Basic R Package Assignment

GitHub Link: https://github.com/jk7830a/HW_kimbrough.git

a. **Create a folder called "forloop", set the working directory to this folder.**

b. In the R sub-directory create a R script called practice.

```
> setwd("C:/Users/jkimb/OneDrive/Desktop/forloop")
> getwd()
[1] "C:/Users/jkimb/OneDrive/Desktop/forloop"
> list.files()
character(0)
> usethis::create_package(path = ".", rstudio = FALSE, open = FALSE)
✓ Setting active project to
  "C:/Users/jkimb/OneDrive/Desktop/forloop".
✓ Creating R/.
✓ Writing DESCRIPTION.
Package: forloop
Title: What the Package Does (One Line, Title Case)
Version: 0.0.0.9000
Authors@R (parsed):
    * First Last <first.last@example.com> [aut, cre] (YOUR-ORCID-ID)
Description: What the package does (one paragraph).
License: `use_mit_license()`, `use_gpl3_license()` or friends to
    pick a license
Encoding: UTF-8
Roxygen: list(markdown = TRUE)
RoxygenNote: 7.3.2
✓ Writing NAMESPACE.
✓ Setting active project to "<no active project>".
> list.files()
[1] "DESCRIPTION" "NAMESPACE"   "R"
> usethis::use_r("practice")
✓ Setting active project to
  "C:/Users/jkimb/OneDrive/Desktop/forloop".
☐ Modify R/practice.R.
```

c. Build a function inside of R script practice called col_means() that will take as input a data frame and return a vector of column means. We will not use the colMeans() function from {base} package.

```
13 ▾ col_means<- function(df){
14     means <- numeric(ncol(df))
15
16 ▾   for(i in 1:ncol(df)){
17       means[i] <- mean(df[, i], na.rm = TRUE)
18 ▴   }
19     return(means)
20 ▴ }
```

```
> col_means<- function(df){
+     means <- numeric(ncol(df))
+
+     for(i in 1:ncol(df)){
+       means[i] <- mean(df[, i], na.rm = TRUE)
+     }
+     return(means)
+ }
> df <- data.frame(
+     a = c(1, 2, 3),
+     b = c(4, 5, 6),
+     c = c(7, 8, NA)
+ )
>
> col_means(df)
[1] 2.0 5.0 7.5
```

d. Build a function inside of R script practice called count_na() that will use a for-loop to count how many NA's there are in a vector.

```
35 ▾ count_na <- function(vec){
36       na_count <- 0
37
38 ▾    for(i in 1:length(vec)){
39 ▾      if(is.na(vec[i])){
40            na_count <- na_count + 1
41 ▴      }
42 ▴    }
43       return(na_count)
44 ▴ }
> count_na <- function(vec){
+     na_count <- 0
+
+     for(i in 1:length(vec)){
+       if(is.na(vec[i])){
+           na_count <- na_count + 1
+       }
+     }
+     return(na_count)
+ }
> vec <- c(1, NA, 3, NA, 5)
> print(count_na(vec))
[1] 2
```

e. Create documentation for each functions that you have in your R script. Then load the package and type `` `?col_means` `` and then `` `?count_na` ``.

```
1   #' Calculate Column Means
2   #'
3   #' This function takes a data frame and returns a vector of column means.
4   #'
5   #' @param df A data frame containing numeric columns.
6   #'
7   #' @return A numeric vector of column means.
8   #' @examples
9   #' df <- data.frame(col1 = c(1, 2, 3), col2 = c(4, 5, 6), col3 = c(7, 8, NA))
10  #' col_means(df)
11  #'
12  #' @export
13 ▾ col_means<- function(df){
14     means <- numeric(ncol(df))
15
16 ▾   for(i in 1:ncol(df)){
17       means[i] <- mean(df[, i], na.rm = TRUE)
18 ▴   }
19     return(means)
20 ▴ }

23  #' Count NA Values
24  #'
25  #' This function counts the number of NA values in a given vector.
26  #'
27  #' @param vec A numeric vector.
28  #'
29  #' @return An integer count of NA values in the vector.
30  #' @examples
31  #' vec  <- c(1, NA, 3, NA, 5)
32  #' count_na(vec)
33  #'
34  #' @export
35 ▾ count_na <- function(vec){
36     na_count <- 0
37
38 ▾   for(i in 1:length(vec)){
39 ▾     if(is.na(vec[i])){
40         na_count <- na_count + 1
41 ▴     }
42 ▴   }
43     return(na_count)
44 ▴ }
```

```
> devtools::load_all()

> devtools::document()
i Updating forloop documentation
i Loading forloop
Writing NAMESPACE
Writing col_means.Rd
Writing count_na.Rd
> ?col_means
i Rendering development documentation for "col_means"
> ?count_na
i Rendering development documentation for "count_na"
>
```

col_means.Rd ▾ | Find in Topic |

col_means {forloop}   (preview) R Documentation

Calculate Column Means

Description

This function takes a data frame and returns a vector of column means.

Usage

```
col_means(df)
```

Arguments

df   A data frame containing numeric columns.

Value

A numeric vector of column means.

Examples

Run examples

```
df <- data.frame(col1 = c(1, 2, 3), col2 = c(4, 5, 6), col3 = c(7, 8, NA))
col_means(df)
```

Count NA Values

Description

This function counts the number of NA values in a given vector.

Usage

```
count_na(vec)
```

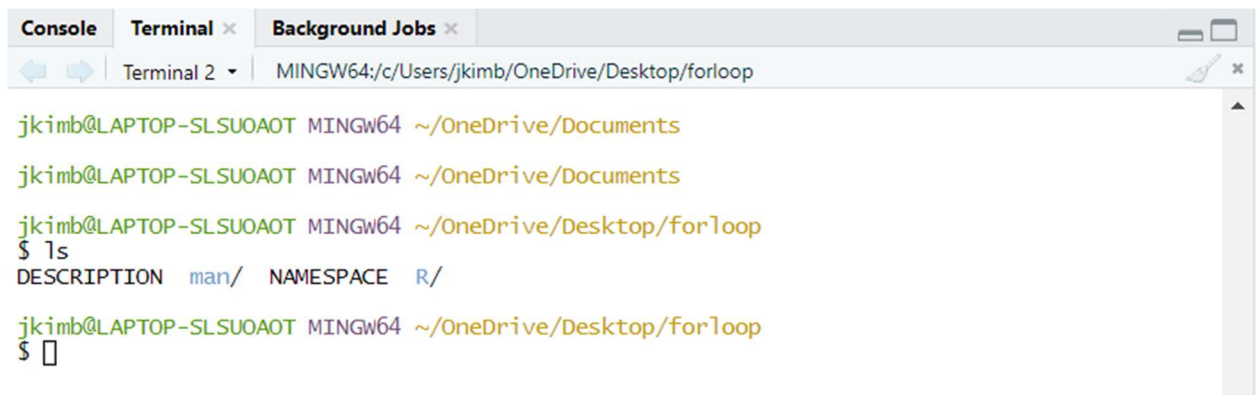## Arguments

`vec`   A numeric vector.

Value

An integer count of NA values in the vector.

Examples

[Run examples](#)

```
vec <- c(1, NA, 3, NA, 5)
count_na(vec)
```

f. **In your R studio move to Terminal and type ls, it will show the list of all files and folders that you have in your working directory `forloops`.**