

Package ‘mgraph’

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Type Package

Title Graphing map attributes and non-map variables in R

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Depends rgdal (>= 0.5.2)

Suggests gstat,MASS

Description Each function in the package performs three main functions

- i) it reads spatial data and produces basic graphs including pie chart, bar chart, box plots, histogram, scatter plots, and lines
- ii) it reads non-spatial data such as ``csv'', ``txt'', ``dat'' data and produces basic graphs and
- iii) it plots map(s) of the input attribute(s) of spatial data by setting ``type'' parameter to ``map''

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R topics documented:

barmap	2
boxmap	4
dotmap	5
histmap	7
inbar	9
inbox	9
indot	10
inhist	10

inline	10
inmap	10
inpie	11
inscatter	11
linemap	11
map	13
piemap	15
scattermap	16

Index	19
--------------	-----------

barmap	<i>Bar graph of map and non-map data</i>
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Description

The barmap function plots an attribute of a map data. It also returns tabular data: frequencies

Usage

```
barmap(source, layer='', attribute, type='', label="", col='', factor='')
## Default S3 method:
barmap(source, layer='', attribute, type='', label="", col='', factor='')
## S3 method for class 'barmap'
print(x, ...)
## S3 method for class 'barmap'
summary(object, ...)
## S3 method for class 'barmap'
plot(x, ...)
```

Arguments

source	Folder path of the layer or map. Please quote the full folder path with forward slash "/". You can use R object as a source but you must set the layer parameter to "nofile"; see below
layer	The layer map in the folder that you want to work with. It is the file name of map. This is case sensitive, please. In case you want to use non spatial data such as ".csv", ".txt", "dat" or ".tab" insert the file name as layer. In case of using R object as a source set layer to "nofile"
type	The type of bar chart you want to plot. It can take "simple", "group", "stack"; Set the "type" to "map" if you want a map to be drawn for the attribute
attribute	The attribute name of the layer or the map you want use. In case you of using non spatial data such as ".csv", ".txt", "dat" or ".tab" attributes are variables or column names
factor	In case you choose "group" or "stack" as type, you must specify the factor variable or attributes here. This will be used to group the attribute
label	The labeling title of the chart.

<code>col</code>	The colour of the chart
<code>x</code>	an object of class "barmap", i.e., a fitted model.
<code>object</code>	an object of class "barmap", i.e., a fitted model.
<code>...</code>	any other R parameters can be added

Value

Objects of the class that basically list its elements

<code>data</code>	Original data for the model
<code>table</code>	Frequency of the original data
<code>source</code>	Folder path of the layer or map
<code>layer</code>	The layer map in the source folder
<code>attribute</code>	The attribute name of the layer or the map that was used.
<code>label</code>	The labeling title of the chart.

Author(s)

George Owusu

References

Bivand, R. S., Pebesma, E. J., Gomez-Rubio, V. (2008) Applied Spatial Data Analysis with R. Springer
Kabacoff, I. R. (2011) R in Action. Data Analysis and Graphics with R. Manning Publications Co

Examples

```
## Not run:  
source<- system.file("external", package = "mgraph")  
layer="farms"  
attribute="Variety"  
graph=barmap(source,layer,type="simple",attribute=attribute,col='black',label="")  
summary(graph)  
print(graph)  
plot(graph)  
  
## End(Not run)
```

 boxmap

Box plot of map and non-map data

Description

The boxmap function plots an attribute of a map and non-map data.

Usage

```

boxmap(source, layer='', attribute, type='', label="", col='', factor='')
## Default S3 method:
boxmap(source, layer='', attribute, type='', label="", col='', factor='')
## S3 method for class 'boxmap'
print(x, ...)
## S3 method for class 'boxmap'
summary(object, ...)
## S3 method for class 'boxmap'
plot(x, ...)

```

Arguments

source	Folder path of the layer or map. Please quote the full folder path with forward slash "/". You can use R object as a source but you must set the layer parameter to "nofile"; see below
layer	The layer map in the folder that you want to work with. It is the full file name of map. This is case sensitive, please. In case you want to use non spatial data such as ".csv", ".txt", ".dat" or ".tab" insert the full file name as layer. In case of using R object as a source set "layer" parameter to "nofile"
type	The type of box chart you want to plot. It can take "simple", "notch" Set the "type" to "map" if you want a map to be drawn for the attribute
attribute	The attribute name of the layer or the map you want use. In case you of using non spatial data such as ".csv", ".txt", ".dat" or ".tab" attributes are variables or column names
factor	In case you several box plots for the attribute, you must specify the factor variable or attribute. See example below
label	The labeling title of the chart.
col	The colour of the chart
x	an object of class "boxmap", i.e., a fitted model.
object	an object of class "boxmap", i.e., a fitted model.
...	any other R parameters can be added

Value

Objects of the class that basically list its elements

data	Original data for the model
table	Frequency of the original data
source	Folder path of the layer or map
layer	The layer map in the source folder
attribute	The attribute name of the layer or the map that was used.
label	The labeling title of the chart.

Author(s)

George Owusu

References

Bivand, R. S., Pebesma, E. J., Gomez-Rubio, V. (2008) Applied Spatial Data Analysis with R. Springer
 Kabacoff, I. R. (2011) R in Action. Data Analysis and Graphics with R. Manning Publications Co

Examples

```
## Not run:
source<- system.file("external", package = "mgraph")
layer="farms"
graph=boxmap(source,layer,attribute='Age',col='black',label="",factor="Sex")
summary(graph)
print(graph)
plot(graph)
#Example two with R object
data(meuse.all, package="gstat")
#simple box plot
boxmap(meuse.all,layer="nofile",attribute="zinc", col="light blue")
#factorised box plot
boxmap(meuse.all,layer="nofile",attribute="zinc", col="light blue",factor="lime")

## End(Not run)
```

dotmap

Dotchart analysis of a map and non map data

Description

The dotmap function plots an attribute of a map and non-map data.

Usage

```
dotmap(source,layer='',attribute,type='',label="",col='',symbol='')
## Default S3 method:
dotmap(source,layer='',attribute,type='',label="",col='',symbol='')
## S3 method for class 'dotmap'
print(x,...)
## S3 method for class 'dotmap'
summary(object,...)
## S3 method for class 'dotmap'
plot(x,...)
```

Arguments

source	Folder path of the layer or map. Please quote the full folder path with forward slash "/". You can use R object as a source but you must set the layer parameter to "nofile"; see below
layer	The layer map in the folder that you want to work with. It is the file name of map. This is case sensitive, please. In case you want to use non spatial data such as ".csv", ".txt", "dat" or ".tab" insert the full file name as layer. In case of using R object as a source set "layer" parameter to "nofile"
type	The type of dot chart you want to plot. Set the "type" to "map" if you want a map to be drawn for the attribute
attribute	The attribute name of the layer or the map you want use. In case of using non spatial data such as ".csv", ".txt", "dat" or ".tab" attributes are variables or column names
label	The labeling title of the chart. The title or topic of the graph
col	The colour of the chart
symbol	You can set it to any symbol from your key board. For example you may use "H" to represent hospitals or set it to "P" to represent plants
x	an object of class "dotmap", i.e., a fitted model.
object	an object of class "dotmap", i.e., a fitted model.
...	any other R parameters can be added

Value

Objects of the class that basically list its elements

data	Original data for the model
table	Frequency of the original data
source	Folder path of the layer or map
layer	The layer map in the source folder
attribute	The attribute name of the layer or the map that was used.
label	The labeling title of the chart.

Author(s)

George Owusu

References

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Examples

```
## Not run:
source<- system.file("external", package = "mgraph")
layer="farms"
graph=dotmap(source, layer,attribute='Age',col='black',label="")
summary(graph)
print(graph)
plot(graph)

#example 2: using R object
data(meuse.all, package="gstat")
dotmap(meuse.all,layer="nofile",attribute="zinc", col="light blue")

## End(Not run)
```

histmap

Histogram analysis of map and non map data

Description

The histmap function plots an attribute of a map and non-map data.

Usage

```
histmap(source,layer='',attribute,type='',label="",col='',trans='')
## Default S3 method:
histmap(source,layer='',attribute,type='',label="",col='',trans='')
## S3 method for class 'histmap'
print(x,...)
## S3 method for class 'histmap'
summary(object,...)
## S3 method for class 'histmap'
plot(x,...)
```

Arguments

source	Folder path of the layer or map. Please quote the full folder path with forward slash "/". You can use R object as a source but you must set the layer parameter to "nofile"; see below
layer	The layer map in the folder that you want to work with. It is the file name of map. This is case sensitive, please. In case you want to use non spatial data such as ".csv", ".txt", "dat" or ".tab" insert the full file name as layer. In case of using R object as a source set "layer" parameter to "nofile"
type	The type of histogram chart you want to plot. It can take "norm", "density". Set the "type" to "map" if you want a map to be drawn for the attribute
attribute	The attribute name of the layer or the map you want use. In case of using non spatial data such as ".csv", ".txt", "dat" or ".tab" attributes are variables or column names
label	The labeling title of the chart. The title or topic of the graph
col	The colour of the chart
trans	It is for transformation of the attribute or variable. The original data can be transformed to log by setting trans to "log"; it can be set to square root by setting it to "sqrt"; it can also be scaled by setting it to "scale". Leave it blank if you do not like data transformation.
x	an object of class "histmap", i.e., a fitted model.
object	an object of class "histmap", i.e., a fitted model.
...	any other R parameters can be added

Value

Objects of the class that basically list its elements

data	Original data for the model
table	Frequency of the original data
source	Folder path of the layer or map
layer	The layer map in the source folder
attribute	The attribute name of the layer or the map that was used.
label	The labeling title of the chart.

Author(s)

George Owusu

References

Bivand, R. S., Pebesma, E. J., Gomez-Rubio, V. (2008) Applied Spatial Data Analysis with R. Springer
 Kabacoff, I. R. (2011) R in Action. Data Analysis and Graphics with R. Manning Publications Co

Examples

```
## Not run:
source<- system.file("external", package = "mgraph")
layer="farms"
graph=histmap(source, layer,attribute='Age',col='blue',label="")
summary(graph)
print(graph)
plot(graph)

#example 2: using R object
data(meuse.all, package="gstat")
histmap(meuse.all,layer="nofile",attribute="zinc", col="light blue")
#Histogram with normal distribtion
histmap(meuse.all,layer="nofile",attribute="zinc", col="light blue",type="normal")

## End(Not run)
```

inbar	<i>Internal barmap function</i>
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Description

It is for internal use only

Author(s)

George Owusu

inbox	<i>Internal boxmap function</i>
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Description

It is for internal use only

Author(s)

George Owusu

indot *Internal dotmap function*

Description

It is for internal use only

Author(s)

George Owusu

inhist *Internal histmap function*

Description

It is for internal use only

Author(s)

George Owusu

inline *Internal linemap function*

Description

It is for internal use only

Author(s)

George Owusu

inmap *Internal map function*

Description

It is for internal use only

Author(s)

George Owusu

inpie	<i>Internal piemap function</i>
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Description

It is for internal use only

Author(s)

George Owusu

inscatter	<i>Internal scattermap function</i>
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Description

It is for internal use only

Author(s)

George Owusu

linemap	<i>Line chart of map and non map data</i>
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Description

The line chart function plots an attribute of a map data. It also returns tabular data or frequencies

Usage

```
linemap(source,layer='',attributes,type='',label='',col='')
## Default S3 method:
linemap(source,layer='',attributes,type='',label='',col='')
## S3 method for class 'linemap'
print(x,...)
## S3 method for class 'linemap'
summary(object,...)
## S3 method for class 'linemap'
plot(x,...)
```

Arguments

source	Folder path of the layer or map or data. Please quote the full folder path with forward slashes "/". You can use R object as a source but you must set the layer parameter to "nofile"; see below
layer	The layer map in the folder that you want to work with. It is the file name of map. This is case sensitive, please. In case you want to use non spatial data such as ".csv", ".txt", "dat" or ".tab" insert the full file name as layer. In case of using R object as a source set "layer" parameter to "nofile"
type	The type of line chart you want to use. It can take "p", "l", "o", "b", "c", "s", "S", or "h". Set it to "map" if you want a map to be drawn for the attribute
attributes	The attributes or variables of the map name of the layer or the map you want use. This function takes only two attributes separated by comma: see example below. In case of using non spatial data such as ".csv", ".txt", "dat" or ".tab" attributes are variable or column names
label	The labeling title of the chart.
col	The colour of the chart
x	An object of class "linemap", i.e., a fitted model.
object	an object of class "linemap", i.e., a fitted model.
...	any other R parameters can be added

Value

Objects of the class that basically list its elements

data	Original data for the model
table	Frequency of the original data
source	Folder path of the layer or map
layer	The layer map in the source folder
attribute	The attribute name of the layer or the map that was used.
label	he labeling title of the chart.

Author(s)

George Owusu

References

Bivand, R. S., Pebesma, E. J., Gomez-Rubio, V. (2008) Applied Spatial Data Analysis with R. Springer
 Kabacoff, I. R. (2011) R in Action. Data Analysis and Graphics with R. Manning Publications Co

Examples

```
## Not run:
#example one: using non spatial data
source<- system.file("external", package = "mgraph")
layer="farms"
attributes="Age,FArea"
graph=linemap(source,layer,attributes,type="l",col='black',label="")
summary(graph)
print(graph)
plot(graph)

#example two: using R object
data(meuse.all, package="gstat")
linemap(meuse.all,layer="nofile",attributes="zinc,copper",type="l")

## End(Not run)
```

 map

Plotting a map data

Description

The map function plots an attribute of a map. It can plot lines, polygons and points.

Usage

```
map(source,layer=' ',attribute,type=' ',label="",col='',symbol='')
## Default S3 method:
map(source,layer=' ',attribute,type=' ',label="",col='',symbol='')
## S3 method for class 'map'
print(x,...)
## S3 method for class 'map'
summary(object,...)
## S3 method for class 'map'
plot(x,...)
```

Arguments

source	Folder path of the layer or map. Please quote the full folder path with forward slash "/". You can use R object as a source but you must set the layer parameter to "nofile"; see below
layer	The layer map in the folder that you want to work with. It is the file name of map. This is case sensitive, please. In case you want to use non spatial data such as ".csv", ".txt", ".dat" or ".tab" insert the full file name as layer. In case of using R object as a source set "layer" parameter to "nofile"
type	The type of ogram chart you want to plot. Set the "type" to "points" if you want a map to be drawn for the point attribute

attribute	The attribute name of the layer or the map you want use. In case of using non spatial data such as ".csv", ".txt", "dat" or ".tab" attributes are variables or column names
label	The labeling title of the chart. The title or topic of the graph
col	The colour of the chart
symbol	Incase of plotting a point data, you can set it to any symbol from your key board. For example you may use "H" to represent hospitals or set it to "P" to represent plants
x	an object of class "map", i.e., a fitted model.
object	an object of class "map", i.e., a fitted model.
...	any other R parameters can be added

Value

Objects of the class that basically list its elements

data	Original data for the model
table	Frequency of the original data
source	Folder path of the layer or map
layer	The layer map in the source folder
attribute	The attribute name of the layer or the map that was used.
label	The labeling title of the chart.

Author(s)

George Owusu

References

Bivand, R. S., Pebesma, E. J., Gomez-Rubio, V. (2008) Applied Spatial Data Analysis with R. Springer
 Kabacoff, I. R. (2011) R in Action. Data Analysis and Graphics with R. Manning Publications Co

Examples

```
## Not run:
source<- system.file("external", package = "mgraph")
layer="farms"
graph=map(source,layer=layer,attribute='PlantPop',type="points",label="Plant population",col="green")
summary(graph)
print(graph)
plot(graph)

## End(Not run)
```

 piemap

Pie chart of spatial and non spatial data

Description

The piemap function plots an attribute of a map and non-map data. It also returns tabular data: frequencies

Usage

```

piemap(source,layer='',attribute,type='',label="",col='')
## Default S3 method:
piemap(source,layer='',attribute,type='',label="",col='')
## S3 method for class 'piemap'
print(x,...)
## S3 method for class 'piemap'
summary(object,...)
## S3 method for class 'piemap'
plot(x,...)

```

Arguments

source	Folder path of the layer or the map. Please quote the full folder path with forward slash "/".
layer	The layer map in the folder that you want to work with. It is the file name of map. This is case sensitive, please. In case you want to use non spatial data such as ".csv", ".txt", ".dat" or ".tab" insert the file name as layer. In case of using R object set layer to "nofile"
type	The type of pie chart you want to use. It can take "simple" or "annotated" parameter. Simple pie chart does not have annotation. Set the "type" to "map" if you want a map to be drawn for the attribute
attribute	The attribute name of the layer or the map you want use. In case of using non spatial data such as ".csv", ".txt", ".dat" or ".tab" attributes are variables or column names
label	The labeling title of the chart.
col	The colour of the chart
x	an object of class "piemap", i.e., a fitted model.
object	an object of class "piemap", i.e., a fitted model.
...	any other R parameters can be added

Value

Objects of the class that basically list its elements

data	Original data for the model
------	-----------------------------

table	Frequency of the original data
source	Folder path of the layer or map
layer	The layer map in the source folder
attribute	The attribute name of the layer or the map that was used.
label	The labeling title of the chart.

Author(s)

George Owusu

References

Bivand, R. S., Pebesma, E. J., Gomez-Rubio, V. (2008) Applied Spatial Data Analysis with R. Springer
 Kabacoff, I. R. (2011) R in Action. Data Analysis and Graphics with R. Manning Publications Co

Examples

```
## Not run:
#example one non spatial data
source<- system.file("external", package = "mgraph")
layer="farms"
attribute="Variety"
graph=piemap(source, layer,type="annotated",attribute=attribute,col='black',label="")
summary(graph)
print(graph)
plot(graph)

#Example two with R object
data(meuse.all, package="gstat")
piemap(source=meuse.all,layer="nofile",attribute="landuse")
piemap(source=meuse.all,layer="nofile",attribute="lime")

## End(Not run)
```

scattermap

Scatter plot of map and no-map data

Description

The scattermap function plots an attribute of a map and non-map data. It also returns tabular data

Usage

```

scattermap(source, layer='', attributes, type='', label="", col='')
## Default S3 method:
scattermap(source, layer='', attributes, type='', label="", col='')
## S3 method for class 'scattermap'
print(x,...)
## S3 method for class 'scattermap'
summary(object,...)
## S3 method for class 'scattermap'
plot(x,...)

```

Arguments

source	Folder path of the layer or map. Please quote the full folder path with forward slash "/". You can use R object as a source but you must set the layer parameter to "nofile"; see below
layer	The layer map in the folder that you want to work with. It is the file name of map. This is case sensitive, please. In case you want to use non spatial data such as ".csv", ".txt", "dat" or ".tab" insert the full file name as layer. In case of using R object as a source set the "layer" parameter to "nofile"
type	The type of scatter chart you want to use. Set the "type" to "map" if you want a map to be drawn for the attribute
attributes	The attributes or variables of the map name of the layer or the map you want use. In case of using non spatial data such as ".csv", ".txt", "dat" or ".tab" attributes are variables or column names
label	The labeling title of the chart.
col	The colour of the chart
x	an object of class "scattermap", i.e., a fitted model.
object	an object of class "scattermap", i.e., a fitted model.
...	any other R parameters can be added

Value

Objects of the class that basically list its elements

data	Original data for the model
table	Frequency of the original data
source	Folder path of the layer or map
layer	The layer map in the source folder
attribute	The attribute name of the layer or the map that was used.
label	The labeling title of the chart.

Author(s)

George Owusu

References

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Kabacoff, I. R. (2011) R in Action. Data Analysis and Graphics with R. Manning Publications Co

Examples

```
## Not run:
source<- system.file("external", package = "mgraph")
layer="farms"
attributes='Age,FArea'
graph=scattermap(source,layer,attributes,type="l",col='black',label="")
summary(graph)
print(graph)

#example two: using R object
data(meuse.all, package="gstat")
scattermap(meuse.all,layer="nofile",attributes="zinc,copper")
plot(graph)

## End(Not run)
```

Index

*Topic **Graph**

- barmap, 2
- boxmap, 4
- dotmap, 5
- histmap, 7
- inbar, 9
- inbox, 9
- indot, 10
- inhist, 10
- inline, 10
- inmap, 10
- inpie, 11
- inscatter, 11
- map, 13

*Topic **Spatial**

- linemap, 11
- piemap, 15
- scattermap, 16

- barmap, 2
- boxmap, 4

- dotmap, 5

- histmap, 7

- inbar, 9
- inbox, 9
- indot, 10
- inhist, 10
- inline, 10
- inmap, 10
- inpie, 11
- inscatter, 11

- linemap, 11

- map, 13

- piemap, 15

- plot.barmap (barmap), 2

- plot.boxmap (boxmap), 4
- plot.dotmap (dotmap), 5
- plot.histmap (histmap), 7
- plot.linemap (linemap), 11
- plot.map (map), 13
- plot.piemap (piemap), 15
- plot.scattermap (scattermap), 16
- print.barmap (barmap), 2
- print.boxmap (boxmap), 4
- print.dotmap (dotmap), 5
- print.histmap (histmap), 7
- print.linemap (linemap), 11
- print.map (map), 13
- print.piemap (piemap), 15
- print.scattermap (scattermap), 16

- scattermap, 16

- summary.barmap (barmap), 2
- summary.boxmap (boxmap), 4
- summary.dotmap (dotmap), 5
- summary.histmap (histmap), 7
- summary.linemap (linemap), 11
- summary.map (map), 13
- summary.piemap (piemap), 15
- summary.scattermap (scattermap), 16