

Package: spccharter (via r-universe)

September 4, 2024

Title Automatically Plot, Analyse and Revise Multiple Process Control Charts

Version 0.0.0.9000

Description Plots multiple control charts, finds signals of improvement, and revises centre line and control limits each time a signal is present.

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Encoding UTF-8

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.1.1

Imports data.table, ggplot2, lubridate, zoo, scales

Depends R (>= 2.10)

Repository <https://johnmackintosh.r-universe.dev>

RemoteUrl <https://github.com/johnmackintosh/spccharter>

RemoteRef HEAD

RemoteSha 56eaf6249e9d030d655ac7f374a619c0e545c316

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`spccharter`*spccharter*

Description

Finds all runs of desired length occurring on desired side of centre line. Can also find runs occurring on both sides of the line, though this is of limited use in terms of quality improvement. Re-bases centre line each time a run is discovered. The rebasing uses the points in the run, and a number of future points to ensure robust limits.

Usage

```
spccharter(  
  df,  
  numerator,  
  denominator = NULL,  
  datecol = NULL,  
  by,  
  plot_type = c("c", "p", "u"),  
  runlength = 8,  
  initial_rows = 25,  
  look_forward = 25,  
  direction = c("above", "below", "both"),  
  round_digits = 2,  
  multiplier = c(100, 1000, 10000),  
  facet_cols = NULL,  
  facet_scales = "fixed",  
  chart_title = NULL,  
  chart_subtitle = NULL,  
  chart_caption = NULL,  
  chart_breaks = NULL,  
  line_colr = "#005EB8",  
  line_size = 1.1,  
  point_colr = "#005EB8",  
  point_size = 2.7,  
  centre_colr = "#06425AFF",  
  centre_line_size = 1.05,  
  highlight_fill = "#B50A2AFF",  
  cl_fill = "grey80",  
  cl_colr = NULL,  
  wl_fill = "grey90",  
  wl_colr = NULL,  
  overwrite_theme = TRUE,  
  outputs = c("both", "plot", "data"),  
  ...  
)
```

Arguments

df	data.frame or data table
numerator	numeric value representing the number of defect(s)
denominator	sample size
datecol	name of date column
by	a single unquoted variable or character vector of length 2 indicating desired grouping variable(s) . You must supply a grouping variable .
plot_type	'c', 'p' or 'u' chart
runlength	length of desired run. Less than 8 may not be statistically significant
initial_rows	number of points to calculate initial baseline mean
look_forward	number of rows to rebase limits on, including those in the sustained run
direction	should run occur "above", "below" or on "both" sides of the mean line
round_digits	the number of decimal places to round the p / u values and limits to
multiplier	to express results as rate per 1000, 10000 or for percentages
facet_cols	how many columns are required in the plot facets
facet_scales	defaults to "fixed". Alternatively, "free_y"
chart_title	title for the final chart
chart_subtitle	subtitle for chart
chart_caption	caption for chart
chart_breaks	character string defining desired x-axis date breaks
line_colr	colour for basic chart lines
line_size	thickness of connecting lines between run chart points
point_colr	colour for basic chart points
point_size	size of normal run chart points
centre_colr	colour for solid and extended mean lines
centre_line_size	thickness of solid and extended mean lines
highlight_fill	fill colour for highlighting points in a sustained run
cl_fill	geom_ribbon fill for upper and lower control limits
cl_colr	optional line colour for upper and lower control limits
wl_fill	geom_ribbon fill for upper and lower warning limits
wl_colr	optional line colour for upper and lower warning limits
overwrite_theme	set to FALSE if you want to amend the final plot afterwards, in which case it returns the default ggplot2 theme, gridlines and date labels. Leave at TRUE for theme_minimal, no gridlines and rotated date labels.
outputs	return both plot and data, plot only, data only
...	further arguments passed on to function

Details

Facets and axis limits are handled by ggplot, though x-axis breaks can be specified using the appropriate character string e.g. "3 months"

Value

(faceted) plot plus detailed data.tables showing improvement data. These outputs can be used for further processing in external tools

Examples

```
spccharter(testdata, numerator = defects,
denominator = possible, datecol = report_month,
by = testgroup, plot_type = 'p',
direction = 'both', initial_rows = 13,
look_forward = 13, chart_breaks = '3 months')
```

```
spccharter(testdata, numerator = defects,
denominator = possible, datecol = report_month,
by = testgroup, plot_type = 'c',
direction = 'both', initial_rows = 13,
look_forward = 13, chart_breaks = '3 months')
```

testdata	<i>#' 75 grouped observations over time.</i>
----------	--

Description

A dataset containing 1 group of 75 integers showing counts of defects from a sample size over several years.

Usage

```
testdata
```

Format

A data frame with 75 rows and 4 variables:

report_month date of the observation, by month

defects integers representing counts of defects over time

possible integers representing the sample from which the defects occurred

testgroup a grouping variable

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