Package 'Homework2'

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Type Package

Title Homework2

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Description Apply Newton and EM algorithm to estimate gaussian mixture model

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R topics documented:

`Homework2-package` *Homework 2 for Advanced Computing*

Description

The package contains a function, 'mixture', which applies Newton and EM algorithm to estimate Gaussian mixture model parameters.

Details

Package:	Homework2
Type:	Package
Version:	1.0
Date:	2013-12-04
License:	GPL-2

mixture(y, method, maxit = NULL, tol = 1e-08, param0 = NULL) input data y, and choose method.

Author(s)

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References

class notes

Examples

```
w = 0.6
m1 = 5; m2 = -5; v1 = 2; v2 = 3

W = rbinom(1000,1,prob=w)
N1 = rnorm(1000,m1,sqrt(v1))
N2 = rnorm(1000,m2,sqrt(v2))
Y = W*N1+(1-W)*N2
rm(w,m1,m2,v1,v2,W,N1,N2)

mixture(y=Y,method="Newton",maxit = 100)
mixture(y=Y,method="EM",maxit = 300)
```

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hw2_data *Homework2 dataset*

Description

A sample of 19600 data points drawn from a Gaussian mixture distribution

Usage

```
hw2_data
```

Format

A vector containing 19600 observations.

Source

GitHub

References

NA

mixture *Estimating Gaussian mixture model parameters*

Description

Apply Newton and EM algorithm to estimate Gaussian mixture model parameters.

Usage

```
mixture(y, method, maxit = NULL, tol = 1e-08, param0 = NULL)
```

Arguments

y	Data in a vector or a data frame.
method	"Newton" or "EM".
maxit	Maximum number of iteration allowed.
tol	Convergence tolerance.
param0	Starting values of parameters. Default to NULL.

Value

mle	Maximul Likelihood Estimate of parameters.
stderr	Standard error of the MLEs

Author(s)

Detian Deng

Examples

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Y = W*N1+(1-W)*N2
rm(w,m1,m2,v1,v2,W,N1,N2)

mixture(y=Y,method="Newton",maxit = 100)
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