Biol 432 Assignment 3

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Project Info

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GitHub Link: https://github.com/Wuris/Biol432_Assignment3.git

Load the FallopiaData.csv

```
setwd("E:/Underguaduate/4th Fourth year/BIOL 432/Week 3/Biol432_Assignment3")
A3Data <- read.csv("InputData/FallopiaData.csv")
```

Load some packages

```
library(dplyr)
```

```
##
##     'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

Remove rows with 'Total' biomass < 60

```
A3Data_New <- A3Data %>%
  filter(Total >= 60)
```

Reorder the columns so that they are in the order: 'Total', 'Taxon', 'Scenario', 'Nutrients', and remove the other columns

```
A3Data_New <- A3Data_New %>%
  select(Total, Taxon, Scenario, Nutrients)
```

Make a new column TotalG, which converts the 'Total' column from mg to grams AND replace Total with TotalG, and add it to the dataset.

```
A3Data_New$TotalG = A3Data_New$Total*0.001

A3Data_New <- A3Data_New %>%
  select(TotalG, Taxon, Scenario, Nutrients)
```

Write a custom function that will take two inputs from the user: 1. a vector of data to process (e.g. column from a data.frame object) and 2. a string that defines what calculation to perform.

if string #2 is "Average" then calculate the average value for the column named in vector #1

if string #2 is "Sum" then calculate the sum of values for the column named in vector #1

if string #2 is "Observations" then count the number of observed values for the column named in vector #1

```
my_custom_function <- function(x, y){
  if(y == "Average"){
    return(mean(x))
  } else if(y == "Sum"){
    return(sum(x))
  } else if(y == "Observations"){
    return(length(x))
  } else {
    return(print("Error!"))
  }
}
```

if string #2 is anything else, then output an error to the user

Write some R code that uses your function to count the total number of observations in the 'Taxon' column.

```
my_custom_function(A3Data_New$Taxon, "Observations")
```

```
## [1] 45
```

Write some R code that uses your function to calculate the average TotalG for each of the two Nutrient concentrations.

```
A3Data_New %>%
  group_by(Nutrients) %>%
  summarise(Average = my_custom_function(TotalG, "Average"))
```

```
## # A tibble: 2 x 2
##   Nutrients Average
##   <chr>       <dbl>
## 1 high       0.0665
## 2 low        0.0641
```

Write (i.e. save) the new data to a file called "WrangledData.csv" in the Output folder.

```
write.csv(A3Data_New, "./Output/WrangledData.csv")
```

Test your script for errors

```
Test <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

my_custom_function(Test, "Average")
```

```
## [1] 5.5
```

```
my_custom_function(Test, "Sum")
```

```
## [1] 55
```

```
my_custom_function(Test, "Observations")
```

```
## [1] 10
```

```
my_custom_function(Test, "Anything else, for error")
```

```
## [1] "Error!"
```