Package 'timelineS'

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Type Package

Title Timeline and Time Duration-Related Tools

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Description An easy tool for plotting annotated timelines, grouped timelines, and exploratory graphics (boxplot/histogram/density plot/scatter plot/line plot). Filter, summarize date data by duration and convert to calendar units.

URL https://github.com/daheelee/timelineS

BugReports https://github.com/daheelee/timelineS/issues

License GPL-2

LazyData TRUE

Imports base, graphics, magrittr, dplyr, lubridate, ggplot2, stats

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Contents

durCalc *Filter Dataset by Date Duration*

Description

Calculates the duration between two dates, use it as a filter to select rows that satisfy the length criteria. Returns the dataset with additional columns regarding the length of durations in different units.

Usage

```
durCalc(df = NULL, start, end, timeunit = "day", filterlength = NA,
       filterlonger = TRUE, year = 365.25, month = 30.42)
```

Arguments

df	Data frame containing start and end dates.
start	Column in df for start dates or a date to use as start date.
end	Column in df for end dates or a date to use as a end date.
timeunit	Unit of time to be used in plots. "day(s)", "week(s)", "month(s)", "quarter(s)", "semiannual", "halfyear",or "year(s)".
filterlength	A time length to use as filter.
filterlonger	If TRUE, the function gives rows with longer durations than specified in filterlength. If FALSE, gives rows with shorter durations.
year	Number of days to use as a year. Default is 365.25.
month	Number of days to use as a month. Default is 30.42.

Details

Additional columns returned with the filtered rows are: length of duration in days, in specified time unit, and in calendar units, and how much longer/shorter the durations are compared to filter length in calendar units.

If no filterlength is provided, then returns all rows with length of duration in days and calendar units.

You can use dates for start and end and provide no df to get the length of duration between the dates in calendar units. See example.

Value

A subset of original data frame with additional columns in specified time units and calendar units.

Author(s)

Dahee Lee

See Also

durPlot, durSummary

Examples

```
### Filter people who lived longer than 85 years
durCalc(life_exp, start = "Birth", end = "Death", timeunit = "years", filterlength = 85)

### How old each person would be as of January 1, 2000 if they were alive
durCalc(life_exp, start = "Birth", end = as.Date("2000-1-1"), timeunit = "years")

### Use as unit-converter between two dates
durCalc(start = as.Date("2010-12-1"), end = as.Date("2015-4-26"), timeunit = "weeks")
```

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durPlot *Graphs and Summary for Date Durations*

Description

Plots boxplot, histogram, density plot, scatter plot, line plot and prints summary statistics for date duration data.

Usage

```
durPlot(df, start, end, group = NA, timeunit = "days", plot_type = "all",
       facet = FALSE, facet.nrow = NULL, theme = NULL, other = NULL,
       fill_color = "black", line_color = "black", groupcolor = TRUE,
       point_size = 2, alpha = NA, binwidth = 0.5, show_legend = TRUE,
       title=FALSE, title_boxplot = "Boxplot", title_histogram = "Histogram",
       title_density = "Density Plot", title_scatter = "Scatter Plot",
       title_line = "Line Plot")
```

Arguments

df	Data frame containing start dates, end dates and groups.
start	Column in df for start dates.
end	Column in df for end dates.
group	Column in df for groups. Default is NA.
timeunit	Unit of time to be used in plots. "day(s)", "week(s)", "month(s)", "quarter(s)", "semiannual", "halfyear",or "year(s)".
plot_type	One of "all", "boxplot", "histogram", "density", "scatter", "line". Default is "all".
facet	If TRUE, wraps plots in group facets
facet.nrow	Number of rows for facet wrap
theme	Add theme elements if needed.

other	Add other elements if needed.
fill_color	Fill color
line_color	Line color
groupcolor	If FALSE, fill_color and line_color used for all groups. Default is TRUE.
point_size	Point size for scatterplot
alpha	Color transparency [0,1]
binwidth	Binwidth for histogram; default 0.5.
show_legend	Default is TRUE
title	If TRUE, puts main titles for each plot
title_boxplot	Title for boxplot title
title_histogram	Title for histogram
title_density	Title for density plot
title_scatter	Title for scatter plot
title_line	Title for line plot

Details

The function also returns summary statistics for the specified date duration.

Author(s)

Dahee Lee

See Also

timelineS, timelineG, durSummary, durCalc

Examples

```
durPlot(life_exp, start = "Birth", end = "Death", group = "Country",
timeunit = "years", facet = TRUE, binwidth = 3, alpha = 0.7, title = TRUE)

durPlot(life_exp, start = "Birth", end = "Death", group = "Country",
timeunit = "years",alpha = 0.5, title = TRUE)
```

durSummary *Summary for Date Duration Data*

Description

Returns summary statistics for date duration data (for each group if group is provided)

Usage

```
durSummary(df, start, end, group = NA, timeunit = "days")
```

Arguments

df	Data frame containing start and end dates.
start	Column in df for start dates.
end	Column in df for end dates.
group	Column in df for groups. Default NA.
timeunit	Unit of time to be used in plots. "day(s)", "week(s)", "month(s)", "quarter(s)", "semiannual", "halfyear",or "year(s)".

Details

1 year = 365.25 days, 1 month = 30.42 days, 1 year = 52.14 weeks

Author(s)

Dahee Lee

See Also

durPlot, durCalc

Examples

```
durSummary(life_exp, start = "Birth", end = "Death", group = "Country", timeunit = "years")
```

life_country *Data for timelineGroup function example in timelineS package*

Description

Dates of birth and death, gender and phases

Format

dataframe of name(character), country(character), gender(character), phase(character) and dates(date)

life_exp *Data for examples in timelineS package*

Description

Dates of birth and death, country, gender and names

Format

dataframe of name(character), country(character), gender(character), and dates(date)

mj_life *Data for timelineS function example in timelineS package*

Description

Events and dates of Michael Jackson's life

Format

dataframe of events(character) and dates(date)

timelineG *Faceted Timelines for Grouped Data*

Description

Plots faceted timelines for grouped data.

Usage

```
timelineG(df, start, end, names, phase = NA, group1 = NA, group2 = NA,
          width = 2, color = "grey", theme = NULL, other = NULL)
```

Arguments

df	Data frame containing start dates, end dates, groups, phases, and names for each timeline.
start	Column in df for start dates.
end	Column in df for end dates.
names	Column in df for names of each timeline
phase	Column in df for phases.

group1	Column in df for groups to be used as the rows of the tabular display. Default is NA.
group2	Column in df for groups to be used as the columns of the tabular display. Default is NA.
width	Width of each timeline. Default is 2.
color	Color of timelines, only used when phase is not provided.
theme	Add theme elements if needed.
other	Add other elements if needed.

Author(s)

Dahee Lee

See Also

timelineS

Examples

```
### Plot timelines row-grouped by "Country"
timelineG(df = life_country, start = "Start", end = "End", names = "Name",
phase = "Phase", group1 = "Country")

### Plot timelines row-grouped by "Country" and column-grouped by "Gender"
timelineG(df = life_country, start = "Start", end = "End", names = "Name",
phase = "Phase", group1 = "Country", group2 = "Gender")

 ### Plot timelines, no group
timelineG(df = life_country, start = "Start", end = "End", names = "Name",color = "grey")
```

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timelineS *Timeline with Event Labels*

Description

Plots a horizontal timeline with event descriptions at corresponding dates.

Usage

```
timelineS(df, main = NA, xlab = NA, buffer.days = 600,
         line.width = 5, line.color = "gray44",
         scale = "year", scale.format = "%Y", scale.font = 2, scale.orient = 1,
         scale.above = FALSE, scale.cex = 1, scale.tickwidth = 2,
         labels = paste(df[[1]], df[[2]]), label.direction = "downup",
         label.length = c(0.5,0.5,0.8,0.8), label.position = c(1,3),
        label.color = "gray44", label.cex = 0.8, label.font = 1, label.angle = 0,
         pch = 20, point.cex = 1, point.color = "gray44")
```

Arguments

df	Data frame for events and dates. First column for event names and second column for dates in Date class.
main	Title of the plot.
xlab	X axis label.
buffer.days	Additional days to add before and after the event dates on the timeline. Default is 600 days.
line.width	Timeline width; default 5
line.color	Timeline color.
scale	Scale on timeline. One of "year","quarter", "month", "week" or "day". See seq.Date.
scale.format	Scale format; default "%Y".
scale.font	Integer specifying font of scale. Default is 2. (1:plain, 2:bold, 3:italic, 4:bold italic, 5:symbol).
scale.orient	Orientation of scale; default 1(upright)
scale.above	If TRUE, the scale shows above the line.
scale.cex	Scale font size relative to cex.
scale.tickwidth	Width of scale tick; default 2.
labels	Event labels. Events and corresponding dates as default.
label.direction	Direction of labels from timeline. "downup","updown","up", or "down", default is "downup". See details.
label.length	Distance of event label from the timeline. Could be a single value or a vector of lengths. Default is c(0.5, 0.5, 0.8, 0.8). See details.
label.position	Integer specifying label positions; default c(1,3). See details.
label.color	Label color(s).
label.cex	Font size(s) of event labels; default 0.8.
label.font	Integer specifying label font; default 1.
label.angle	Angle of text in the label.
pch	End point symbol(s).
point.cex	End points size(s).
point.color	End points color(s).

Details

label.direction indicates the direction of event labels from timeline. "downup" and "updown" plots alternating labels; "up" puts all the labels above and "down" below the timeline.

label.length could be a single number or a numeric vector. For label directions "downup" and "updown", use between 0 and 0.9, and for "up" and "down", use between 0 and 1.6. For example, label.length = 0.5 produces all the labels at equal lengths, and label.length = c(0.5,0.5,0.8,0.8) repeats the sequence of lengths.

The positions for label.position are 1: below 2: left 3: above 4: right.

Author(s)

Dahee Lee

See Also

axis.Date, timelineG, durCalc, durPlot

Examples

```
### Default down-up labels
timelineS(mj_life, main = "Life of Michael Jackson")

### Labels above timeline and other change in aesthetics
timelineS(mj_life, main = "Life of Michael Jackson",
label.direction = "up", label.length = c(0.2,0.8,0.4,1.2), label.position = 3,
line.color = "blue", label.color = "blue", point.color = "blue", pch = "-")
```

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