Lab 4 - Activity

Oleksandr Savenkov

10/3/2018

1. Write a function that normalizes a vector (with two parameters) :
   - vector to be normalized
   - parameter that allows normalize the vector in two ways: only centered with zero mean and also standardize with mean zero and standard deviation 1

Example:

- input (1, 2, 3, 4)
- centered vector is

```
standardize(a, centered_only = TRUE)
```

```
## [1] -1.5 -0.5  0.5  1.5
```

- standardized is

```
standardize(a, centered_only = FALSE)
```

```
## [1] -1.1618950 -0.3872983  0.3872983  1.1618950
```

2. Modify previous function in order to handle missing values in a vector

```
standardize(c(1, 2, 3, 4, NA))
```

```
## [1] NA NA NA NA NA
```

```
standardize(c(1, 2, 3, 4, NA), na.rm = TRUE)
```

```
## [1] -1.1618950 -0.3872983  0.3872983  1.1618950         NA
```

2. Create a 4 by 4 matrix

```
##      [,1] [,2] [,3] [,4]
## [1,]    1    5    9   13
## [2,]    2    6   10   14
## [3,]    3    7   11   15
## [4,]    4    8   12   16
```

Create a function to calculate sum of matrix elements without built-in function sum()