Package 'ChannelAttribution'

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ChannelAttribution-package

Markov Model for the Online Multi-Channel Attribution Problem

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Description

Advertisers use a variety of online marketing channels to reach consumers and they want to know the degree each channel contributes to their marketing success. It's called the online multi-channel attribution problem. In many cases, advertisers approach this problem through some simple heuristics methods that do not take into account any customer interactions and often tend to underestimate the importance of small channels in marketing contribution. This package provides a function that approaches the attribution problem in a probabilistic way. It uses a k-order Markov representation to identifying structural correlations in the customer journey data. This would allow advertisers to give a more reliable assessment of the marketing contribution of each channel. The approach basically follows the one presented in Eva Anderl, Ingo Becker, Florian v. Wangenheim, Jan H. Schumann (2014). Differently for them, we solved the estimation process using stochastic simulations. In this way it is also possible to take into account conversion values and their variability in the computation of the channel importance. The package also contains a function that estimates three heuristic models (first-touch, last-touch and linear-touch approach) for the same problem.

Details

Package:	ChannelAttribution
Type:	Package
Version:	1.10
Date:	2016-12-07
License:	GPL (>= 2)

Package contains two functions: markov_model which estimates a k-order Markov model and heuristic_model which estimates three heuristic models (first-touch, last-touch and linear-touch) from customer journey data.

Author(s)

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References

Davide Altomare, David Loris (2015). Markov Model for the Online Multi-Channel Attribution Problem.

Eva Anderl, Ingo Becker, Florian v. Wangenheim, Jan H. Schumann. Mapping the Customer Journey (2014). A Graph-Based Framework for Online Attribution Modeling.

Data	*Customer journeys data*

Description

Customer path data with conversions and conversion value.

Usage

```
data(PathData)
```

Format

`Data` is a data.frame with 10.000 rows and 4 columns: "path" containing customer paths, "total_conversions" containing total number of conversions, "total_conversion_value" containing total conversion value and "total_null" containing total number of paths that do not lead to conversion.

heuristic_models	*Heuristic models for the online attribution problem*

Description

Estimate theree heuristic models (first-touch, last-touch, linear) from customer journey data.

Usage

```
heuristic_models(Data, var_path, var_conv, var_value=NULL)
```

Arguments

Data	data.frame containing paths and conversions.
var_path	name of the the column containing paths.
var_conv	name of the column containing total conversions.
var_value	name of the column containing total conversion value.

Value

An object of `class data.frame` with the estimated number of conversions and the estimated conversion value attributed to each channel for each model.

Author(s)

Davide Altomare (<davide.altomare@gmail.com>).

Examples

```
data(PathData)

#uncomment the following lines to run the examples

#heuristic_models(Data,"path","total_conversions")
#heuristic_models(Data,"path","total_conversions",var_value="total_conversion_value")
```

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markov_model   *Markov model for the online attribution problem*

Description

Estimate a k-order Markov model from customer journey data.

Usage

```
markov_model(Data, var_path, var_conv, var_value=NULL, var_null=NULL,
             order=1, nsim=NULL, max_step=NULL, out_more=FALSE)
```

Arguments

Data	data.frame containing paths and conversions.
var_path	name of the the column containing paths.
var_conv	name of the column containing total conversions.
var_value	name of the column containing total conversion value.
var_null	name of the column containing total paths that do not lead to conversions.
order	order of Markov Model.
nsim	total simulations from transition matrix.
max_step	maximum number of steps for a single simulated path.
out_more	if TRUE returns the transition probabilities between channels and removal effects.

Value

An object of class data.frame with the estimated number of conversions and the estimated conversion value attributed to each channel.

Author(s)

Davide Altomare (<davide.altomare@gmail.com>).

Examples

```
data(PathData)

#uncomment the following lines to run the examples

#markov_model(Data, "path", "total_conversions")
#markov_model(Data, "path", "total_conversions",
#              var_value="total_conversion_value")
#markov_model(Data,"path","total_conversions",
#              var_value="total_conversion_value", var_null="total_null")
#markov_model(Data, "path", "total_conversions",
#              var_value="total_conversion_value", var_null="total_null", out_more=TRUE)
```

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