Package 'clusEvol'

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Type Package

Title A Procedure for Cluster Evolution Analytics

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Maintainer Víctor Morales-Oñate <victor.morales@uv.cl>

Description Cluster Evolution Analytics allows us to use exploratory what if questions in the sense that the present information of an object is plugged-in a dataset in a previous time frame so that we can explore its evolution (and of its neighbors) to the present. See the URL for the papers associated with this package, as for instance, Morales-Oñate and Morales-Oñate (2024) <https://mpra.ub.uni-muenchen.de/120220>.

Depends R (>= 4.1.0)

License GPL (>= 3)

Encoding UTF-8

Imports ggplot2,plotly,cluster,fpc,viridis,clusterSim,dplyr

Repository CRAN

URL https://github.com/vmoprojs/clusEvol

BugReports https://github.com/vmoprojs/clusEvol/issues

LazyData true

NeedsCompilation no

Author Víctor Morales-Oñate [aut, cre]
(<https://orcid.org/0000-0003-1922-6571>),
Bolívar Morales-Oñate [aut] (<https://orcid.org/0000-0003-4980-8759>)

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R topics documented:

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actpas   *Assets and liabilities operations*

Description

Ecuador's amount of Assets and Liabilities Operations of the National Financial System: https://contenido.bce.fin.ec/home1/e

Usage

```
actpas
```

Format

A dataframe containing 358 observations and 25 columns.

References

Morales-Oñate, V., and Morales-Oñate, B. (2024). *Cluster Evolution Analytics*. https://mpra.
ub.uni-muenchen.de/120220/

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clusEvol   *clusEvol*

Description

clusEvol is a function that allows us to use exploratory what if questions in the sense that the
present information of an object is plugged-in a dataset in a previous time frame so that we can
explore its evolution (and of its neighbours) to the present.

Usage

```
clusEvol(x=NULL,objects=NULL, time = NULL,target.vars = NULL,
                    time.base=NULL,sel.obj=NULL,init = NULL,logscale = FALSE,
                    ng = NULL,clm = "pam",scale=TRUE,clstats = FALSE,...)
```

Arguments

x	Dataframe. panel data input.
objects	Character; variable name of objects.
time	Character; variable name of time .
target.vars	Character; selected variables for Cluster Evolution Analytics (CEA).
time.base	Numeric; selected time for CEA.
sel.obj	Character; selected object for CEA.

init	Numeric; initiation time.
logscale	Logical; TRUE if data should be logscaled.
ng	Numeric; number of desired clusters.
clm	Character; (pam,kmeans,choose).
scale	Logical; TRUE if data is scaled in clm.
clstats	Logical; TRUE if cluster statistics should be returned.
...	Parameters used in 'clm' method.

Details

clusEvol can be synthetized has the following steps

- Identify clusters to which `sel.obj` is similar in `time.base` - The data of `sel.obj` in `time.base` is plugged-in in each time period. - Clusters are generated in each time period with data from `sel.obj` in `time.base`.

Value

Returns an object of class `clusEvol`. An object of class `clusEvol` is a list containing at most the following components:

datos	clean input data;
target.vars	selected variables;
results	data frame of negighbours of sel.obj;
ECk	clusters that `sel.obj` belongs to;
ECkTot	all clusters that `sel.obj` belongs to;
Clus	dataframe objects, cluster and time.
sumdat	summary statistics of `datos`.
kmodelSol	output of clustering algorithm in each iteration.
clusterStats	cluster statistics in each clustering.
sl	evolution in time with `target.vars` included (subset of Clus but only for `sel.obj`).
sel	input variable names of objects in time.
sel.obj	input chatarcher of selected object.

Author(s)

Víctor Morales Oñate, <victor.morales@uv.cl>, https://sites.google.com/site/moralesonatevictor/, https://www.linkedin.com/in/vmoralesonate/ Bolívar Morales Oñate, <bmoralesonate@gmail.com>, https://sites.google.com/site/moralesonatevictor/

References

Morales-Oñate, V., and Morales-Oñate, B. (2024). *Cluster Evolution Analytics*. https://mpra.ub.uni-muenchen.de/120220/

Examples

```
library(clusEvol)
data(actpas)

solclusEvol <- clusEvol(x=actpas,objects="razon_social",
time = "fecha",target.vars = c("montoAct","operAct"),
                        time.base=max(actpas$fecha),
                        sel.obj="BANCO SOLIDARIO S.A.",init = min(actpas$fecha),
                        logscale = TRUE,ng = 5,clm = "pam")
print(solclusEvol)
```

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plot.clusEvol　　　　　*Plot output results from clusEvol*

Description

Plot density or empirical cumulative distribution from Bvals in [clusEvol](#) output.

Usage

```
## S3 method for class 'clusEvol'
plot(x,target,type = "heat",plotly=FALSE,...)
```

Arguments

x	an object of the class "clusEvol"
target	Numeric; 1 if density, 2 if ecdf plot is returned
type	Character; heat (default), line, boxplot are the options
plotly	Logical; if FALSE, a ggplotly plot is returned
...	other arguments to be passed to the function [ggplot](#)

Details

This function plots outputs from clusEvol taking into account its panel data structure.

Value

Produces a plot. No values are returned.

See Also

[clusEvol](#) for procedure and examples.

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pwt1001 *Penn World Table (Version 10.01)*

Description

Relative levels of income, output, input, and productivity for 183 countries between 1950 and 2019 (base year: 2017).

Usage

```
pwt1001
```

Format

A data frame with 12,810 observations of 52 variables.

Details

The Penn World Table 10.01 (<https://www.rug.nl/ggdc/productivity/pwt/>) provides information on relative levels of income, output, input, and productivity for 183 countries between 1950 and 2019.

References

Morales-Oñate, V., and Morales-Oñate, B. (2024). *Cluster Evolution Analytics.* https://mpra.ub.uni-muenchen.de/120220/

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