Lesson 2: Base R vs Tidy R - Homework

Instructor: Emily Markowitz (Emily.Markowitz@noaa.gov)

January 25, 2021

Questions:

1. Let's explore Tidyverse!

a. Think of Tidyverse as a family of packages. Which packages are loaded with {tidyverse}? What do each of these packages do? Check out: https://tidyverse.tidyverse.org/

b. Which package is `pivot_wider` from?

c. Which package is `rename` from?

d. Can you use {tidyverse} without {base} R?

2. Let's play with some data!

You can view the dataset CO2 in more detail using `View(CO2)` and learn about it using `?CO2`. CO2 comes from the {datasets} package which should already be automatically loaded in your R.

Some info about the CO2 dataset: "The CO2 data frame has 84 rows and 5 columns of data from an experiment on the cold tolerance of the grass species *Echinochloa crus-galli*."

```
# Note: This function or data set name (in this case, data set)
# may occur in other packages so here I am using the "::" to say I
# specifically want the data 'CO2' from {datasets}.
CO2<-data.frame(datasets::CO2)
(head(CO2))
```

```
##   Plant   Type  Treatment conc uptake
## 1   Qn1 Quebec nonchilled   95   16.0
## 2   Qn1 Quebec nonchilled  175   30.4
## 3   Qn1 Quebec nonchilled  250   34.8
## 4   Qn1 Quebec nonchilled  350   37.2
## 5   Qn1 Quebec nonchilled  500   35.3
## 6   Qn1 Quebec nonchilled  675   39.2
```

a. `rename()` the "conc" column to "Concenctration mL/L" and "Treatment" column to "condition". The new name for the conc column is not a great name (dare I say 'tidy' name?) so we'll fix that in the next question. Assign your object here as a new obect (name up to you!).

b. Use the {janitor} function `clean_names` on the new CO2 data you just created in 2a. What does it do? How did {janitor} change our "Concenctration mL/L" column?

Again, assign your object here as a new obect (name up to you!).

c. Use `pivot_wider` make columns of uptake (values_from) for each plant (names_from) in your new data set from question 2b.

This is not a 'tidy' way of looking at data, but is good practice! Assign your object here as a new obect (name up to you!).

d. Use `pivot_longer` to undo what you did in 2c using the data that you created in 2c.

To see how to get the old names back, check out the `names_to` and `values_to` variable in `?pivot_longer`. This will likely incure some new rows with `NA`s, so you'll need to remove that here with `values_drop_na`. You can check if you actually got it back to origional form by seeing if the dimensions of the data.frame are the same as the origional dataset. As stated earlier, `dim(datasets::CO2)` was 84 rows and 5 columns.