

Package: AutoEDA (via r-universe)

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Type Package

Title Automatic Exploratory Data Analysis

Version 0.0.1

Description Automatically performs exploratory data analysis, including data summaries, missing value analysis, descriptive statistics, visualizations, correlation analysis, outlier detection, and report generation.

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BugReports <https://github.com/vinodhpm/AutoEDA/issues>

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Contents

auto_eda	3
auto_plot	3
bar_plot	3
box_plot	4
categorical_plot	4
categorical_summary	4
cluster_analysis	5
cluster_dendrogram	5
cluster_elbow	6
cluster_plot	6
cluster_silhouette	6
correlation_analysis	7
correlation_network	7
correlation_plot	8
correlation_test	8
create_report	8
density_plot	9
export_excel	9
export_numeric_summary	9
histogram_plot	10
html_report	10
missing_heatmap	10
missing_pattern	11
missing_summary	11
numeric_summary	12
outlier_detection	12
outlier_summary	13
pair_plot	13
pca_analysis	13
pca_biplot	14
pca_individual_plot	14
pca_scree_plot	14
pca_variable_plot	15
plot_missing	15
plot_outliers	15
scatter_plot	16
summary_data	16
theme_autoeda	16

Index

17

`auto_eda`*Automatic Exploratory Data Analysis*

Description

Performs automatic exploratory data analysis.

Usage

```
auto_eda(data)
```

Arguments

`data` A data.frame.

Value

An object of class AutoEDA.

`auto_plot`*Automatic Plot*

Description

Automatic Plot

Usage

```
auto_plot(data, variable)
```

`bar_plot`*Bar Plot*

Description

Bar Plot

Usage

```
bar_plot(data, variable)
```

box_plot	<i>Box Plot</i>
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Description

Box Plot

Usage

box_plot(data, variable)

categorical_plot	<i>Plot Categorical Variable</i>
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Description

Plot Categorical Variable

Usage

categorical_plot(data, variable)

Arguments

data	data.frame
variable	variable name

categorical_summary	<i>Categorical Variable Summary</i>
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Description

Summarizes categorical variables (factor and character).

Usage

categorical_summary(data)

Arguments

data	A data.frame.
------	---------------

Value

An object of class CategoricalSummary.

cluster_analysis	<i>Cluster Analysis</i>
------------------	-------------------------

Description

Performs k-means clustering on numeric variables.

Usage

```
cluster_analysis(data, centers = 3, scale = TRUE)
```

Arguments

data	A data.frame.
centers	Number of clusters.
scale	Logical.

Value

ClusterResult object.

cluster_dendrogram	<i>Hierarchical Clustering</i>
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Description

Hierarchical Clustering

Usage

```
cluster_dendrogram(data)
```

Arguments

data	data.frame
------	------------

cluster_elbow	<i>Elbow Method</i>
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Description

Elbow Method

Usage

cluster_elbow(data)

Arguments

data data.frame

cluster_plot	<i>Cluster Plot</i>
--------------	---------------------

Description

Cluster Plot

Usage

cluster_plot(cluster)

Arguments

cluster ClusterResult

cluster_silhouette	<i>Silhouette Plot</i>
--------------------	------------------------

Description

Silhouette Plot

Usage

cluster_silhouette(data)

Arguments

data data.frame

correlation_analysis	<i>Correlation Analysis</i>
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Description

Computes correlation matrix for numeric variables.

Usage

```
correlation_analysis(data, method = "pearson")
```

Arguments

data	A data.frame.
method	Correlation method ("pearson","spearman","kendall")

Value

Correlation matrix.

correlation_network	<i>Correlation Network</i>
---------------------	----------------------------

Description

Correlation Network

Usage

```
correlation_network(data, cutoff = 0.7)
```

Arguments

data	data.frame
cutoff	correlation cutoff

correlation_plot	Correlation Heatmap
Description Correlation Heatmap	
Usage correlation_plot(data)	
Arguments data data.frame	
correlation_test	Pairwise Correlation Tests
Description Pairwise Correlation Tests	
Usage correlation_test(data)	
Arguments data data.frame	
create_report	Create AutoEDA Report
Description Create AutoEDA Report	
Usage create_report(data)	
Arguments data data.frame	
Value AutoEDAReport	

density_plot	<i>Density Plot</i>
--------------	---------------------

Description

Density Plot

Usage

```
density_plot(data, variable)
```

export_excel	<i>Export Report to Excel</i>
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Description

Export Report to Excel

Usage

```
export_excel(report, file = "AutoEDA_Report.xlsx")
```

Arguments

report	AutoEDAReport
file	Excel file

export_numeric_summary	<i>Export Numeric Summary</i>
------------------------	-------------------------------

Description

Export Numeric Summary

Usage

```
export_numeric_summary(x, file = "NumericSummary.csv")
```

Arguments

x	NumericSummary object
file	Output csv filename

histogram_plot	<i>Histogram</i>
----------------	------------------

Description

Histogram

Usage

```
histogram_plot(data, variable)
```

html_report	<i>HTML Report</i>
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Description

HTML Report

Usage

```
html_report(report)
```

missing_heatmap	<i>Missing Value Heatmap</i>
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Description

Missing Value Heatmap

Usage

```
missing_heatmap(data)
```

Arguments

data	data.frame
------	------------

missing_pattern	<i>Missing Data Pattern</i>
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Description

Missing Data Pattern

Usage

```
missing_pattern(data)
```

Arguments

data	data.frame
------	------------

missing_summary	<i>Missing Value Summary</i>
-----------------	------------------------------

Description

Summarizes missing values in a dataset.

Usage

```
missing_summary(data)
```

Arguments

data	A data.frame.
------	---------------

Value

An object of class MissingSummary.

numeric_summary	<i>Numeric Variable Summary</i>
-----------------	---------------------------------

Description

Comprehensive descriptive statistics for all numeric variables.

Usage

```
numeric_summary(data)
```

Arguments

data	A data.frame.
------	---------------

Value

An object of class NumericSummary.

outlier_detection	<i>Detect Outliers</i>
-------------------	------------------------

Description

Detects outliers in numeric variables using the IQR method.

Usage

```
outlier_detection(data, method = "IQR", threshold = 3)
```

Arguments

data	A data.frame.
method	"IQR", "ZScore", or "MAD"
threshold	Threshold for Z-score or MAD

Value

An object of class OutlierSummary.

outlier_summary	<i>Outlier Summary</i>
-----------------	------------------------

Description

Summarize outliers using the IQR method.

Usage

```
outlier_summary(data, method = "IQR", threshold = 3)
```

Arguments

data	A data.frame.
method	"IQR", "ZScore", "MAD"

Value

A data.frame.

pair_plot	<i>Pair Plot</i>
-----------	------------------

Description

Pair Plot

Usage

```
pair_plot(data)
```

pca_analysis	<i>Principal Component Analysis</i>
--------------	-------------------------------------

Description

Performs PCA on numeric variables.

Usage

```
pca_analysis(data, scale = TRUE)
```

Arguments

data	A data.frame.
scale	Logical. Scale variables?

Value

PCAResult object.

pca_biplot	<i>PCA Biplot</i>
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Description

PCA Biplot

Usage

pca_biplot(pca)

Arguments

pca	PCAResult
-----	-----------

pca_individual_plot	<i>PCA Individual Plot</i>
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Description

PCA Individual Plot

Usage

pca_individual_plot(pca)

pca_scree_plot	<i>Scree Plot</i>
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Description

Scree Plot

Usage

pca_scree_plot(pca)

Arguments

pca	PCAResult
-----	-----------

pca_variable_plot	<i>PCA Variable Plot</i>
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Description

PCA Variable Plot

Usage

pca_variable_plot(pca)

plot_missing	<i>Plot Missing Values</i>
--------------	----------------------------

Description

Plot Missing Values

Usage

plot_missing(data)

Arguments

data data.frame

plot_outliers	<i>Plot Outliers</i>
---------------	----------------------

Description

Plot Outliers

Usage

plot_outliers(data)

Arguments

data data.frame

scatter_plot	<i>Scatter Plot</i>
--------------	---------------------

Description

Scatter Plot

Usage

```
scatter_plot(data, x, y)
```

summary_data	<i>Dataset Summary</i>
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Description

Provides a quick overview of a dataset.

Usage

```
summary_data(data)
```

Arguments

data	A data.frame.
------	---------------

Value

A list containing dataset information.

theme_autoeda	<i>AutoEDA Theme</i>
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Description

AutoEDA Theme

Usage

```
theme_autoeda()
```

Index

auto_eda, [3](#)
auto_plot, [3](#)

bar_plot, [3](#)
box_plot, [4](#)

categorical_plot, [4](#)
categorical_summary, [4](#)
cluster_analysis, [5](#)
cluster_dendrogram, [5](#)
cluster_elbow, [6](#)
cluster_plot, [6](#)
cluster_silhouette, [6](#)
correlation_analysis, [7](#)
correlation_network, [7](#)
correlation_plot, [8](#)
correlation_test, [8](#)
create_report, [8](#)

density_plot, [9](#)

export_excel, [9](#)
export_numeric_summary, [9](#)

histogram_plot, [10](#)
html_report, [10](#)

missing_heatmap, [10](#)
missing_pattern, [11](#)
missing_summary, [11](#)

numeric_summary, [12](#)

outlier_detection, [12](#)
outlier_summary, [13](#)

pair_plot, [13](#)
pca_analysis, [13](#)
pca_biplot, [14](#)
pca_individual_plot, [14](#)
pca_scree_plot, [14](#)

pca_variable_plot, [15](#)
plot_missing, [15](#)
plot_outliers, [15](#)

scatter_plot, [16](#)
summary_data, [16](#)

theme_autoeda, [16](#)