Lesson 4,5: Review of Computing and R

Agenda

In this review, we will work together to go through R expressions and functions that we need to define in assignments in Lesson 4 and 5.

Highlights

- Use of R functions *which*, *name*, as well as functions over vectors
- Define an R function
- Test an R function

Representing a Set Using R (Lesson 4)

Practice. Recall we have cars with variable speed, we would like to know the number of cars with speed 205. The *id* and *speed* of the cars:

id:	#1	#3	#11	#48
speed:	215	200	205	205

- Goal: recall some R functions/expression and their evaluation.
- Click link: https://replit.com/@yuanlinzhangTTU/L4-Review#L4-review.r
- Click the "code"
- Click the file **`L4-review.r`**
- Follow instructions behind `## T1` (line 1) and `## T2`, …

Define R functions: naive deviation, variance and standard deviation (Lesson 4)

We know how to define an R function in principle.

- Goal we would practice how to define R functions (*naive deviation*, *variance* and *standard deviation)*, use and test them. (In fact, you have used may R functions already. You can use the functions defined by yourself in the same way!)
- Click link: https://replit.com/@yuanlinzhangTTU/L4-Review#L4-review-2.r
- Click the “code”
- Click the file **`L4-review-2.r`**
- Follow instructions behind `## T1` (line 1).

Define/write Joint Frequency

- Goal: we would practice how to define R functions (*joint frequency)*, use and test them.
- Click link: https://replit.com/@yuanlinzhangTTU/CStats-Reviews#L5-review.r
- Click the “code” tab
- Click the file **`L5-review.r`**
- Follow instructions behind `## T1` (line 1).

Caveat: Execute a program inside a file

In fact, we can execute a program in a file *filename.r* directly in at least two ways

- Click the “Run” button at the top right corner of repl.it.
- Go to the repl.it console (not R console. If you are in R console, run q() to quite to repl.it console). Run command

  ```
  r filename.r
  ```

- If we execute the program in the way above, called *direct execution*, the program is *evaluated* but *No result will be displayed on console*. To display the value of any expression on the console, we have to use *print* function of R.
  - You may note that when we *plot*, we have to use *direct execution*. The side effect of R *drawing functions* will be saving in the `Rplots.pdf` file. By clicking the pdf after direct execution, we can see the plot drawn by our program.
- In the earlier practice, we did not use direct execution. Instead, we manually “execute” R expression(s) on R console, the values of the expressions will be displayed on console by default. One goal of the practice is for you to see what the value looks like and if the value is the result of what we expect the R expression(s) to take.

Define/write Joint Relative Frequency

- Goal: we would practice how to define R functions (*joint relative frequency)*, use and test them.
- Click link: https://replit.com/@yuanlinzhangTTU/CStats-Review-3-L5#L5-review-jRelFre.r
- Click the “code” tab
- Click the file **`L5-review-jRelFre.r`**
- Follow instructions behind `## T1` (line 1).

Define/write Conditional Relative Frequency

- Goal: we would practice how to define R functions (*conditional relative frequency)*, use and test them.
- Click link: https://replit.com/@yuanlinzhangTTU/CStats-Review-2-L5#L5-review-condRelFre.r
- Click the “code” tab
- Click the file **`L5-review-condRelFre.r`**
- Follow instructions behind `## T1` (line 1).