

Package ‘gglm’

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Type Package

Title Grammar of Graphics for Linear Model Diagnostic Plots

Version 1.1.0

Description Allows for easy creation of diagnostic plots for a variety of model objects using the Grammar of Graphics.
Provides functionality for both individual diagnostic plots and an array of four standard diagnostic plots.

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Depends ggplot2

Imports broom, broom.mixed, patchwork, utils, rlang, vctrs

Suggests bslib, DT, fivethirtyeight, ggthemes, htmltools, lme4,
palmerpenguins, RColorBrewer, shiny, testthat (>= 3.0.0)

URL <https://github.com/graysonwhite/gglm>,
<https://graysonwhite.com/gglm/>

BugReports <https://github.com/graysonwhite/gglm/issues>

RoxygenNote 7.3.3

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<code>gglm</code>	<i>gglm</i>
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Description

Provides four standard visual model diagnostic plots with `ggplot2`.

Usage

```
gglm(data, mapping = ggplot2::aes(), theme = ggplot2::theme_gray(), ...)
```

Arguments

- `data` A model object.
- `mapping` Additional aesthetic mappings to add to each layer, e.g. `aes(color = some_var)`.
- `theme` The theme of the ggplots to be produced.
- `...` Additional arguments passed on to each `stat_*()` layer.

Value

A `ggplot2` object for visual diagnostic of model validity.

Examples

```
data(mtcars)
m1 <- lm(mpg ~ cyl + disp + hp, data = mtcars)
gglm(m1)
```

launch	<i>launch</i>
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Description

Launches a R Shiny-based applet for linear model diagnostics.

Usage

```
launch(
  data = NULL,
  example_datasets = list(penguins = palmerpenguins::penguins, candy =
    fivethirtyeight::candy_rankings, mtcars = datasets::mtcars),
  ...
)
```

Arguments

<code>data</code>	A <code>data.frame</code> to use in modeling. Meant for one-off uses of <code>launch()</code> with data in your working environment.
<code>example_datasets</code>	A named list of example datasets to use in modeling. Meant for publicly hosting instances of <code>launch()</code> with a set of preferred datasets.
<code>...</code>	Currently ignored. For extendability.

Value

None. Launches a shiny applet for point-and-click based model diagnostics.

Examples

```
## Not run:
launch()

## End(Not run)
```

<code>list_model_classes</code>	<i>list_model_classes</i>
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Description

Returns the possible model classes that `ggglm` works with.

Usage

```
list_model_classes(...)
```

Arguments

... Currently ignored. For extendability.

Value

A character vector containing the possible model classes that ggml works with.

Note

Note that these are not always the exact name of the class that that can be used. This is due to how some methods are written in the packages ggml imports. For example, the model class "merMod" refers to a variety of model outputs from lme4, even when the outputted class is not called "merMod".

Examples

```
list_model_classes()
```

stat_cooks_leverage	<i>stat_cooks_leverage</i>
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Description

Cook's Distance vs. Leverage

Usage

```
stat_cooks_leverage(
  mapping = ggplot2::aes(),
  alpha = 0.5,
  method = "loess",
  linecolor = "steelblue",
  se = FALSE,
  ...
)
```

Arguments

mapping	Additional aesthetic mappings to add to the layer, e.g. <code>aes(color = some_var)</code> . If mapping includes a required aesthetic (e.g. <code>x</code> , <code>y</code>), the supplied value is ignored in favor of the default and a warning is issued.
alpha	Adjust transparency of points.
method	Method for fitting the line to the points.
linecolor	Color of the line.
se	Keep standard error bands around line?
...	Additional arguments passed on to <code>geom_point()</code> .

Value

A ggplot2 layer for plotting Cook's Distance vs. Leverage.

Examples

```
data(mtcars)
model <- lm(mpg ~ cyl + disp + hp, data = mtcars)
ggplot2::ggplot(data = model) + stat_cooks_leverage()
```

stat_cooks_obs	<i>stat_cooks_obs</i>
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Description

ggplot2 layer for plotting cook's distance by observation number.

Usage

```
stat_cooks_obs(mapping = ggplot2::aes(), ...)
```

Arguments

mapping	Additional aesthetic mappings to add to the layer, e.g. <code>aes(fill = some_var)</code> . If mapping includes a required aesthetic (e.g. <code>x</code> , <code>y</code>), the supplied value is ignored in favor of the default and a warning is issued.
...	Additional arguments passed on to <code>geom_col()</code> .

Value

A ggplot2 layer for plotting cook's distance by observation number.

Examples

```
data(mtcars)
model <- lm(mpg ~ cyl + disp + hp, data = mtcars)
ggplot2::ggplot(data = model) + stat_cooks_obs()
```

stat_fitted_resid	<i>stat_fitted_resid</i>
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Description

ggplot2 layer for plotting a fitted vs. residual scatter plot.

Usage

```
stat_fitted_resid(mapping = ggplot2::aes(), alpha = 0.5, ...)
```

Arguments

mapping	Additional aesthetic mappings to add to the layer, e.g. <code>aes(color = some_var)</code> . If mapping includes a required aesthetic (e.g. <code>x</code> , <code>y</code>), the supplied value is ignored in favor of the default and a warning is issued.
alpha	Adjust transparency of points.
...	Additional arguments passed on to <code>geom_point()</code> .

Value

A ggplot2 layer for plotting a fitted vs. residual scatter plot.

Examples

```
data(mtcars)
model <- lm(mpg ~ cyl + disp + hp, data = mtcars)
ggplot2::ggplot(data = model) + stat_fitted_resid()
```

stat_normal_qq	<i>stat_normal_qq</i>
----------------	-----------------------

Description

Normal QQ plot.

Usage

```
stat_normal_qq(mapping = ggplot2::aes(), alpha = 0.5, ...)
```

Arguments

mapping	Additional aesthetic mappings to add to the layer, e.g. <code>aes(color = some_var)</code> . If mapping includes a required aesthetic (e.g. <code>x</code> , <code>y</code>), the supplied value is ignored in favor of the default and a warning is issued.
alpha	Adjust transparency of points.
...	Additional arguments passed on to <code>geom_point()</code> .

Value

A ggplot2 layer for plotting a Normal Q-Q plot.

Examples

```
data(mtcars)
model <- lm(mpg ~ cyl + disp + hp, data = mtcars)
ggplot2::ggplot(data = model) + stat_normal_qq()
```

stat_resid_hist	<i>stat_resid_hist</i>
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Description

Visualize the distribution of the residuals of a model.

Usage

```
stat_resid_hist(mapping = ggplot2::aes(), bins = 30, ...)
```

Arguments

mapping	Additional aesthetic mappings to add to the layer, e.g. <code>aes(fill = some_var)</code> . If mapping includes a required aesthetic (e.g. <code>x</code> , <code>y</code>), the supplied value is ignored in favor of the default and a warning is issued.
bins	Adjust the number of bins.
...	Additional arguments passed on to <code>geom_histogram()</code> .

Value

A ggplot2 layer for plotting a histogram of residuals.

Examples

```
data(mtcars)
model <- lm(mpg ~ cyl + disp + hp, data = mtcars)
ggplot2::ggplot(data = model) + stat_resid_hist()
```

stat_resid_leverage	<i>stat_resid_leverage</i>
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Description

Residual vs. leverage plot.

Usage

```
stat_resid_leverage(  
  mapping = ggplot2::aes(),  
  alpha = 0.5,  
  method = "loess",  
  se = FALSE,  
  linecolor = "steelblue",  
  ...  
)
```

Arguments

mapping	Additional aesthetic mappings to add to the layer, e.g. <code>aes(color = some_var)</code> . If mapping includes a required aesthetic (e.g. <code>x</code> , <code>y</code>), the supplied value is ignored in favor of the default and a warning is issued.
alpha	Adjust transparency of points.
method	Method for fitting the line to the points.
se	Keep standard error bands around line?
linecolor	Color of the line.
...	Additional arguments passed on to <code>geom_point()</code> .

Value

A `ggplot2` layer for plotting a fitted vs. residual scatter plot.

Examples

```
data(mtcars)  
model <- lm(mpg ~ cyl + disp + hp, data = mtcars)  
ggplot2::ggplot(data = model) + stat_resid_leverage()
```

stat_scale_location	<i>stat_scale_location</i>
---------------------	----------------------------

Description

Scale location diagnostic plot.

Usage

```
stat_scale_location(  
  mapping = ggplot2::aes(),  
  alpha = 0.5,  
  na.rm = TRUE,  
  se = FALSE,  
  method = "loess",  
  linecolor = "steelblue",  
  ...  
)
```

Arguments

mapping	Additional aesthetic mappings to add to the layer, e.g. <code>aes(color = some_var)</code> . If mapping includes a required aesthetic (e.g. <code>x</code> , <code>y</code>), the supplied value is ignored in favor of the default and a warning is issued.
alpha	Adjust the transparency of points.
na.rm	Remove points with value NA?
se	Keep standard error bands around line?
method	Method for fitting the line to the points.
linecolor	Color of the line.
...	Additional arguments passed on to <code>geom_point()</code> .

Value

A `ggplot2` layer for plotting the scale location diagnostic plot.

Examples

```
data(mtcars)  
model <- lm(mpg ~ cyl + disp + hp, data = mtcars)  
ggplot2::ggplot(data = model) + stat_scale_location()
```

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