

SDM4 in R: Understanding Randomness (Chapter 10)

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Introduction and background

This document is intended to help describe how to undertake analyses introduced as examples in the Fourth Edition of *Stats: Data and Models* (2014) by De Veaux, Velleman, and Bock. More information about the book can be found at http://wps.aw.com/aw_deveaux_stats_series. This file as well as the associated R Markdown reproducible analysis source file used to create it can be found at <http://nhorton.people.amherst.edu/sdm4>.

This work leverages initiatives undertaken by Project MOSAIC (<http://www.mosaic-web.org>), an NSF-funded effort to improve the teaching of statistics, calculus, science and computing in the undergraduate curriculum. In particular, we utilize the `mosaic` package, which was written to simplify the use of R for introductory statistics courses. A short summary of the R needed to teach introductory statistics can be found in the `mosaic` package vignettes (<http://cran.r-project.org/web/packages/mosaic>). A paper describing the `mosaic` approach was published in the *R Journal*: <https://journal.r-project.org/archive/2017/RJ-2017-024>.

Chapter 10: Understanding Randomness

Section 10.1: What is Randomness?

Section 10.2: Simulating by Hand

Shown below is the box and whisker plot from page 284.

```
library(mosaic)
obs <- c(5,4,7,5,18,6,5,4,6)
ID <- 1:length(data)
data <- data.frame(ID, obs)
gf_boxplot(obs ~ 1, data = data) # gf_boxplot(~ age) support is planned for the future
```

