

Examples

```
# Example with someone born today
today_pin <-
  paste(paste(unlist(strsplit(as.character(Sys.Date()),split = "-")), collapse = ""),
        "0000",sep="")
pin_age(today_pin)

# Examples taken from SKV 704 (see references)
ex_pin <- c("196408233234", "186408833224")
pin_age(ex_pin, date = "2012-01-01")
```

`pin_birthplace` *Calculate the birthplace of* `pin`

Description

Calculate the birthplace for a given personal identity number born before 1990. See details.

Usage

```
pin_birthplace(pin)
```

Arguments

`pin`	A vector of class `pin`. See as.pin.

Details

It is possible to calculate where people where born (and/or if a person has immigrated) through their personal identity number. This is possible for people that was born before 1990 and after 1945.

For people born before 1946 the birthplace identifier contains information on where one where registered the 1st of november 1946.

Personal identity numbers for people born after 1989 do not contain any information on birthplace.

During the period 1946 - 1989 the pin also contains information on whether one has immigrated to Sweden during the period.

Value

Birthplace as factor.

References

SOU 2008:60 : Personnummer och samordningsnummer

Examples

```
# Example with someone born today and from SKV 704 (see references)
today_pin <- paste0(format(Sys.Date(),"%Y%m%d"), "0000")
ex_pin <- c("196408233234", today_pin)
pin_birthplace(ex_pin)
```

pin_coordn *Check if* pin *is a coordination number*

Description

Calculate if the personal identity number is a coordination number.

Usage

```
pin_coordn(pin)
```

Arguments

pin	A vector of class pin. See as.pin.

Value

Logical vector indicating if the pin is a coordination number (TRUE) or pin (FALSE).

References

- Skatteverket, *Population registration in Sweden*. SKV 717B. (2007)
- Skatteverket, *Personnummer*. SKV 704. (2007) SOU 2008:60 : Personnummer och samordningsnummer, (2008)

Examples

```
# Examples taken from SKV 704 (see references)
ex_pin <- c("196408233234", "196408833224")
pin_coordn(ex_pin)
```

pin_ctrl *Check control number from* pin

Description

Calculates the control number using the Luhn algorithm and compare it with the control number in the personal identity number.

Usage

```
pin_ctrl(pin, force_logical = FALSE)
```

Arguments

pin	A vector of class pin. See as.pin.
force_logical	If TRUE, force all NA in pin to be FALSE. Default is FALSE.

Value

Logical vector indicating if a pin is correct (TRUE) or not (FALSE)

References

- Skatteverket, *Population registration in Sweden*. SKV 717B. (2007)
- Skatteverket, *Personnummer*. SKV 704. (2007) SOU 2008:60 : Personnummer och samordningsnummer, (2008)

Examples

```
# Examples taken from SKV 704 (see references)
ex_pin <- c("196408233234", "196408233235")
pin_ctrl(ex_pin)
```

---

pin_date *Calculate the date of birth from a* pin

Description

Calculates the date of birth in date format.

Usage

```
pin_date(pin)
```

Arguments

pin	A vector of class pin. See as.pin.

Value

Date of birth as a vector in date format.

Examples

```
# Examples taken from SKV 704 (see references)
ex_pin <- c("196408233234", "186408833224")
pin_date(ex_pin)
```

pin_sex *Calculate sex from* pin

Description

Calculates the sex from the personal identification number.

Usage

```
pin_sex(pin)
```

Arguments

pin	A vector of class pin. See as.pin.

Value

Factor with label 'Male' and 'Female'.

References

- Skatteverket, *Population registration in Sweden*. SKV 717B. (2007)
- Skatteverket, *Personnummer*. SKV 704. (2007) SOU 2008:60 : Personnummer och samordningsnummer, (2008)

Examples

```
# Examples taken from SKV 704 (see references)
ex_pin <- c("196408233234", "186408233224")
pin_sex(ex_pin)
```

roin *Generate a vector of random* oin

Description

A function that generates random oins (see as.pin). The generated oin is uniformely distributed over all possible oins.

Usage

```
roin(n)
```

Arguments

n	number of observations. If length(n) > 1, the length is taken to be the number required.

Value

a vector of generated oins.

Examples

```
x <- roin(3)
oin_ctrl(x)
oin_group(x)
```

---

rpin *Generate a vector of random* pin

Description

A function that generates random pins (see as.pin). The generated pin is uniformely distributed over the time period.

Usage

```
rpin(
  n,
  start_date = "1900-01-01",
  end_date = Sys.Date(),
  p.male = 0.5,
  p.coordn = 0.1
)
```

Arguments

n	number of observations. If length(n) > 1, the length is taken to be the number required.
start_date	Smallest possible pin. Default is 1900-01-01.
end_date	Largest possible pin. Default is the current date.
p.male	Proportion of males. Default is 0.5.
p.coordn	Proportion of coordination numbers. Default is 0.1.

Value

a vector of generated pins.

Examples

```
x <- rpin(3)
pin_ctrl(x)
pin_sex(x)
pin_age(x)
```

`sweidnumbr` *sweidnumbr*

Description

Handling of swedish identity numbers. For a quick tutorial see `vignette("sweidnumbr")`. For more information see https://github.com/rOpenGov/sweidnumbr.

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