Unit 7

This unit introduces arrays, which Eck (2019) describes as follows in Chapter 7: "An array is a numbered sequence of elements, and each element acts like a separate variable."

Java provides a special syntax for "for" loops over the elements of arrays (and other collection types in Java). The simplified syntax is called a "for-each" loop. For example, the following statement prints each String in an array called "words".

for (String word : words) System.out.println(word);

An array has a number of elements that are set when the array object is created and cannot be changed. Java provides the "ArrayList" class for the functionality of a dynamic array, an array that can change in size. ArrayList is an example of a parameterized type, a type that depends on another type.

The type parameter for an ArrayList must be a class, not a primitive type, so Java provides wrapper classes for the primitive types, like "Integer" for int, "Double" for double, etc.

Arrays and ArrayLists are the topics of Chapter 7 of Eck (2019), but arrays are also covered in previous chapters.

Lectures

Cave of Programming. (2012, February 14). *ArrayList: Java collections framework tutorial part 1* [Video]. YouTube. https://youtu.be/mkCTxtLe7XU

Cave of Programming. (2012, March 28). *Linked list and the list interface: Java collections framework tutorial part 2* [Video]. YouTube. https://youtu.be/YmDbL_fCEII

Reading Assignment

Eck, D. J. (2019). *Introduction to programming using Java, version 8.1*. http://math.hws.edu/javanotes.

Read the following:

- Chapter 3, Section 3.8
- Chapter 4, Section 4.3
- Chapter 5, Section 5.1

- Chapter 7

Supplementary Reading

Gallardo, R., Hommel, S., Kannan, S., Gordon, J., and Zakhour, S.B. (2016). The Java tutorials. Oracle.

- Arrays. https://docs.oracle.com/javase/tutorial/java/nutsandbolts/arrays.html
- The list interface. https://docs.oracle.com/javase/tutorial/collections/interfaces/list.html