Package 'bie5782'

April 18, 2012

Type Package

Title This package provides a single function named mmm that performs matrix computations utilizing C++ code.

Version 1.0

Date 2012-04-23

Author Michel Jan Marinus Bieleveld

Maintainer Michel Jan Marinus Bieleveld <michel.bieleveld@usp.br>

Description To learn more about packages, help files, example codes and C++ interaction the author of this package created a single function named mmm that performs simple matrix multiplications. This multiplication is performed solely in C++ code utilizing a simple for loop. Luckily enough for all R uses, but not for the author, the standard R multiplication executes in less time than this function.

License GPL (>= 2)

Depends Rcpp (>= 0.9.10)

LinkingTo Rcpp

Archs x64

R topics documented:

bie5782-package 2
mmm 2
performanceMultiplicationTest 3

Index **4**

`bie5782-package` *This package provides a single function named mmm that performs matrix computations utilizing C++ code.*

Description

To learn more about packages, help files, example codes and C++ interaction the author of this package created a single function named mmm that performs simple matrix multiplications. This multiplication is performed solely in C++ code utilizing a simple for loop. Luckily enough for all R uses, but not for the author, the standard R multiplication executes in less time than this function.

Details

Package:	bie5782
Type:	Package
Version:	1.0
Date:	2012-04-23
License:	GPL (version 2 or later)

~~ An overview of how to use the package, including the most important functions ~~

Author(s)

Michel Jan Marinus Bieleveld

Maintainer: Michel Jan Marinus Bieleveld <michel.bieleveld@usp.br>

References

Information that was used to generate this package can be found in the following resources;

Writing R Extensions covers how to create your own packages, write R help files, and the foreign language (C, C++, Fortran, ...) interfaces. http://cran.r-project.org/doc/manuals/R-exts.pdf

RCpp introduction http://cran.r-project.org/web/packages/Rcpp/vignettes/Rcpp-introduction.pdf

RCpp FAQ http://cran.r-project.org/web/packages/Rcpp/vignettes/Rcpp-FAQ.pdf

`mmm` *Michel's Matrix Multiplication with C++*

Description

Performs matrix multiplication through C++ interface and code.

Usage

```
mmm(a,b)
```

Arguments

a	an n x m matrix
b	an m x p matrix

Examples

```
mmm.nrows = 5
mmm.ncols = 5

mmm.a <- matrix(nrow=mmm.nrows, ncol=mmm.ncols,runif(mmm.nrows*mmm.ncols))
mmm.b <- matrix(nrow=mmm.nrows, ncol=mmm.ncols,runif(mmm.nrows*mmm.ncols))

(mmm.a %*% mmm.b)

(mmm(mmm.a,mmm.b))
```

---

performanceMultiplicationTest

Performance graph

Description

Plots a performance graph of a function compared to the basic matrix multiplication function.

Usage

```
performanceMultiplicationTest(func,nsize,nrep)
```

Arguments

func	a function that accepts two matrices as arguments, func(x,y)
nsize	the range of matrix sizes under test, defaults to seq(10, 1000, 100)
nrep	the number of repetition for each measurement, defaults to 5

Examples

```
performanceMultiplicationTest(mmm,nsize=seq(10, 1000, 100),nrep=5)
```

Index

∗Topic **bie5782**
bie5782-package, 2
∗Topic **mmm**
bie5782-package, 2
∗Topic **package**
bie5782-package, 2

bie5782 *(*bie5782-package*)*, 2
bie5782-package, 2

mmm, 2

performanceMultiplicationTest, 3