Package 'clockplot'

September 9, 2025

Type Package

Title Plot Event Times on a 24-Hour Clock

Version 0.7.2

Description Provides a novel visualization technique for plotting timestamped events on a 24-hour circular clock face. This is particularly useful for analyzing daily patterns, event clustering, and gaps in temporal data. The package also generalizes this approach to create cyclic charts for other periods, including weekly and monthly cycles, enabling effective event planning and pattern analysis across multiple time frames.

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Imports dplyr, tidyr, tibble, ggplot2, hms

Encoding UTF-8

LazyData true

RoxygenNote 7.3.2

Depends R (>= 2.10)

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

VignetteBuilder knitr

URL https://github.com/mahmudstat/clockplot/

BugReports https://github.com/mahmudstat/clockplot/issues

Language en-US

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Repository CRAN

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Contents

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bdquake *Data of Earthquakes in and around Bangladesh*

Description

A dataset containing earthquakes magnitude, depth, and location information.

Usage

```
bdquake
```

Format

A data frame with 13 rows and 5 variables:

latitude Latitude

longitude Longitude

depth Depth

mag Magnitude

hms Time

Source

USGS

bdtemp *Data of Average Monthly Temperature of Bangladesh Divisional Cities*

Description

A dataset containing temperature of Dhaka, Sylhet, and Chittagong Cities.

Usage

```
bdtemp
```

Format

A data frame with 36 rows and 3 variables:

Temperature Average monthly temperature

Month Month of the year

City Name of the city

Source

Weather Base

brintcity *Data of Bangladesh Railway Express Train Schedule*

Description

A dataset containing Bangladesh Railway Express Train schedule

Usage

```
brintcity
```

Format

A data frame with 84 rows and 10 variables:

Sl Serial

Train_no Train No.

Name Train name

Type Type of train

Off_day The day of the week when the train does not run

Origin The station from where the train departs

Departure The time of departure

Destination The station where the train is heading

Arrival The time of arrival

Zone East/West

Source

Bangladesh Railway

`chatdf` *Data Containing Chat Times of Two Individuals*

Description

A dataset containing timings of chat by two individuals Abid and Abir The set contains 25 pushes by each individual

Usage

```
chatdf
```

Format

A data frame with 25 rows and 3 variables:

name Name of the chat participant

time Time in HH:MM:SS format

turn Turn of the chat

Source

Randomly generated

clock_chart *The Simplest Clock Chart, Lines Unmodified*

Description

There are five types of clock charts, `clock_chart()` being the simplest one. It just shows the event times on a 24 hour clock. The lines are neither colored, nor length modified. `clock_chart_col()` is used to colorize and `clock_chart_len()` to change the length of the hands by a numeric vector. To do both simultaneously, use `clock_chart_qnt()`. To use a qualitative variable as the criterion, use `clock_chart_qlt()`.

Usage

```
clock_chart(data, time, Col = "black")
```

Arguments

`data`	A data frame
`time`	Time in 24 hours. The allowed time formats for these family of charts are `HH:MM:SS`, `HH:MM` or even `H:M` (such as `12;30:09` or `9:3`), although the SS part is ignored due to having negligible impact on the final plot).
`Col`	Color name for the lines. The default is `black`.

Details

Change the title, subtitle or the caption of the plot with `ggplot2::labs()`.

Value

A `ggplot` object, which can be further modified with `ggplot2` functions and themes.

See Also

`clock_chart_col()`, `clock_chart_qnt()`, and `clock_chart_qlt()`.

Examples

```
p1 <- clock_chart(smsclock, time) # Using package built-in data
p1 + ggplot2::labs(title = "SMS Receiving Times")
#  Add clock_chart(brintcity %>% filter(Origin == "Dhaka"), time = Departure)
```

clock_chart_col *Clock Chart, Hands Colored by a Numeric Variable*

Description

This function will plot time of events on a 24 hour clock to show which events took place at what times. The lines are colored by a criteria.

Usage

```
clock_chart_col(data, time, crit, high = "red", low = "green")
```

Arguments

data	A data frame
time	Time in 24 hours. The allowed time formats for these family of charts are HH:MM:SS, HH:MM or even H:M (such as 12;30:09 or 9:3).
crit	a numeric vector by which lines will be colored.
high	The color name for the high values. The default is red
low	The color name for the high values. The default is green. The color names can be vice versa or other colors, depending on the context.

Details

Change the title, subtitle or the caption of the plot with ggplot2::labs() .Change the legend title by adding ggplot2::labs(size = "TITLE") or labs(color = "TITLE").

Add or modify legend by theme(legend.position = "POSITION"); the valid position names in ggplot2 are top, bottom, right, and left, excluding more complex options.

Value

A ggplot object, which can be further modified with ggplot2 functions and themes.

See Also

clock_chart_qnt(), and clock_chart_qlt().

Examples

```
df <- data.frame(
  time = c("06:00:00", "08:00:00", "17:30:00"),
  value = c(3, 6, 9)
)
clock_chart_col(df, time, crit = value) +
  ggplot2::labs(size = "TITLE")
```

clock_chart_qlt *Clock Chart, Hands Colored by a Factor*

Description

This function will plot time of events on a 24 hour clock to show which events took place at what times. The hands are colored by a qualitative (factor) vector. Change the plot's title, subtitle, or caption using `ggplot2::labs()`.
For example: `ggplot2::labs(title = "My Plot", subtitle = "My Subtitle")` You can change the title of the legend by adding `ggplot2::labs(color = "Legend Title")`.

Usage

```
clock_chart_qlt(data, time, crit)
```

Arguments

`data`	A data frame
`time`	Time in 24 hours. The allowed time formats for these family of charts are `HH:MM:SS`, `HH:MM` or even `H:M` (such as `12;30:09` or `9:3`).
`crit`	The qualitative vector by which hands will be colored.

Value

A `ggplot` object, which can be further modified with `ggplot2` functions and themes.

See Also

`clock_chart_col()` for coloring and `clock_chart_qnt()` for more options.

Examples

```
# A plot showing sms receiving times based on
# criteria (type/sender/invoked)
clock_chart_qlt(smsclock, time = time, crit = sender) +
  ggplot2::labs(color = "Sender", title = "SMS's Received throughout th Day")
```

clock_chart_qnt *Clock Chart, Length and Color Modified by Numeric Variables*

Description

This function will plot time of events on a 24 hour clock to show which events took place at what times. The length and color of the hands are modified according to a numeric vector.

Usage

```
clock_chart_qnt(data, time, len, Col, high = "red", low = "green")
```

Arguments

data	A data frame
time	Time in 24 hours. The allowed time formats for these family of charts are HH:MM:SS, HH:MM or even H:M (such as 12;30:09 or 9:3).
len	The numeric vector by which hands will be modified and colored.
Col	The color of line segments and points.
high	The color name for the high values. The default is red
low	The color name for the high values. The default is green. The color names can be vice versa or other colors, depending on the context. To use a single color for all lines, use same value for high and low

Details

Change the title, subtitle or the caption of the plot with ggplot2::labs() .Change the legend title by adding ggplot2::labs(color = "TITLE 1", size = "TITLE2"). Add or modify legend by theme(legend.position = "POSITION"); the valid position names in ggplot2 are top, bottom, right, and left, excluding more complex options.

Value

A ggplot object, which can be further modified with ggplot2 functions and themes.

See Also

clock_chart_col() for coloring by a numeric variable, clock_chart_qlt() for coloring by a qualitative variable, clock_chart() for the simplest clock chart

Examples

```
p1 <- clock_chart_qnt(
  data = bdquake, time = hms, len = depth,
  Col = mag, high = "red", low = "blue"
)
p1 + ggplot2::labs(
  color = "Depth", size = "Magnitude",
  title = "Earthquakes in Bangladesh since 2023"
)
```

---

cyclic_chart *Plot Cyclic Data (General Format)*

Description

This function plots values corresponding to random periods such as hours, days, months and so on.

Usage

```
cyclic_chart(df, Period, Value, crit, ColV)
```

Arguments

df	A data frame
Period	A list of periodical values such as hours of the day, days of the week, months of the year and so on.
Value	A numeric vector with the values corresponding to the Period
crit	A factor variable based on which the bars would be colored.
ColV	A character vector with the list of colors for the bars. You can use this online tool (https://r-charts.com/color-palette-generator/) to create a beautiful color palette.

Details

This can plot values corresponding to multiple categories, for example, temperature in different cities on the days of a week, or rainfall by month in a year.

Value

A ggplot object, which can be further modified with ggplot2 functions and themes.

See Also

day_chart() for plotting values on a day by hours, week_chart() for plotting values in a week by days, year_chart() for plotting values in a year by months

Examples

```
# Using package built-in bdtemp data
Col <- c("#0040ff", "#00bfff", "#8000ff")
cyclic_chart(bdtemp,
  Period = Month, Value = Temperature,
  crit = City, ColV = Col
)
```

---

day_chart *Plot Values on a 24-Hour Day, on Specific Hours*

Description

This function plots values corresponding to each hour on a rose plot.

Usage

```
day_chart(hvalue, high = "blue", low = "yellow", width = 0.8)
```

Arguments

hvalue	A numeric vector having values at each of 24 hours (starts from 6 am)
high	The color name for the high values. The default is red
low	The color name for the high values. The default is green.
width	Width of bars

Details

The color names can be vice versa or other colors, depending on the context.

Value

A ggplot object, which can be further modified with ggplot2 functions and themes.

See Also

week_chart() for plotting values in a week by days year_chart() for plotting values on in a year by months cyclic_chart() for plotting values by arbitrary period

Examples

```
value <- sample(15:30, 24, replace = TRUE)
day_chart(hvalue = value, high = "blue", low = "yellow", width = 0.8)
```

gitcommit *Data of git commits in this repository*

Description

A dataset containing commit information of all the commits in this repository (`clockplot`) up to 12 Sep, 2024. Some columns, including the commit message have been omitted.

Usage

```
gitcommit
```

Format

A data frame with 110 rows and 6 variables:

id Commit ID

weekday Day of the week

month Month

day Day of the month

time Time–this is our desired column

year Year

Source

clockplot repository

plan_day *Visually Plan Activities on a Day with Events on Each of 24 Hours*

Description

This function plots works corresponding to each hour on a rose plot.

Usage

```
plan_day(dwork, width = 1, brdcol = "grey")
```

Arguments

`dwork`	A character vector having names of work at each of 24 hours (starts from 6 am)
`width`	Width of bars
`brdcol`	Color of bar border. To have no (transparent color), use `NA`

Value

A ggplot object, which can be further modified with ggplot2 functions and themes.

Examples

```
work <- sample(c("Study", "Adda", "Entertainment", "Games", "Exercise", "Meal"),
  size = 24, replace = TRUE
)
plan_day(dwork = work, brdcol = NA)
```

---

plan_week *Visually Plan Activities on a Week with Events on Each Day*

Description

This function plots works corresponding to each day of the week.

Usage

```
plan_week(wtask)
```

Arguments

wtask	A factor variable having values on each day of the week.

Value

A ggplot object, which can be further modified with ggplot2 functions and themes.

Examples

```
set.seed(10)
wtask <- c(
  "Desk Work", "Field Work", "Visit", "Monitoring",
  "Rest", "Reporting", "Meeting"
)
plan_week(wtask)
```

smsclock *Data of Times of Receiving of SMS*

Description

A dataset containing timings of receiving sms on mobile phone. Real data from 01 to 09 September, 2024

Usage

```
smsclock
```

Format

A data frame with 82 rows and 7 variables:

Date Date

day Day

time Time in HH:MM:SS format

sender Name of the sms sender

invoked Whether the sms is invoked by the user

type The category of the sms; offer, info, ad, service etc.

Title Message Title

Source

Phone Messages

week_chart *Plot Values on Each Day of a Week*

Description

This function plots values corresponding to each day on a rose plot.

Usage

```
week_chart(wvalue, lgnm = "Value", high = "yellow", low = "green", width = 0.9)
```

Arguments

wvalue	A numeric vector having values on each day, starting from Saturday
lgnm	Title of legend
high	The color name for the high values. The default is red
low	The color name for the high values. The default is green. The color names can be vice versa or other colors, depending on the context.
width	The width of bars.

Value

A ggplot object, which can be further modified with ggplot2 functions and themes.

See Also

day_chart() for plotting values in on a day hours year_chart() for plotting values on in a year by months cyclic_chart() for plotting values by arbitrary period

Examples

```
set.seed(10)
wtemp <- sample(10:40, 7)
week_chart(wtemp, high = "yellow") + ggplot2::labs(title = "Random Values by Day")
```

---

year_chart *Plot Values on Each Month of a Year*

Description

This function plots values corresponding to each month on a rose plot.

Usage

```
year_chart(mvalue, lgnm = "Value", width = 0.9, high = "yellow", low = "green")
```

Arguments

mvalue	A numeric vector having values in each month of the year (starts from January, obviously). If you have it in a data frame, you need to extract it (one way is this: data$mvalue)
lgnm	Title of legend.
width	Width of bars
high	The color name for the high values. The default is red
low	The color name for the high values. The default is green. The color names can be vice versa or other colors, depending on the context.

Value

A ggplot object, which can be further modified with ggplot2 functions and themes.

See Also

day_chart() for plotting values on a day by hours week_chart() for plotting values in a week by days cyclic_chart() for plotting values by arbitrary period

Examples

```
syltmp <- c(18.4, 20.8, 24.3, 26.0, 26.8, 27.6, 28.0, 28.2, 27.9, 26.7, 23.3, 19.7)
year_chart(mvalue = syltmp)
```

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