





(30 pts) Approx. 3 days

This unit covers the creation and use of arrays. *Arrays* are lists of values that get stored with a single name. For example, if you had a list of prime numbers, you might make an array of them as shown below:

```
int[] primes = {2, 3, 5, 7, 11, 13, 17, 19}
```

In this instantiation, the square brackets make the variable a list (array) of values rather than one single one. The numbers in the curly braces are automatically placed into the array, and the array automatically (and forever) has size 8 because that was how many numbers we gave it. Later, if I wanted to recall the '11', I can reference `primes[4]` and use the value returned by the array. Arrays will be super useful as we start trying to store more and more information!

- Take a full page of good notes on 1-dimensional arrays as you watch the three presentations from our website. Make sure that your notes include good details on the different ways to make arrays, how to store information in arrays, how to get information from arrays, and how to use a for loop to traverse arrays!
- Now, complete the next 8 Java Tasks below that are all about defining classes, their variables, and their constructors!
 - JAVA TASK 38: Make a program that simply instantiates 4 different arrays (in either different ways or storing different kinds of information). Make a for loop print the array nicely on the screen.
 - JAVA TASK 39: Make a program that creates an array of Strings that is 4-spaces long, but empty. Then, let the user enter 4 different words, and add each of them to the array. Then, use a for loop to print the array on the screen.
 - JAVA TASK 40: Make a program that creates an array of 9 random double values. Use a for loop to print the array nicely on the screen.
 - JAVA TASK 41: Make a program that creates an array of 9 random integers between the values 5 and 9 inclusive. Use a for loop to print the array nicely on the screen.
 - JAVA TASK 42: Make a program that creates an array of 6 boolean values that alternate 'true' – 'false'. Use a for loop to print the array nicely on the screen.
 - JAVA TASK 43: Make an array that shows the results of 16 coin flips. The array should be filled with Strings that are either "H" or "T". The values should be generated randomly by the program and should have a 50% chance of being heads and a 50% chance of being tails. Use a for loop to print the array on the screen.
 - JAVA TASK 44: Make a program that creates an array of 15 integers. Use a for loop to fill the array with increasing numbers from 1 to 15. Use another for loop to print the array nicely.
 - JAVA TASK 45: Make a program that creates an array of 50 integers. Use a for loop to fill the array with the first 50 numbers of the Fibonacci sequence. Then, use another for loop to print the array nicely.
- Finally, return to codingbat.com and log in with your email address. Look for the "String-2" group of problems. Pick and solve any 8 of these challenges. These string challenges will need us to use the `substring()` method as well as a for loop to search through larger strings.

Part 1: Tasks	10-8 points	7-4 points	3-0 points
 Array Notes	+ Watch all presentations + You took a full page of notes on 1-dimensional arrays + Your notes include details about instantiation, editing, and traversing arrays	- Less than a full page of notes on arrays - Your notes are missing important parts	- Very brief or no notes in your notebook
 Java Tasks 38-45	+ You completed all 8 Java Tasks from this section	- You did not complete all 8 tasks	- You did not complete any tasks
 Coding Bat	+ You completed 8 String#3 challenges in codingbat.com	- You completed 7 - 5 codingbat.com challenges	- you completed fewer than 5 codingbat challenges
 Checkoff from Benshoof	+ Mr. Benshoof got to see your array programs run successfully	N/A	N/A