# Homework 6
## MTH 3270 Data Science
## Due Mon., Apr. 6

| Read These Chapters of the Book | Then Do These Exercises |
|---|---|
| 6 | No exercises from this chapter |
| 7 | 7.1*, 7.2** |
| Appendix E | No exercises from this appendix (yet) |

* For **Problem 7.1**, compute the *95% confidence interval* for the *mean* using:

$$\bar{X} \pm 2 \times \frac{S}{\sqrt{n}}$$

where

- $\bar{X}$ is the **sample mean** of the ages (use `mean()`).

- $S$ is the **sample standard deviation** of the ages (use `sd()`).

- $n$ is the **sample size** of the ages (use `nrow()` or `dim()` or `length()`, etc.).

Note that $S/\sqrt{n}$ is the *estimated* **standard error** of $\bar{X}$ based on its **theoretical** value, which is $\sigma/\sqrt{n}$.

** For **Problem 7.2**, compute the *95% confidence interval* for the *median* using:

$$\tilde{X} \pm 2 \times \mathrm{SE}_{\mathrm{boot}}$$

where

- $\tilde{X}$ is the **sample median** of the ages (use `median()`).

- $\mathrm{SE}_{\mathrm{boot}}$ is the *estimated* **standard error** of $\tilde{X}$ based on the **bootstrap** method.