Package 'mschart'

November 30, 2022

Type Package

Title Chart Generation for 'Microsoft Word' and 'Microsoft PowerPoint' Documents

Version 0.4.0

Description Create native charts for 'Microsoft PowerPoint' and 'Microsoft Word' documents. These can then be edited and annotated. Functions are provided to let users create charts, modify and format their content. The chart's underlying data is automatically saved within the 'Word' document or 'PowerPoint' presentation. It extends package 'officer' that does not contain any feature for 'Microsoft' native charts production.

License MIT + file LICENSE

Encoding UTF-8

LazyData true

Depends R (>= 2.10)

Imports stats, data.table, officer (>= 0.3.6), cellranger, writexl, grDevices, xml2 (>= 1.1.0), htmltools, utils

URL https://ardata-fr.github.io/officeverse/, https://ardata-fr.github.io/mschart/

BugReports https://github.com/ardata-fr/mschart/issues

RoxygenNote 7.2.2

Suggests tinytest, doconv

NeedsCompilation no

Author David Gohel [aut, cre],
ArData [cph],
YouGov [fnd],
Jan Marvin Garbuszus [ctb] (support for openxls2),
Marlon Molina [ctb] (added table feature),
Rokas Klydzia [ctb] (custom labels),
David Camposeco [ctb] (chart_data_smooth function),
Dan Joplin [ctb] (fix scatter plot data structure)

Maintainer David Gohel <david.gohel@ardata.fr>

Repository CRAN

Date/Publication 2022-11-30 21:20:02 UTC

R topics documented:

`as_bar_stack` *set a barchart as a stacked barchart*

Description

Apply settings to an `ms_barchart` object to produce a stacked barchart. Options are available to use percentage instead of values and to choose if bars should be vertically or horizontally drawn.

Usage

```
as_bar_stack(x, dir = "vertical", percent = FALSE, gap_width = 50)
```

Arguments

x	an ms_barchart object
dir	the direction of the bars in the chart, value must one of "horizontal" or "vertical".
percent	should bars be in percent
gap_width	gap width between the bar for each category on a bar chart, in percent of the bar width. It can be set between 0 and 500.

Examples

```
library(officer)

my_bar_stack_01 <- ms_barchart(data = browser_data, x = "browser",
  y = "value", group = "serie")
my_bar_stack_01 <- as_bar_stack( my_bar_stack_01 )

my_bar_stack_02 <- ms_barchart(data = browser_data, x = "browser",
  y = "value", group = "serie")
my_bar_stack_02 <- as_bar_stack( my_bar_stack_02, percent = TRUE,
  dir = "horizontal" )

doc <- read_pptx()
doc <- add_slide(doc, layout = "Title and Content", master = "Office Theme")
doc <- ph_with(doc, my_bar_stack_02, location = ph_location_fullsize())

fileout <- tempfile(fileext = ".pptx")
print(doc, target = fileout)
```

---

body_add_chart *add chart into a Word document*

Description

add a ms_chart into an rdocx object, the graphic will be inserted in an empty paragraph.

Usage

```
body_add_chart(x, chart, style = NULL, pos = "after", width = 5, height = 3)
```

Arguments

x	an rdocx object
chart	an ms_chart object.
style	paragraph style
pos	where to add the new element relative to the cursor, one of "after", "before", "on".
height, width	height and width in inches.

Examples

```
library(officer)
my_barchart <- ms_barchart(data = browser_data,
  x = "browser", y = "value", group = "serie")
my_barchart <- chart_settings( my_barchart, grouping = "stacked",
  gap_width = 50, overlap = 100 )

doc <- read_docx()
doc <- body_add_chart(doc, chart = my_barchart, style = "centered")
print(doc, target = tempfile(fileext = ".docx"))
```

---

browser_data *Dummy dataset for barchart*

Description

A dataset containing 2 categorical and an integer variables:

Usage

```
data(browser_data)
```

Format

A data frame with 18 rows and 3 variables

Details

- browser web browser
- serie id of series
- value integer values

---

browser_ts *Dummy dataset for barchart*

Description

A dataset containing a date, a categorical and an integer variables:

Usage

```
data(browser_ts)
```

Format

A data frame with 36 rows and 3 variables

Details

- date date values
- browser web browser
- freq values in percent

`chart_ax_x` *x axis settings*

Description

Define settings for an x axis.

Usage

```
chart_ax_x(
  x,
  orientation,
  crosses,
  cross_between,
  major_tick_mark,
  minor_tick_mark,
  tick_label_pos,
  display,
  num_fmt,
  rotation,
  limit_min,
  limit_max,
  position,
  second_axis = FALSE
)
```

Arguments

`x`	an `ms_chart` object.
`orientation`	axis orientation, one of 'maxMin', 'minMax'.
`crosses`	specifies how the axis crosses the perpendicular axis, one of 'autoZero', 'max', 'min'.
`cross_between`	specifies how the value axis crosses the category axis between categories, one of 'between', 'midCat'.
`major_tick_mark, minor_tick_mark`	tick marks position, one of 'cross', 'in', 'none', 'out'.
`tick_label_pos`	ticks labels position, one of 'high', 'low', 'nextTo', 'none'.
`display`	should the axis be displayed (a logical of length 1).
`num_fmt`	number formatting. See section for more details.

`rotation`	rotation angle. Value should be between `-360` and `360`.
`limit_min`	minimum value on the axis.
`limit_max`	maximum value on the axis.
`position`	position value that cross the other axis.
`second_axis`	unused

num_fmt

All `%` need to be doubled, `0%%` mean "a number and percent symbol".

From my actual knowledge, depending on some chart type and options, the following values are not systematically used by office chart engine; i.e. when chart pre-compute percentages, it seems using `0%%` will have no effect.

- `General`: default value
- `0`: display the number with no decimal
- `0.00`: display the number with two decimals
- `0%%`: display as percentages
- `0.00%%`: display as percentages with two digits
- `#,##0`
- `#,##0.00`
- `0.00E+00`
- `# ?/?`
- `# ??/??`
- `mm-dd-yy`
- `d-mmm-yy`
- `d-mmm`
- `mmm-yy`
- `h:mm AM/PM`
- `h:mm:ss AM/PM`
- `h:mm`
- `h:mm:ss`
- `m/d/yy h:mm`
- `#,##0 ;(#,##0)`
- `#,##0 ;[Red](#,##0)`
- `#,##0.00;(#,##0.00)`
- `#,##0.00;[Red](#,##0.00)`
- `mm:ss`
- `[h]:mm:ss`
- `mmss.0`
- `##0.0E+0`
- `@`

Illustrations

See Also

chart_ax_y(), ms_areachart(), ms_barchart(), ms_scatterchart(), ms_linechart()

Examples

```
library(mschart)

chart_01 <- ms_linechart(
  data = us_indus_prod,
  x = "date", y = "value",
  group = "type"
)

chart_01 <- chart_ax_y(x = chart_01, limit_min = 20, limit_max = 120)
chart_01
```

---

chart_ax_y *y axis settings*

Description

Define settings for a y axis.

Usage

```
chart_ax_y(
  x,
  orientation,
  crosses,
  cross_between,
  major_tick_mark,
  minor_tick_mark,
  tick_label_pos,
  display,
  num_fmt,
  rotation,
  limit_min,
  limit_max,
  position,
  second_axis = FALSE
)
```

Arguments

x	an ms_chart object.
orientation	axis orientation, one of 'maxMin', 'minMax'.
crosses	specifies how the axis crosses the perpendicular axis, one of 'autoZero', 'max', 'min'.
cross_between	specifies how the value axis crosses the category axis between categories, one of 'between', 'midCat'.
major_tick_mark, minor_tick_mark	tick marks position, one of 'cross', 'in', 'none', 'out'.
tick_label_pos	ticks labels position, one of 'high', 'low', 'nextTo', 'none'.
display	should the axis be displayed (a logical of length 1).
num_fmt	number formatting. See section for more details.
rotation	rotation angle. Value should be between -360 and 360.
limit_min	minimum value on the axis.
limit_max	maximum value on the axis.
position	position value that cross the other axis.
second_axis	unused

Illustrations

num_fmt

All % need to be doubled, 0%% mean "a number and percent symbol".

From my actual knowledge, depending on some chart type and options, the following values are not systematically used by office chart engine; i.e. when chart pre-compute percentages, it seems using 0%% will have no effect.

- General: default value
- 0: display the number with no decimal
- 0.00: display the number with two decimals
- 0%%: display as percentages
- 0.00%%: display as percentages with two digits
- #,##0
- #,##0.00
- 0.00E+00
- # ?/?
- # ??/??
- mm-dd-yy
- d-mmm-yy
- d-mmm

- mmm-yy
- h:mm AM/PM
- h:mm:ss AM/PM
- h:mm
- h:mm:ss
- m/d/yy h:mm
- #,##0 ;(#,##0)
- #,##0 ;[Red](#,##0)
- #,##0.00;(#,##0.00)
- #,##0.00;[Red](#,##0.00)
- mm:ss
- [h]:mm:ss
- mmss.0
- ##0.0E+0
- @

See Also

chart_ax_x(), ms_areachart(), ms_barchart(), ms_scatterchart(), ms_linechart()

Examples

```
library(officer)
library(mschart)

chart_01 <- ms_linechart(
  data = us_indus_prod,
  x = "date", y = "value",
  group = "type"
)
chart_01 <- chart_settings(chart_01, style = "marker")
chart_01 <- chart_ax_x(
  x = chart_01, num_fmt = "[$-fr-FR]mmm yyyy",
  limit_min = min(us_indus_prod$date),
  limit_max = as.Date("1992-01-01")
)
chart_01
```

---

chart_data_fill *Modify fill colour*

Description

Specify mappings from levels in the data to displayed fill colours.

Usage

```
chart_data_fill(x, values)
```

Arguments

x	an ms_chart object.
values	character(num of series|1): a set of colours values to map data values to. It is a named vector, the values will be matched based on the names. If it contains only one colour, this colour will be associated to all existing series.

See Also

Other Series customization functions: chart_data_line_style(), chart_data_line_width(), chart_data_size(), chart_data_smooth(), chart_data_stroke(), chart_data_symbol(), chart_labels_text()

Examples

```
my_scatter <- ms_scatterchart(data = iris, x = "Sepal.Length",
  y = "Sepal.Width",  group = "Species")
my_scatter <- chart_data_fill(my_scatter,
  values = c(virginica = "#6FA2FF", versicolor = "#FF6161", setosa = "#81FF5B") )
```

---

chart_data_labels *Modify data labels settings*

Description

Data labels show details about data series. This function indicate that data labels should be displayed. See chart_labels_text() for modifying text settings associated with labels.

Usage

```
chart_data_labels(
  x,
  num_fmt = "General",
  position = "ctr",
  show_legend_key = FALSE,
  show_val = FALSE,
  show_cat_name = FALSE,
  show_serie_name = FALSE,
  show_percent = FALSE,
  separator = ", "
)
```

Arguments

x	an ms_chart object.
num_fmt	character(1): number formatting specifies number format properties which indicate how to format and render the numeric values. It can be "General", "0.00", "#,##0", "#,##0.00", "mm-dd-yy", "m/d/yy h:mm", etc.
position	character(1): it specifies the position of the data label. It should be one of 'b', 'ctr', 'inBase', 'inEnd', 'l', 'outEnd', 'r', 't'. When grouping is 'clustered', it should be one of 'ctr','inBase','inEnd','outEnd'. When grouping is 'stacked', it should be one of 'ctr','inBase','inEnd'. When grouping is 'standard', it should be one of 'b','ctr','l','r','t'.
show_legend_key	show legend key if TRUE.
show_val	show values if TRUE.
show_cat_name	show categories if TRUE.
show_serie_name	show names of series if TRUE.
show_percent	show percentages if TRUE.
separator	separator for displayed labels.

---

chart_data_line_style *Modify line style*

Description

Specify mappings from levels in the data to displayed line style.

Usage

```
chart_data_line_style(x, values)
```

Arguments

x	an ms_chart object.
values	character(num of series): a set of line style values to map data values to. It is a named vector, the values will be matched based on the names. Possible values are: 'none', 'solid', 'dashed', 'dotted'. If it contains only one line style, this style will be associated to all existing series.

See Also

Other Series customization functions: chart_data_fill(), chart_data_line_width(), chart_data_size(), chart_data_smooth(), chart_data_stroke(), chart_data_symbol(), chart_labels_text()

Examples

```
my_scatter <- ms_scatterchart(data = iris, x = "Sepal.Length",
  y = "Sepal.Width",  group = "Species")
my_scatter <- chart_data_fill(my_scatter,
  values = c(virginica = "#6FA2FF", versicolor = "#FF6161", setosa = "#81FF5B") )
my_scatter <- chart_data_stroke(my_scatter,
  values = c(virginica = "black", versicolor = "black", setosa = "black") )
my_scatter <- chart_data_symbol(my_scatter,
  values = c(virginica = "circle", versicolor = "diamond", setosa = "circle") )
my_scatter <- chart_data_line_style(my_scatter,
  values = c(virginica = "solid", versicolor = "dotted", setosa = "dashed") )
```

---

chart_data_line_width *Modify line width*

Description

Specify mappings from levels in the data to displayed line width between symbols.

Usage

```
chart_data_line_width(x, values)
```

Arguments

x	an ms_chart object.
values	double(num of series): a set of size values to map data values to. It is a named vector, the values will be matched based on the names. If it contains only one size, this size will be associated to all existing series.

See Also

Other Series customization functions: chart_data_fill(), chart_data_line_style(), chart_data_size(), chart_data_smooth(), chart_data_stroke(), chart_data_symbol(), chart_labels_text()

Examples

```
my_scatter <- ms_scatterchart(data = iris, x = "Sepal.Length",
  y = "Sepal.Width",  group = "Species")
my_scatter <- chart_settings(my_scatter, scatterstyle = "lineMarker")
my_scatter <- chart_data_fill(my_scatter,
  values = c(virginica = "#6FA2FF", versicolor = "#FF6161", setosa = "#81FF5B") )
my_scatter <- chart_data_stroke(my_scatter,
  values = c(virginica = "black", versicolor = "black", setosa = "black") )
my_scatter <- chart_data_symbol(my_scatter,
  values = c(virginica = "circle", versicolor = "diamond", setosa = "circle") )
my_scatter <- chart_data_size(my_scatter,
  values = c(virginica = 20, versicolor = 16, setosa = 20) )
my_scatter <- chart_data_line_width(my_scatter,
  values = c(virginica = 2, versicolor = 3, setosa = 6) )
```

chart_data_size *Modify symbol size*

Description

Specify mappings from levels in the data to displayed size of symbols.

Usage

```
chart_data_size(x, values)
```

Arguments

x	an ms_chart object.
values	double(num of series): a set of size values to map data values to. It is a named vector, the values will be matched based on the names. If it contains only one size, this size will be associated to all existing series.

See Also

Other Series customization functions: chart_data_fill(), chart_data_line_style(), chart_data_line_width(), chart_data_smooth(), chart_data_stroke(), chart_data_symbol(), chart_labels_text()

Examples

```
my_scatter <- ms_scatterchart(data = iris, x = "Sepal.Length",
  y = "Sepal.Width",  group = "Species")
my_scatter <- chart_data_fill(my_scatter,
  values = c(virginica = "#6FA2FF", versicolor = "#FF6161", setosa = "#81FF5B") )
my_scatter <- chart_data_stroke(my_scatter,
  values = c(virginica = "black", versicolor = "black", setosa = "black") )
my_scatter <- chart_data_symbol(my_scatter,
  values = c(virginica = "circle", versicolor = "diamond", setosa = "circle") )
my_scatter <- chart_data_size(my_scatter,
  values = c(virginica = 20, versicolor = 16, setosa = 20) )
```

chart_data_smooth *Smooth series*

Description

Specify mappings from levels in the data to smooth or not lines. This feature only applies to ms_linechart().

Usage

```
chart_data_smooth(x, values)
```

Arguments

x	an ms_chart object.
values	integer(num of series): a set of smooth values to map data values to. It is a named vector, the values will be matched based on the names. Possible values are 0 or 1 If it contains only one integer it will be associated to all existing series.

See Also

Other Series customization functions: chart_data_fill(), chart_data_line_style(), chart_data_line_width(), chart_data_size(), chart_data_stroke(), chart_data_symbol(), chart_labels_text()

Examples

```
linec <- ms_linechart(data = iris, x = "Sepal.Length",
  y = "Sepal.Width", group = "Species")
linec <- chart_data_smooth(linec,
  values = c(virginica = 0, versicolor = 0, setosa = 0) )
```

---

chart_data_stroke *Modify marker stroke colour*

Description

Specify mappings from levels in the data to displayed marker stroke colours.

Usage

```
chart_data_stroke(x, values)
```

Arguments

x	an ms_chart object.
values	character(num of series): a set of colours values to map data values to. It is a named vector, the values will be matched based on the names. If it contains only one colour, this colour will be associated to all existing series.

See Also

Other Series customization functions: chart_data_fill(), chart_data_line_style(), chart_data_line_width(), chart_data_size(), chart_data_smooth(), chart_data_symbol(), chart_labels_text()

Examples

```
my_scatter <- ms_scatterchart(data = iris, x = "Sepal.Length",
  y = "Sepal.Width",  group = "Species")
my_scatter <- chart_data_fill(my_scatter,
  values = c(virginica = "#6FA2FF", versicolor = "#FF6161", setosa = "#81FF5B") )
my_scatter <- chart_data_stroke(my_scatter,
  values = c(virginica = "black", versicolor = "black", setosa = "black") )
```

chart_data_symbol *Modify symbol*

Description

Specify mappings from levels in the data to displayed symbols.

Usage

```
chart_data_symbol(x, values)
```

Arguments

x	an ms_chart object.
values	character(num of series): a set of symbol values to map data values to. It is a named vector, the values will be matched based on the names. Possible values are: 'circle', 'dash', 'diamond', 'dot', 'none', 'plus', 'square', 'star', 'triangle', 'x', 'auto'. If it contains only one symbol, this symbol will be associated to all existing series.

See Also

Other Series customization functions: chart_data_fill(), chart_data_line_style(), chart_data_line_width(), chart_data_size(), chart_data_smooth(), chart_data_stroke(), chart_labels_text()

Examples

```
my_scatter <- ms_scatterchart(data = iris, x = "Sepal.Length",
  y = "Sepal.Width",  group = "Species")
my_scatter <- chart_data_fill(my_scatter,
  values = c(virginica = "#6FA2FF", versicolor = "#FF6161", setosa = "#81FF5B") )
my_scatter <- chart_data_stroke(my_scatter,
  values = c(virginica = "black", versicolor = "black", setosa = "black") )
my_scatter <- chart_data_symbol(my_scatter,
  values = c(virginica = "circle", versicolor = "diamond", setosa = "circle") )
```

chart_labels *Modify axis and plot labels*

Description

Add labels to a chart, labels can be specified for x axis, y axis and plot.

Usage

```
chart_labels(x, title = NULL, xlab = NULL, ylab = NULL)
```

Arguments

x	an ms_chart object.
title, xlab, ylab	Text to add

Examples

```
mylc <- ms_linechart(
  data = browser_ts, x = "date", y = "freq",
  group = "browser"
)
mylc <- chart_labels(mylc,
  title = "my title", xlab = "my x label",
  ylab = "my y label"
)
```

---

chart_labels_text *Modify labels font settings*

Description

Specify mappings from levels in the data to displayed text font settings.

Usage

```
chart_labels_text(x, values)
```

Arguments

x	an ms_chart object.
values	a named list of fp_text() objects to map data labels to. It is a named list, the values will be matched based on the names. If it contains only one fp_text() object, it will be associated to all existing series.

See Also

Other Series customization functions: chart_data_fill(), chart_data_line_style(), chart_data_line_width(), chart_data_size(), chart_data_smooth(), chart_data_stroke(), chart_data_symbol()

Examples

```
library(officer)

fp_text_settings <- list(
  serie1 = fp_text(font.size = 7, color = "red"),
  serie2 = fp_text(font.size = 0, color = "purple"),
  serie3 = fp_text(font.size = 19, color = "wheat")
)
```

```
barchart <- ms_barchart(
  data = browser_data,
  x = "browser", y = "value", group = "serie")
barchart <- chart_data_labels(barchart, show_val = TRUE)
barchart <- chart_labels_text( barchart,
  values = fp_text_settings )
```

`chart_settings` *set chart options*

Description

Set chart properties.

Usage

```
chart_settings(x, ...)

## S3 method for class 'ms_barchart'
chart_settings(x, vary_colors, gap_width, dir, grouping, overlap, table, ...)

## S3 method for class 'ms_linechart'
chart_settings(x, vary_colors, style = "lineMarker", table, ...)

## S3 method for class 'ms_areachart'
chart_settings(
  x,
  vary_colors = FALSE,
  grouping = "standard",
  table = FALSE,
  ...
)

## S3 method for class 'ms_scatterchart'
chart_settings(x, vary_colors = FALSE, style = "marker", ...)
```

Arguments

`x`	an `ms_chart` object.
`...`	unused parameter
`vary_colors`	if `TRUE` the data points in the single series are displayed the same color.
`gap_width`	A gap appears between the bar or clustered bars for each category on a bar chart. The default width for this gap is 150 percent of the bar width. It can be set between 0 and 500 percent of the bar width.
`dir`	the direction of the bars in the chart, value must one of "horizontal" or "vertical".

grouping	grouping for a barchart, a linechart or an area chart. must be one of "percentStacked", "clustered", "standard" or "stacked".
overlap	In a bar chart having two or more series, the bars for each category are clustered together. By default, these bars are directly adjacent to each other. The bars can be made to overlap each other or have a space between them using the overlap property. Its values range between -100 and 100, representing the percentage of the bar width by which to overlap adjacent bars. A setting of -100 creates a gap of a full bar width and a setting of 100 causes all the bars in a category to be superimposed. The default value is 0.
table	if TRUE set a table below the barchart.
style	Style for the linechart or scatterchart type of markers. One of 'none', 'line', 'lineMarker', 'marker', 'smooth', 'smoothMarker'.

Methods (by class)

- chart_settings(ms_barchart): barchart settings
- chart_settings(ms_linechart): linechart settings
- chart_settings(ms_areachart): linechart settings
- chart_settings(ms_scatterchart): linechart settings

Illustrations

See Also

ms_barchart(), ms_areachart(), ms_scatterchart(), ms_linechart()

Examples

```
library(mschart)
library(officer)

chart_01 <- ms_barchart(
  data = browser_data, x = "browser",
  y = "value", group = "serie"
)
chart_01 <- chart_theme(chart_01,
  grid_major_line_x = fp_border(width = 0),
  grid_minor_line_x = fp_border(width = 0)
)

chart_02 <- chart_settings(
  x = chart_01,
  grouping = "stacked", overlap = 100
)


chart_03 <- ms_areachart(
```

```
  data = browser_ts, x = "date",
  y = "freq", group = "browser"
)
chart_03 <- chart_settings(chart_03,
  grouping = "percentStacked"
)
```

`chart_table` *x table settings*

Description

Define settings for an x table.

Usage

```
chart_table(x, horizontal, vertical, outline, show_keys)
```

Arguments

`x`	an `ms_chart` object.
`horizontal`	write horizontal lines in the table
`vertical`	write vertical lines in the table
`outline`	write an outline in the table
`show_keys`	showkeys in the table

Examples

```
data <- data.frame(
  supp = factor(rep(c("OJ", "VC"), each = 3),
                levels = c("OJ", "VC")),
  dose = factor(rep(c("low", "medium", "high"), 2),
                levels = c("low", "medium", "high")),
  length = c(13.23, 22.7, 24.06, 7.98, 16.77, 26.14),
  label = LETTERS[1:6],
  stringsAsFactors = FALSE
)

# example chart 03 -------
chart <- ms_linechart(
  data = data, x = "dose", y = "length",
  group = "supp", labels = "label"
)
chart <- chart_settings(
  x = chart, table = TRUE
)

chart <- chart_table(chart,
```

```
  horizontal = TRUE, vertical = FALSE,
  outline = TRUE, show_keys = FALSE
)
```

---

mschart *Chart Generation for 'Microsoft Word' and 'Microsoft PowerPoint' Documents*

Description

It lets R users to create Microsoft Office charts from data, and then add title, legends, and annotations to the chart object.

The graph produced is a Microsoft graph, which means that it can be edited in your Microsoft software and that the underlying data are available.

The package will not allow you to make the same charts as with ggplot2. It allows only a subset of the charts possible with 'Office Chart'. The package is often used to industrialize graphs that are then consumed and annotated by non-R users.

The following charts are the only available from all possible MS charts:

- barcharts: `ms_barchart()`
- line charts: `ms_linechart()`
- scatter plots: `ms_scatterchart()`
- area charts: `ms_areachart()`

These functions are creating a 'chart' object, it can be customized;

- by using options specific to the chart (with `chart_settings()`),
- by changing the options related to the axes (with `chart_ax_x()` and `chart_ax_y()`),
- by changing the options related to the labels (with `chart_data_labels()`),
- by changing the colors, line widths, ... with functions
  - `chart_labels_text()`
  - `chart_data_fill()`
  - `chart_data_line_style()`
  - `chart_data_line_width()`
  - `chart_data_size()`
  - `chart_data_smooth()`
  - `chart_data_stroke()`
  - `chart_data_symbol()`
- by changing the general theme with function `chart_theme()`,
- by changing the title labels with function `chart_labels()`.

You can add a chart into a slide in PowerPoint with function `ph_with.ms_chart()`.

You can add a chart into a Word document with function `body_add_chart()`.

Author(s)

Maintainer: David Gohel <david.gohel@ardata.fr>

Other contributors:

- ArData [copyright holder]
- YouGov [funder]
- Jan Marvin Garbuszus (support for openxls2) [contributor]
- Marlon Molina (added table feature) [contributor]
- Rokas Klydzia (custom labels) [contributor]
- David Camposeco <david.camposeco.paulsen@gmail.com> (chart_data_smooth function) [contributor]
- Dan Joplin (fix scatter plot data structure) [contributor]

See Also

https://ardata-fr.github.io/officeverse/

---

ms_areachart *areachart object*

Description

Creation of an areachart object that can be inserted in a 'Microsoft' document.

Area charts can be used to plot change over time and draw attention to the total value across a trend. By showing the sum of the plotted values, an area chart also shows the relationship of parts to a whole.

Usage

```
ms_areachart(data, x, y, group = NULL, labels = NULL, asis = FALSE)
```

Arguments

data	a data.frame
x	x colname
y	y colname
group	grouping colname used to split data into series. Optional.
labels	colnames of columns to be used as labels into series. Optional. If more than a name, only the first one will be used as label, but all labels (transposed if a group is used) will be available in the Excel file associated with the chart.
asis	bool parameter defaulting to FALSE. If TRUE the data will not be modified.

See Also

chart_settings(), chart_ax_x(), chart_ax_y(), chart_data_labels(), chart_theme(), chart_labels()

Other 'Office' chart objects: ms_barchart(), ms_linechart(), ms_scatterchart()

Examples

```
library(officer)
mytheme <- mschart_theme(
  axis_title_x = fp_text(color = "red", font.size = 24, bold = TRUE),
  axis_title_y = fp_text(color = "green", font.size = 12, italic = TRUE),
  grid_major_line_y = fp_border(width = 1, color = "orange"),
  axis_ticks_y = fp_border(width = 1, color = "orange")
)

# example ac_01 -------
ac_01 <- ms_areachart(
  data = browser_ts, x = "date",
  y = "freq", group = "browser"
)
ac_01 <- chart_ax_y(ac_01, cross_between = "between", num_fmt = "General")
ac_01 <- chart_ax_x(ac_01, cross_between = "midCat", num_fmt = "m/d/yy")
ac_01 <- set_theme(ac_01, mytheme)


# example ac_02 -------
ac_02 <- chart_settings(ac_01, grouping = "percentStacked")

# example ac_03 -------
ac_03 <- chart_settings(ac_01, grouping = "percentStacked", table = TRUE)
ac_03 <- chart_table(
  ac_03,
  horizontal = FALSE, vertical = FALSE,
  outline = FALSE, show_keys = TRUE)
```

---

ms_barchart *barchart object*

Description

Creation of a barchart object that can be inserted in a 'Microsoft' document.

Bar charts illustrate comparisons among individual items. In a bar chart, the categories are typically organized along the vertical axis, and the values along the horizontal axis.

Consider using a bar chart when:

- The axis labels are long.
- The values that are shown are durations.

Usage

```
ms_barchart(data, x, y, group = NULL, labels = NULL, asis = FALSE)
```

Arguments

data	a data.frame
x	x colname
y	y colname
group	grouping colname used to split data into series. Optional.
labels	colnames of columns to be used as labels into series. Optional. If more than a name, only the first one will be used as label, but all labels (transposed if a group is used) will be available in the Excel file associated with the chart.
asis	bool parameter defaulting to FALSE. If TRUE the data will not be modified.

Illustrations

See Also

chart_settings(), chart_ax_x(), chart_ax_y(), chart_data_labels(), chart_theme(), chart_labels()

Other 'Office' chart objects: ms_areachart(), ms_linechart(), ms_scatterchart()

Examples

```
library(officer)
library(mschart)
library(officer)


# example chart 01 -------

chart_01 <- ms_barchart(
  data = browser_data, x = "browser",
  y = "value", group = "serie"
)
chart_01 <- chart_settings(
  x = chart_01, dir = "vertical",
  grouping = "clustered", gap_width = 50
)
chart_01 <- chart_ax_x(
  x = chart_01, cross_between = "between",
  major_tick_mark = "out"
)
chart_01 <- chart_ax_y(
  x = chart_01, cross_between = "midCat",
  major_tick_mark = "in"
)
```

```
# example chart 02 -------
dat <- data.frame(
  Species = factor(c("setosa", "versicolor", "virginica"),
    levels = c("setosa", "versicolor", "virginica")
  ),
  mean = c(5.006, 5.936, 6.588)
)
chart_02 <- ms_barchart(data = dat, x = "Species", y = "mean")
chart_02 <- chart_settings(x = chart_02, dir = "horizontal")
chart_02 <- chart_theme(x = chart_02, title_x_rot = 270, title_y_rot = 0)



# example chart 03 -------

mytheme <- mschart_theme(
  axis_title_x = fp_text(color = "gray", font.size = 20, bold = TRUE),
  axis_title_y = fp_text(color = "gray", font.size = 20, italic = TRUE),
  grid_major_line_y = fp_border(width = 1, color = "wheat"),
  axis_ticks_y = fp_border(width = 1, color = "gray")
)

chart_03 <- ms_barchart(
  data = browser_data, x = "browser",
  y = "value", group = "serie"
)
chart_03 <- chart_settings(chart_03,
  grouping = "stacked",
  gap_width = 150, overlap = 100
)
chart_03 <- chart_ax_x(chart_03,
  cross_between = "between",
  major_tick_mark = "out", minor_tick_mark = "none"
)
chart_03 <- chart_ax_y(chart_03,
  num_fmt = "0.00",
  minor_tick_mark = "none"
)
chart_03 <- set_theme(chart_03, mytheme)
chart_03 <- chart_labels(x = chart_03, title = "Things in percent")
chart_03 <- chart_data_labels(chart_03,
  position = "ctr",
  show_val = TRUE
)
chart_03 <- chart_labels_text(chart_03, fp_text(color = "white", bold = TRUE, font.size = 9))


# example chart 04 -------

dat_groups <-
  data.frame(
    cut = c(
```

```
      "Fair", "Fair", "Fair", "Fair", "Fair",
      "Fair", "Fair", "Fair", "Good", "Good", "Good", "Good", "Good",
      "Good", "Good", "Good", "Very Good", "Very Good", "Very Good",
      "Very Good", "Very Good", "Very Good", "Very Good", "Very Good",
      "Premium", "Premium", "Premium", "Premium", "Premium",
      "Premium", "Premium", "Premium", "Ideal", "Ideal", "Ideal", "Ideal",
      "Ideal", "Ideal", "Ideal", "Ideal"
    ),
    clarity = c(
      "I1", "SI2", "SI1", "VS2", "VS1", "VVS2",
      "VVS1", "IF", "I1", "SI2", "SI1", "VS2", "VS1", "VVS2", "VVS1",
      "IF", "I1", "SI2", "SI1", "VS2", "VS1", "VVS2", "VVS1", "IF",
      "I1", "SI2", "SI1", "VS2", "VS1", "VVS2", "VVS1", "IF", "I1",
      "SI2", "SI1", "VS2", "VS1", "VVS2", "VVS1", "IF"
    ),
    carat = c(
      1.065, 1.01, 0.98, 0.9, 0.77, 0.7, 0.7,
      0.47, 1.07, 1, 0.79, 0.82, 0.7, 0.505, 0.4, 0.46, 1.145, 1.01,
      0.77, 0.71, 0.7, 0.4, 0.36, 0.495, 1.11, 1.04, 0.9, 0.72, 0.7,
      0.455, 0.4, 0.36, 1.13, 1, 0.71, 0.53, 0.53, 0.44, 0.4, 0.34
    ),
    n = c(
      210L, 466L, 408L, 261L, 170L, 69L, 17L, 9L,
      96L, 1081L, 1560L, 978L, 648L, 286L, 186L, 71L, 84L, 2100L,
      3240L, 2591L, 1775L, 1235L, 789L, 268L, 205L, 2949L, 3575L, 3357L,
      1989L, 870L, 616L, 230L, 146L, 2598L, 4282L, 5071L, 3589L,
      2606L, 2047L, 1212L
    )
  )

dat_groups$label <- sprintf(
  "carat median is %.01f",
  dat_groups$carat
)
dat_groups

text_prop <- fp_text(font.size = 11, color = "gray")

chart_04 <- ms_barchart(
  data = dat_groups, x = "cut",
  labels = "label", y = "n", group = "clarity"
)
chart_04 <- chart_settings(chart_04,
  grouping = "clustered", dir = "horizontal",
  gap_width = 0
)
chart_04 <- chart_data_labels(chart_04, position = "outEnd")
chart_04 <- chart_labels_text(chart_04, text_prop)
chart_04 <- chart_theme(chart_04, title_x_rot = 270, title_y_rot = 0)

# example chart 05 -------

dat_no_group <- data.frame(
```

```
  stringsAsFactors = FALSE,
  cut = c("Fair", "Good", "Very Good", "Premium", "Ideal"),
  carat = c(1, 0.82, 0.71, 0.86, 0.54),
  n = c(1610L, 4906L, 12082L, 13791L, 21551L),
  label = c(
    "carat median is 1.0",
    "carat median is 0.8", "carat median is 0.7",
    "carat median is 0.9", "carat median is 0.5"
  )
)
chart_05 <- ms_barchart(
  data = dat_no_group,
  x = "cut", labels = "label", y = "n"
)
chart_05 <- chart_settings(chart_05,
  grouping = "clustered"
)
chart_05 <- chart_data_labels(chart_05, position = "outEnd")
chart_05 <- chart_labels_text(chart_05, text_prop)

# example chart 06 -------
chart_06 <- ms_barchart(
  data = dat_no_group,
  x = "cut", labels = "label", y = "n"
)
chart_06 <- chart_settings(chart_06,
  grouping = "clustered", table = TRUE
)
chart_06 <- chart_data_labels(chart_06, position = "outEnd")
chart_06 <- chart_labels_text(chart_06, text_prop)
```

`ms_linechart` *linechart object*

Description

Creation of a linechart object that can be inserted in a 'Microsoft' document.

In a line chart, category data is distributed evenly along the horizontal axis, and all value data is distributed evenly along the vertical axis. Line charts can show continuous data over time on an evenly scaled axis, so they're ideal for showing trends in data at equal intervals, like months and quarters.

Usage

```
ms_linechart(data, x, y, group = NULL, labels = NULL, asis = FALSE)
```

Arguments

data	a data.frame
x	x colname
y	y colname
group	grouping colname used to split data into series. Optional.
labels	colnames of columns to be used as labels into series. Optional. If more than a name, only the first one will be used as label, but all labels (transposed if a group is used) will be available in the Excel file associated with the chart.
asis	bool parameter defaulting to FALSE. If TRUE the data will not be modified.

Illustrations

See Also

chart_settings(), chart_ax_x(), chart_ax_y(), chart_data_labels(), chart_theme(), chart_labels()

Other 'Office' chart objects: ms_areachart(), ms_barchart(), ms_scatterchart()

Examples

```
library(officer)
# example chart_01 -------
chart_01 <- ms_linechart(
  data = us_indus_prod,
  x = "date", y = "value",
  group = "type"
)

chart_01 <- chart_ax_x(
  x = chart_01, num_fmt = "[$-fr-FR]mmm yyyy",
  limit_min = min(us_indus_prod$date), limit_max = as.Date("1992-01-01")
)

chart_01 <- chart_data_stroke(
  x = chart_01,
  values = c(adjusted = "red", unadjusted = "gray")
)

chart_01 <- chart_data_line_width(
  x = chart_01,
  values = c(adjusted = 2, unadjusted = 5)
)

chart_01 <- chart_theme(chart_01,
  grid_major_line_x = fp_border(width = 0),
  grid_minor_line_x = fp_border(width = 0)
)
```

```
# example chart_02 -------
data <- data.frame(
  supp = factor(rep(c("OJ", "VC"), each = 3), levels = c("OJ", "VC")),
  dose = factor(rep(c("low", "medium", "high"), 2), levels = c("low", "medium", "high")),
  length = c(13.23, 22.7, 24.06, 7.98, 16.77, 26.14),
  label = LETTERS[1:6],
  stringsAsFactors = FALSE
)

chart_02 <- ms_linechart(
  data = data, x = "dose", y = "length",
  group = "supp", labels = "label"
)
chart_02 <- chart_ax_y(
  x = chart_02, cross_between = "between",
  limit_min = 5, limit_max = 30,
  num_fmt = "General"
)
chart_02 <- chart_data_labels(
  x = chart_02, position = "l"
)

# example chart 03 -------
chart_03 <- ms_linechart(
  data = data, x = "dose", y = "length",
  group = "supp", labels = "label"
)
chart_03 <- chart_ax_y(
  x = chart_03, cross_between = "between",
  limit_min = 5, limit_max = 30,
  num_fmt = "General"
)
chart_03 <- chart_data_labels(
  x = chart_03, position = "l"
)

chart_03 <- chart_settings(
  x = chart_03, table = TRUE
)

chart_03 <- chart_table(chart_03,
  horizontal = TRUE, vertical = FALSE,
  outline = TRUE, show_keys = FALSE
)
```

`ms_scatterchart` *scatterchart object*

Description

Creation of a scatterchart object that can be inserted in a 'Microsoft' document.

Usage

```
ms_scatterchart(data, x, y, group = NULL, labels = NULL, asis = FALSE)
```

Arguments

data	a data.frame
x	x colname
y	y colname
group	grouping colname used to split data into series. Optional.
labels	colnames of columns to be used as labels into series. Optional. If more than a name, only the first one will be used as label, but all labels (transposed if a group is used) will be available in the Excel file associated with the chart.
asis	bool parameter defaulting to FALSE. If TRUE the data will not be modified.

Illustrations

See Also

chart_settings(), chart_ax_x(), chart_ax_y(), chart_data_labels(), chart_theme(), chart_labels()

Other 'Office' chart objects: ms_areachart(), ms_barchart(), ms_linechart()

Examples

```
library(officer)
# example chart_01 -------
chart_01 <- ms_scatterchart(
  data = mtcars, x = "disp",
  y = "drat"
)
chart_01 <- chart_settings(chart_01, scatterstyle = "marker")


# example chart_02 -------
chart_02 <- ms_scatterchart(
  data = iris, x = "Sepal.Length",
  y = "Petal.Length", group = "Species"
)
chart_02 <- chart_settings(chart_02, scatterstyle = "marker")
```

`ph_with.ms_chart` *add a MS Chart output into a PowerPoint object*

Description

produces a Microsoft Chart graphics output from R instructions and add the result in a PowerPoint document object produced by `read_pptx()`.

Usage

```
## S3 method for class 'ms_chart'
ph_with(x, value, location, ...)
```

Arguments

`x`	a pptx device
`value`	chart object
`location`	a location for a placeholder.
`...`	Arguments to be passed to methods.

Examples

```
my_barchart <- ms_barchart(data = browser_data,
  x = "browser", y = "value", group = "serie")
my_barchart <- chart_settings( x = my_barchart,
  dir="vertical", grouping="clustered", gap_width = 50 )
my_barchart <- chart_ax_x( x= my_barchart,
  cross_between = 'between', major_tick_mark="out")
my_barchart <- chart_ax_y( x= my_barchart,
  cross_between = "midCat", major_tick_mark="in")

library(officer)
doc <- read_pptx()
doc <- add_slide(doc, "Title and Content", "Office Theme")
doc <- ph_with(doc, my_barchart, location = ph_location_fullsize())

fileout <- tempfile(fileext = ".pptx")
print(doc, target = fileout)
```

print.ms_chart *ms_chart print method*

Description

an ms_chart object can not be rendered in R. The default printing method will only display simple informations about the object. If argument preview is set to TRUE, a pptx file will be produced and opened with function browseURL.

Usage

```
## S3 method for class 'ms_chart'
print(x, preview = FALSE, ...)
```

Arguments

x	an ms_chart object.
preview	preview the chart in a PowerPoint document
...	unused

set_theme *set chart theme*

Description

Modify chart theme with function set_theme.

Use mschart_theme() to create a chart theme.

Use chart_theme() to modify components of the theme of a chart.

Usage

```
set_theme(x, value)

mschart_theme(
  axis_title = fp_text(bold = TRUE, font.size = 16),
  axis_title_x = axis_title,
  axis_title_y = axis_title,
  main_title = fp_text(bold = TRUE, font.size = 20),
  legend_text = fp_text(font.size = 14),
  table_text = fp_text(bold = FALSE, font.size = 9),
  axis_text = fp_text(),
  axis_text_x = axis_text,
  axis_text_y = axis_text,
  title_rot = 0,
```

```
  title_x_rot = 0,
  title_y_rot = 270,
  axis_ticks = fp_border(color = "#99999999"),
  axis_ticks_x = axis_ticks,
  axis_ticks_y = axis_ticks,
  grid_major_line = fp_border(color = "#99999999", style = "dashed"),
  grid_major_line_x = grid_major_line,
  grid_major_line_y = grid_major_line,
  grid_minor_line = fp_border(width = 0),
  grid_minor_line_x = grid_minor_line,
  grid_minor_line_y = grid_minor_line,
  date_fmt = "yyyy/mm/dd",
  str_fmt = "General",
  double_fmt = "#,##0.00",
  integer_fmt = "0",
  legend_position = "b"
)

chart_theme(
  x,
  axis_title_x,
  axis_title_y,
  main_title,
  legend_text,
  title_rot,
  title_x_rot,
  title_y_rot,
  axis_text_x,
  axis_text_y,
  axis_ticks_x,
  axis_ticks_y,
  grid_major_line_x,
  grid_major_line_y,
  grid_minor_line_x,
  grid_minor_line_y,
  date_fmt,
  str_fmt,
  double_fmt,
  integer_fmt,
  legend_position
)
```

Arguments

x	an ms_chart object.
value	a mschart_theme() object.
axis_title, axis_title_x, axis_title_y	axis title formatting properties (see fp_text())

main_title	title formatting properties (see fp_text())
legend_text	legend text formatting properties (see fp_text())
table_text	table text formatting properties (see fp_text())
axis_text, axis_text_x, axis_text_y	axis text formatting properties (see fp_text())
title_rot, title_x_rot, title_y_rot	rotation angle
axis_ticks, axis_ticks_x, axis_ticks_y	axis ticks formatting properties (see fp_border())
grid_major_line, grid_major_line_x, grid_major_line_y	major grid lines formatting properties (see fp_border())
grid_minor_line, grid_minor_line_x, grid_minor_line_y	minor grid lines formatting properties (see fp_border())
date_fmt	date format
str_fmt	string or factor format
double_fmt	double format
integer_fmt	integer format
legend_position	it specifies the position of the legend. It should be one of 'b', 'tr', 'l', 'r', 't', 'n' (for 'none').

See Also

ms_barchart(), ms_areachart(), ms_scatterchart(), ms_linechart()

Examples

```
library(officer)
mytheme <- mschart_theme(
  axis_title = fp_text(color = "red", font.size = 24, bold = TRUE),
  grid_major_line_y = fp_border(width = 1, color = "orange"),
  axis_ticks_y = fp_border(width = .4, color = "gray")
)


my_bc <- ms_barchart(
  data = browser_data, x = "browser",
  y = "value", group = "serie"
)
my_bc <- chart_settings(my_bc,
  dir = "horizontal", grouping = "stacked",
  gap_width = 150, overlap = 100
)
my_bc <- set_theme(my_bc, mytheme)



my_bc_2 <- ms_barchart(
```

```
  data = browser_data, x = "browser",
  y = "value", group = "serie"
)
my_bc_2 <- chart_theme(my_bc_2,
  grid_major_line_y = fp_border(width = .5, color = "cyan")
)
```

`us_indus_prod` *Index of US Industrial Production*

Description

Index of US industrial production (1985 = 100).

Usage

```
data(us_indus_prod)
```

Format

A data frame with 256 rows and 3 variables

Details

This is a transformation into simple data.frame of data `USProdIndex` in package 'AER'.

Index