

# BACS HW (Week 1)

## Setting Up

Create a new project in RStudio for your first coding assignment.

Download the data file for customers.txt from Canvas

Try repeating the simple R commands we saw in class before attempting the more difficult questions below.

## Your Assignment

Within your project, create a new R script file to keep a copy of the commands you use (you can call it 'HW2.R').

Try to solve each problem through code rather than manual calculations or observation:

1. What is the 5th element in the original list of ages?
2. What is the fifth lowest age?
3. Extract the five lowest ages together

*HINT: to get a sequence of numbers from a list, you can use:*

`my_list[c(1,2,3,4,5)]` but can you think of a shorter or clearer way of doing this?

4. Get the five highest ages by first sorting them in decreasing order first.

*HINT: find out how to sort in decreasing order by using: `help(sort)` or `?sort`*

5. What is the average (mean) age?
6. What is the standard deviation of ages? (guess or google the standard deviation function in R)
7. Make a new variable called `age_diff`, with the difference between each age and the *mean* age
8. What is the average “difference between each age and the mean age”?

*HINT: think carefully why someone would want to know this, and what it implies about how to do #7*

9. Visualize the raw data as we did in class: (a) histogram, (b) density plot, (c) boxplot+stripchart

## Submitting Your Work

**Report:** Create a concise report using a word processor (e.g., MS Word) or other tool (e.g., RMarkdown).

**Anonymous:** Do NOT put your name on the assignment; Only put your student ID at the top of each page

**Credit Help:** If anyone has helped you greatly, mention it and add their student ID at the top of your assignment

**For each question:**

- Show the number of the questions you are solving, and a brief (< 1 line) description of the problem
- Show your code (see Canvas link on how to put code into MS Word)
  - copy/paste code into your report as text (do NOT use a screenshot!)
  - use comments (lines starting with '#') to give us additional information to understand your code.
- Show relevant results (see Canvas link on how to insert R plot graphics into MS Word)
  - results can be shown either as text or visualization (use copy/paste; do NOT use screenshots)
  - show results in the clearest way for the reader to understand that it is the result

**Submit PDF:** Please upload your report on Canvas as a PDF file

You are free to discuss homeworks (and R code) on discussion boards on the Canvas site.