Package 'Kifidi'

January 20, 2025

Type Package

Title Summary Table and Means Plots

Version 0.1.0

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Description Optimized for handling complex datasets in environmental and ecological research, this package offers functionality that is not fully met by general-purpose packages. It provides two key functions, 'summarize_data()', which summarizes datasets, and 'plot_means()', which creates plots with error bars. The 'plot_means()' function incorporates error bars by default, allowing quick visualization of uncertainties, crucial in ecological studies. It also streamlines workflows for grouped datasets (e.g., by species or treatment), making it particularly user-friendly and reducing the complexity and time required for data summarization and visualization.

License GPL-3

Encoding UTF-8

NeedsCompilation no

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Repository CRAN

Date/Publication 2024-10-11 08:40:06 UTC

Contents

Kifidi-package 2
plot_means 2
summarize_data 5

Index **8**

Kifidi-package *Kifidi package by Oswald Omuron*

Description

Kifidi v.0.1.0

Details

Package: Kifidi
Type: Package
Title: Kifidi v.0.1.0
Version: 0.1.0
Author: Oswald Omuron
Maintainer: Oswald Omuron <oswaldomuron@gmail.com>
Description: An overview of how to use the package, including the most important functions under See Also below.
License: GPL-3

Author(s)

Oswald Omuron

Maintainer: Oswald Omuron <oswaldomuron@gmail.com>

References

https://github.com/OswaldOmuron/Kifidi

See Also

Optional links to other man pages, e.g. summarize_data, plot_means

plot_means *Plot Means*

Description

This function plots the means of a summary data frame with optional error bars.

Usage

```
plot_means(summary_df,
           main_title = "Mean Values by Group",
           ylab = NULL,
           xlab = NULL,
           bar_color = "skyblue",
           error_bar_color = "red",
           bar_width = 0.7,
           error_bar_length = 0.1,
           axes = TRUE,
           space = NULL,
           density = NULL,
           angle = 45,
           col = NULL,
           names_arg = NULL,
           xlab_custom = NULL,
           ylab_custom = NULL,
           ann = TRUE,
           xlim = NULL,
           ylim = NULL,
           xaxt = "s",
           las = NULL)
```

Arguments

summary_df	A summary data frame containing the means and standard errors for each group.
main_title	Main title for the plot. Default is "Mean Values by Group".
ylab	Label for the y-axis.
xlab	Label for the x-axis.
bar_color	Color for the bars. Default is "skyblue".
error_bar_color	Color for the error bars. Default is "red".
bar_width	Width of the bars. Default is 0.7.
error_bar_length	Length of the error bars. Default is 0.1.
axes	Logical value indicating whether to draw axes on the plot. Default is TRUE.
space	Spacing between bars.
density	Density of shading lines.
angle	Angle of shading lines.
col	Color of shading lines.
names_arg	Vector of names for the x-axis.
xlab_custom	Custom label for the x-axis. Default is "Groups".
ylab_custom	Custom label for the y-axis. Default is "Mean".

ann	Logical value indicating whether to draw annotations on the plot. Default is TRUE.
xlim	Limits for the x-axis.
ylim	Limits for the y-axis.
xaxt	Type of x-axis labeling.
las	Style of axis labels.

Details

If the summary data frame contains two grouping variables (Group1 and Group2), they will be combined to form the x-axis labels.

Value

This function produces a bar plot with optional error bars.

Note

Additional notes can be added here.

Author(s)

Oswald Omuron

References

Please refer to the documentation of the `barplot` and `arrows` functions in the base R package.

See Also

The `summary` function for creating summary data frames.

Examples

```
# Example data
example_data <- c(
  445, 372, 284, 247, 328, 98.8, 108.7, 100.8, 123.6, 129.9, 133.3,
  130.1, 123.1, 186.6, 215, 19.4, 19.3, 27.8, 26, 22, 30.9, 19.8,
  16.5, 20.2, 31, 21.1, 16.5, 19.7, 18.9, 27, 161.8, 117, 94.6, 97.5,
  142.7, 109.9, 118.3, 111.4, 96.5, 109, 114.1, 114.9, 101.2, 112.7,
  111.1, 194.8, 169.9, 159.1, 100.8, 130.8, 93.6, 105.7, 178.4, 203,
  172.2, 127.3, 128.3, 110.9, 124.1, 179.1, 293, 197.5, 139.1, 98.1,
  84.6, 81.4, 87.2, 71.1, 70.3, 120.4, 194.5, 167.5, 121, 86.5, 81.7
)

example_group1 <- c(
  rep("Palm", 15), rep("Papyrus", 10), rep("Typha", 15),
  rep("Eucalyptus", 15), rep("Rice farm", 20)
)
```

```
example_group2 <- rep(c(50, 40, 30, 20, 10), 15)

# Create dataframe
example_df <- data.frame(
  Vegetation_types = example_group1,
  Depth_revised = example_group2,
  EC_uS_cm = example_data
)

# Summarize by one grouping variable
summary_one_group <- summarize_data(
  example_df$EC_uS_cm,
  example_df$Vegetation_types
)
print(summary_one_group)

# Summarize by two grouping variables
summary_two_groups <- summarize_data(
  example_df$EC_uS_cm,
  example_df$Vegetation_types,
  example_df$Depth_revised
)
print(summary_two_groups)

# Plotting the summarized data
plot_means(summary_two_groups, ylim=c(0,350), las=2,
  space = c(0,0,0,0,0,1,0,0,0,0,1,0,0,0,0,1,0,0,0,0,1,0,0,0,0)
)
```

`summarize_data` *Summarize Data by Groups*

Description

This function summarizes the provided data column by one or two grouping variables. It calculates the mean, standard deviation, sample size, minimum, maximum, median, and standard error.

Usage

```
summarize_data(column_data, group_var1, group_var2 = NULL)
```

Arguments

`column_data`	A numeric vector containing the data to be summarized.
`group_var1`	A factor or vector to group the data by.
`group_var2`	An optional second factor or vector to group the data by.

Details

If only one grouping variable is provided, the function will summarize the data by that variable. If two grouping variables are provided, it will summarize the data by both variables.

Value

A data frame with the following columns:

Group1 The first grouping variable (from `group_var1`).

Group2 The second grouping variable (from `group_var2`), if provided.

Mean The mean of the `column_data` for each group.

SD The standard deviation of the `column_data` for each group.

N The sample size for each group.

Min The minimum value of the `column_data` for each group.

Max The maximum value of the `column_data` for each group.

Median The median value of the `column_data` for each group.

SE The standard error of the mean for each group.

Output

A data frame with the above columns.

Note

The grouping variables and the data column can be of different lengths.

Author(s)

Oswald Omuron

References

No references available.

See Also

`aggregate`, `summarize_data`

Examples

```
# Example data
example_data <- c(
  445, 372, 284, 247, 328, 98.8, 108.7, 100.8, 123.6, 129.9, 133.3,
  130.1, 123.1, 186.6, 215, 19.4, 19.3, 27.8, 26, 22, 30.9, 19.8,
  16.5, 20.2, 31, 21.1, 16.5, 19.7, 18.9, 27, 161.8, 117, 94.6, 97.5,
  142.7, 109.9, 118.3, 111.4, 96.5, 109, 114.1, 114.9, 101.2, 112.7,
  111.1, 194.8, 169.9, 159.1, 100.8, 130.8, 93.6, 105.7, 178.4, 203,
  172.2, 127.3, 128.3, 110.9, 124.1, 179.1, 293, 197.5, 139.1, 98.1,
```

```
  84.6, 81.4, 87.2, 71.1, 70.3, 120.4, 194.5, 167.5, 121, 86.5, 81.7
)

example_group1 <- c(
  rep("Palm", 15), rep("Papyrus", 10), rep("Typha", 15),
  rep("Eucalyptus", 15), rep("Rice farm", 20)
)

example_group2 <- rep(c(50, 40, 30, 20, 10), 15)

# Create dataframe
example_df <- data.frame(
  Vegetation_types = example_group1,
  Depth_revised = example_group2,
  EC_uS_cm = example_data
)

# Summarize by one grouping variable
summary_one_group <- summarize_data(
  example_df$EC_uS_cm,
  example_df$Vegetation_types
)
print(summary_one_group)

# Summarize by two grouping variables
summary_two_groups <- summarize_data(
  example_df$EC_uS_cm,
  example_df$Vegetation_types,
  example_df$Depth_revised
)
print(summary_two_groups)
```

Index

∗ **data**
summarize_data, 5
∗ **package**
Kifidi-package, 2
∗ **summary**
summarize_data, 5

aggregate, *6*

Kifidi *(*Kifidi-package*)*, 2
Kifidi-package, 2

plot_means, *2*, 2

summarize_data, *2*, 5, *6*
summary, *4*