Short hw6package guide

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This package was made for homework 6 purposes. It consists of three Rcpp, functions

- mode
- simplify2array
- ass

At first we must remember about loading a package:

```
require(hw6package)
```

Task 1 - the mode function

This function determines the most frequently occurring value in an integer vector (mode). Input is an integer vector and on output it produces a single integer value (mode) If mode is an ambiguous it returns the last one.

Below we present some simple examples:

```
mode(c(1,2,3,4,1))

## [1] 1

mode(c(1,2,3,4,1,3))

## [1] 3
```

The simplify2array function

The simplify2array function simplifies the list of input integer vectors to a matrix, where number of rows equals to length of the list and number of columns equals the length of each vector in the list. We assume that vectors have equal lengths.

Below some example

```
simplify2array(list(1:2, 3:4))

##      [,1] [,2]
## [1,]    1    2
## [2,]    3    4
```

Be carefull, function throw an error when input list contains vectors of nonequal lengths

```
simplify2array(list(1:2, 3:4, 5:7))
```

The ass function

The ass function generates all possible 0-1 assignment vectors of 2*n survey participants in such a way that exactly n of them are assigned to group 0 (control) and the other n ones are assigned to group 1 (treatment).

Usage examples:

```
ass(2)

##      [,1] [,2] [,3] [,4]
## [1,]    0    0    1    1
## [2,]    0    1    0    1
## [3,]    0    1    1    0
## [4,]    1    0    0    1
## [5,]    1    0    1    0
## [6,]    1    1    0    0

ass(3)

##       [,1] [,2] [,3] [,4] [,5] [,6]
##  [1,]    0    0    0    1    1    1
##  [2,]    0    0    1    0    1    1
##  [3,]    0    0    1    1    0    1
##  [4,]    0    0    1    1    1    0
##  [5,]    0    1    0    0    1    1
##  [6,]    0    1    0    1    0    1
##  [7,]    0    1    0    1    1    0
##  [8,]    0    1    1    0    0    1
```

```
##  [9,]    0    1    1    0    1    0
## [10,]    0    1    1    1    0    0
## [11,]    1    0    0    0    1    1
## [12,]    1    0    0    1    0    1
## [13,]    1    0    0    1    1    0
## [14,]    1    0    1    0    0    1
## [15,]    1    0    1    0    1    0
## [16,]    1    0    1    1    0    0
## [17,]    1    1    0    0    0    1
## [18,]    1    1    0    0    1    0
## [19,]    1    1    0    1    0    0
## [20,]    1    1    1    0    0    0
```