Package 'discoveR'

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Title Exploratory Data Analysis System

Version 2.2.2

Description Performs an exploratory data analysis through a 'shiny' interface. It includes basic methods such as the mean, median, mode, normality test, among others. It also includes clustering techniques such as Principal Components Analysis, Hierarchical Clustering and the K-Means Method.

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R topics documented:

`BP` *Calculate inter-class inertia*

Description

Calculate inter-class inertia

Usage

```
BP(DF, clusters)
```

Arguments

`DF`	a data.frame object.
`clusters`	a vector specifying the cluster of each individual.

Value

numeric

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
m <- hclust(dist(iris[, -5]))
BP(iris[, -5], cutree(m, 3))
```

`calc.centros` *Calculation of the center of clusters*

Description

Calculation of the center of clusters

Usage

```
calc.centros(data, clusters)
```

Arguments

`data`	a data.frame object.
`clusters`	a vector specifying the cluster of each individual.

Value

list

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
clusters <- factor(kmeans(iris[, -5], 3)$cluster)
calc.centros(iris[, -5], clusters)
```

datos.disyuntivos *Create disjunctive columns to a data.frame.*

Description

Create disjunctive columns to a data.frame.

Usage

```
datos.disyuntivos(data, var)
```

Arguments

data	a data.frame object.
var	the column name to apply disjunctive code.

Value

data.frame

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
datos.disyuntivos(iris, "Species")
```

dfnormal *Data.frame with normal test*

Description

Data.frame with normal test

Usage

```
dfnormal(data)
```

Arguments

data	a data.frame object only with the numeric columns.

Value

data.frame

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
dfnormal(iris[, -5])
```

---

discoveR *Exploratory Data Analysis System*

Description

Performs an exploratory data analysis through a 'shiny' interface. It includes basic methods such as the mean, median, mode, normality test, among others. It also includes clustering techniques such as Principal Components Analysis, Hierarchical Clustering and the K-Means Method.

Details

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Author(s)

Oldemar Rodriguez Rojas
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---

e_cat *Barplot for categoric variable by clusters.*

Description

Barplot for categoric variable by clusters.

Usage

```
e_cat(clusters, var, colores = NULL, escalar = T)
```

Arguments

clusters	a vector specifying the cluster of each individual.
var	a factor column of a data.frame.
colores	a vector of color for each cluster.
escalar	a boolean value specifying if use percentage or real values.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
clusters <- factor(kmeans(iris[, -5], 3)$cluster)
e_cat(clusters, iris[, 5], colores = c("steelblue", "pink", "forestgreen"))
```

---

e_histboxplot *Histogram + boxplot*

Description

Histogram + boxplot

Usage

```
e_histboxplot(
  data,
  var.name,
  colorBar = "steelblue",
  colorPoint = "red",
  titulos = c("Minimo", "Primer Cuartil", "Mediana", "Tercer Cuartil", "Maximo")
)
```

Arguments

data	a numeric column of a data.frame.
var.name	a character value specifying the name of the variable.
colorBar	a color for the bars.
colorPoint	a color for the points.
titulos	a character vector of length 5 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
e_histboxplot(iris$Sepal.Width, "Sepal.Width")
```

---

e_histnormal *Normal plot*

Description

Normal plot

Usage

```
e_histnormal(
  data,
  colorbar = "steelblue",
  colorline = "gray",
  nombres = c("Histograma", "Curva Normal")
)
```

Arguments

data	a numeric column of a data.frame.
colorbar	a color for the bars.
colorline	a color for the line.
nombres	a character vector of length 2 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
e_histnormal(iris$Sepal.Length)
```

e_horiz *Horizontal representation for centers of clusters.*

Description

Horizontal representation for centers of clusters.

Usage

```
e_horiz(centros, colores = NULL)
```

Arguments

centros	a data.frame object with the centers of the clusters.
colores	a vector of color for each cluster.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
clusters <- factor(kmeans(iris[, -5], 3)$cluster)
c <- calc.centros(iris[, -5], clusters)
e_horiz(c$real, c("steelblue", "pink", "forestgreen"))
```

e_inercia *Inertia plot of clusterization*

Description

Inertia plot of clusterization

Usage

```
e_inercia(
  data,
  titulos = c("Inercia", "Inercia Inter-Clase", "Inercia Inter-Clase")
)
```

Arguments

data	a data.frame object with the inertia values.
titulos	a character vector of length 3 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

---

e_jambu *Jambu Elbow plot*

Description

Jambu Elbow plot

Usage

```
e_jambu(data, max.clusters)
```

Arguments

data	a data.frame object.
max.clusters	a numeric value specifying the number of times to generate the model.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
e_jambu(iris[, -5], 10)
```

e_mapa *PCA plot of individuals colored by clusters*

Description

PCA plot of individuals colored by clusters

Usage

```
e_mapa(pca.model, clusters, colores = NULL, ejes = c(1, 2))
```

Arguments

pca.model	an object of class PCA [FactoMineR].
clusters	a vector specifying the cluster of each individual.
colores	a vector of color for each cluster.
ejes	a numeric vector of length 2 specifying the dimensions to be plotted.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
p <- discoveR:::PCA(iris[, -5], graph = FALSE)
clusters <- factor(kmeans(iris[, -5], 3)$cluster)
e_mapa(p, clusters, c("steelblue", "pink", "forestgreen"))
```

e_mapa_3D *PCA plot of individuals colored by clusters*

Description

PCA plot of individuals colored by clusters

Usage

```
e_mapa_3D(pca.model, clusters, colores = NULL, ejes = c(1, 2, 3))
```

Arguments

pca.model	an object of class PCA [FactoMineR].
clusters	a vector specifying the cluster of each individual.
colores	a vector of color for each cluster.
ejes	a numeric vector of length 3 specifying the dimensions to be plotted.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
p <- discoveR:::PCA(iris[, -5], graph = FALSE)
clusters <- factor(kmeans(iris[, -5], 3)$cluster)
e_mapa_3D(p, clusters, c("steelblue", "pink", "forestgreen"))
```

---

e_pcabi *PCA biplot*

Description

PCA biplot

Usage

```
e_pcabi(
  modelo,
  axes = c(1, 2),
  colorInd = "steelblue",
  colorVar = "forestgreen",
  cos2Ind = 0,
  cos2Var = 0,
  colorIndCos = "firebrick",
  colorVarCos = "darkorchid",
  titulos = c("Bien Representados", "Mal Representados")
)
```

Arguments

modelo	an object of class PCA [FactoMineR].
axes	a numeric vector of length 2 specifying the dimensions to be plotted.
colorInd	a color for the individuals well represented.
colorVar	a color for the variables well represented.
cos2Ind	a numeric value from 0 to 1 specifying the quality of the individuals.
cos2Var	a numeric value from 0 to 1 specifying the quality of the variables.
colorIndCos	a color for the individuals badly represented.
colorVarCos	a color for the variables badly represented.
titulos	a character vector of length 2 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
p <- discoveR:::PCA(iris[, -5], graph = FALSE)
e_pcabi(p)
```

---

e_pcabi_3D *PCA biplot in 3D*

Description

PCA biplot in 3D

Usage

```
e_pcabi_3D(
  modelo,
  axes = c(1, 2, 3),
  colorInd = "steelblue",
  colorVar = "forestgreen",
  cos2Ind = 0,
  cos2Var = 0,
  colorIndCos = "firebrick",
  colorVarCos = "darkorchid",
  titulos = c("Bien Representados", "Mal Representados")
)
```

Arguments

modelo	an object of class PCA [FactoMineR].
axes	a numeric vector of length 3 specifying the dimensions to be plotted.
colorInd	a color for the individuals well represented.
colorVar	a color for the variables well represented.
cos2Ind	a numeric value from 0 to 1 specifying the quality of the individuals.
cos2Var	a numeric value from 0 to 1 specifying the quality of the variables.
colorIndCos	a color for individuals badly represented.
colorVarCos	a color for variables badly represented.
titulos	a character vector of length 2 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
p <- discoveR:::PCA(iris[, -5], graph = FALSE)
e_pcabi_3D(p)
```

---

e_pcaind *PCA plot of individuals*

Description

PCA plot of individuals

Usage

```
e_pcaind(
  modelo,
  axes = c(1, 2),
  colorInd = "steelblue",
  cos2 = 0,
  colorCos = "firebrick",
  titulos = c("Bien Representados", "Mal Representados")
)
```

Arguments

modelo	an object of class PCA [FactoMineR].
axes	a numeric vector of length 2 specifying the dimensions to be plotted.
colorInd	a color for the individuals well represented.
cos2	a numeric value from 0 to 1 specifying the quality of the individuals.
colorCos	a color for individuals badly represented.
titulos	a character vector of length 2 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
p <- discoveR:::PCA(iris[, -5], graph = FALSE)
e_pcaind(p)
```

---

e_pcaind_3D *PCA plot of individuals in 3D*

Description

PCA plot of individuals in 3D

Usage

```
e_pcaind_3D(
  modelo,
  axes = c(1, 2, 3),
  colorInd = "steelblue",
  cos2 = 0,
  colorCos = "firebrick",
  titulos = c("Bien Representados", "Mal Representados")
)
```

Arguments

modelo	an object of class PCA [FactoMineR].
axes	a numeric vector of length 3 specifying the dimensions to be plotted.
colorInd	a color for the individuals well represented.
cos2	a numeric value from 0 to 1 specifying the quality of the individuals.
colorCos	a color for individuals badly represented.
titulos	a character vector of length 2 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
p <- discoveR:::PCA(iris[, -5], graph = FALSE)
e_pcaind_3D(p)
```

---

e_pcavar *PCA plot of variables*

Description

PCA plot of variables

Usage

```
e_pcavar(
  modelo,
  axes = c(1, 2),
  colorVar = "forestgreen",
  cos2 = 0,
  colorCos = "darkorchid",
  titulos = c("Bien Representados", "Mal Representados")
)
```

Arguments

modelo	an object of class PCA [FactoMineR].
axes	a numeric vector of length 2 specifying the dimensions to be plotted.
colorVar	a color for the variables well represented.
cos2	a numeric value from 0 to 1 specifying the quality of the variables.
colorCos	a color for the variables badly represented.
titulos	a character vector of length 2 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
p <- discoveR:::PCA(iris[, -5], graph = FALSE)
e_pcavar(p)
```

---

e_pcavar_3D *PCA plot of variables in 3D*

Description

PCA plot of variables in 3D

Usage

```
e_pcavar_3D(
  modelo,
  axes = c(1, 2, 3),
  colorVar = "forestgreen",
  cos2 = 0,
  colorCos = "darkorchid",
  titulos = c("Bien Representados", "Mal Representados")
)
```

Arguments

modelo	an object of class PCA [FactoMineR].
axes	a numeric vector of length 3 specifying the dimensions to be plotted.
colorVar	a color for the variables well represented.
cos2	a numeric value from 0 to 1 specifying the quality of the variables.
colorCos	a color for variables badly represented.
titulos	a character vector of length 2 specifying the titles to use on legend.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
p <- discoveR:::PCA(iris[, -5], graph = FALSE)
e_pcavar_3D(p)
```

---

e_qq *Qplot + Qline*

Description

Qplot + Qline

Usage

```
e_qq(data, colorpoint = "steelblue", colorline = "gray")
```

Arguments

data	a numeric column of a data.frame.
colorpoint	a color for the points.
colorline	a color for the line.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
e_qq(iris$Sepal.Length)
```

---

e_radar *Radar representation for centers of clusters.*

Description

Radar representation for centers of clusters.

Usage

```
e_radar(centros, colores = NULL)
```

Arguments

centros	a data.frame object with the centers of the clusters.
colores	a vector of color for each cluster.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
clusters <- factor(kmeans(iris[, -5], 3)$cluster)
c <- calc.centros(iris[, -5], clusters)
e_radar(c$porcentual, c("steelblue", "pink", "forestgreen"))
```

e_silhouette *Silhouette plot*

Description

Silhouette plot

Usage

```
e_silhouette(data, max.clusters)
```

Arguments

data	a data.frame object.
max.clusters	a numeric value specifying the number of times to generate the model.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
e_silhouette(iris[, -5], 10)
```

e_vert *Vertical representation for centers of clusters.*

Description

Vertical representation for centers of clusters.

Usage

```
e_vert(centros, colores = NULL)
```

Arguments

centros	a data.frame object with the centers of the clusters.
colores	a vector of color for each cluster.

Value

echarts4r plot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
clusters <- factor(kmeans(iris[, -5], 3)$cluster)
c <- calc.centros(iris[, -5], clusters)
e_vert(c$real, c("steelblue", "pink", "forestgreen"))
```

`gg_dendrograma` *Dendrogram plot*

Description

Dendrogram plot

Usage

```
gg_dendrograma(modelo, clusters, colores)
```

Arguments

`modelo`	an object of class hclust.
`clusters`	a vector specifying the cluster of each individual.
`colores`	a vector of color for each cluster.

Value

ggplot

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

inercia.total *Calculate total inertia*

Description

Calculate total inertia

Usage

```
inercia.total(DF)
```

Arguments

DF	a data.frame object.

Value

numeric

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

run_app *Run the Shiny Application*

Description

Run the Shiny Application

Usage

```
run_app(...)
```

Arguments

...	A series of options to be used inside the app.

Examples

```
if(interactive()) {
  run_app()
}
```

var.categoricas *Filter category variables of a data.frame*

Description

Filter category variables of a data.frame

Usage

```
var.categoricas(data)
```

Arguments

data	a data.frame object.

Value

data.frame

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
var.categoricas(iris)
```

var.numericas *Filter numeric variables of a data.frame*

Description

Filter numeric variables of a data.frame

Usage

```
var.numericas(data)
```

Arguments

data	a data.frame object.

Value

data.frame

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
var.numericas(iris)
```

WP *Calculate intra-class inertia*

Description

Calculate intra-class inertia

Usage

```
WP(DF, clusters)
```

Arguments

DF	a data.frame object.
clusters	a vector specifying the cluster of each individual.

Value

numeric

Author(s)

Diego Jimenez <diego.jimenez@promidat.com>

Examples

```
m <- hclust(dist(iris[, -5]))
WP(iris[, -5], cutree(m, 3))
```

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