Exercise 2

1. Manipulate `airquality` dataset

i) Load the `airquality` dataset

ii) Rename the column headers to lower case

iii) Add a column with the variable `year`

iv) Create a new `date` column in the format (`YYYY-MM-DD`, e.g. `2019-09-25`)

v) *Advanced:* Try to do `i)-iv)` with `dplyr` and piping (`%>%`)

2. Convert table from `wide` to `long` format

i) Load the file `tree_growth_data_wide.rds` from the `01_Data` folder and give it a name (e.g. `wide_table`)

ii) Install the package `tidyr`

iii) Convert the table to the format shown below using the function `pivot_longer` from the `tidyr` package

```
## # A tibble: 6 x 3
##   ts                  series           value
##   <dttm>              <chr>            <dbl>
## 1 2019-05-31 23:00:00 dendrometer1_ch3 8336.
## 2 2019-05-31 23:10:00 dendrometer1_ch3 8336.
## 3 2019-05-31 23:20:00 dendrometer1_ch3 8336.
## 4 2019-05-31 23:30:00 dendrometer1_ch3 8336.
## 5 2019-05-31 23:40:00 dendrometer1_ch3 8336.
## 6 2019-05-31 23:50:00 dendrometer1_ch3 8336.
```

iv) Save the table to the `01_Data` folder with a new name (e.g. `long_table`)

Hints

1. Manipulate `airquality` dataset

i) Use the command `data(airquality)` to load the dataset.

ii) Use the function `tolower` to convert column names to lower case.

iii) See `?airquality` to find out in which year the measurements were taken. Use the function `mutate` to add the new column `year`.

iv) Use the function `paste` (with `sep = "-"`) to combine the columns `year`, `month` and `day`.
Use the function `as.Date` (with `format = "%Y-%m-%d"`) to create the new date column.

v) Build a structure similar to:

```
new_data_frame <- airquality %>%
  function() %>%  # add year column
  function() %>%  # combine year, month and day columns
  function()      # add date column
```

→ Do not forget to load the `dplyr` package with `library(dplyr)`

2. Convert table from `wide` to `long` format

i) Use the function `readRDS` (`?readRDS`).

ii) See the file `03_Install_packages.R` in the `03_Scripts` folder.

iii) Have a look at the vignette of the function with the command `vignette("pivot")`. A vignette is a help file with examples included.

iv) Use the function `saveRDS` to save the table as an `R` object to file.
→ Do not forget the file extension `.rds` at the end of the file name