
Homework 05: Arrays

Release date: 2/11

Due date: 2/18 by 11:59pm

Goals

- Get familiar with one-dimensional arrays
- Get familiar with the enhanced `for` loop (foreach loop)
- Get familiar with searching arrays

Introduction

As you will learn, arrays are a very powerful feature, and are used throughout the Java Language and Platform. An array is a container object whose elements have a common type. One might create an array of `int`, an array of `Object`, an array of `String`, etc. All of the elements are grouped under a common name, and are accessed by indices. Do remember that these indices start at zero in Java, as well as many other programming languages. Arrays are the building block of many abstractions in Java, such as `String`, which you have already learned, and `ArrayList`, which you will learn about next week.

Description

Your task for this homework is to implement eight utility methods that operate on `int` arrays. A skeleton code file, `IntArrayUtils.java`, has been provided for you. Please do not modify the method headers, and start writing your code where the `TODO` comment is located.

The format of this homework will mirror that of the midterm exams. You will be provided with a method stub, and will have to write code that follows the specifications outlined in the JavaDoc comment above each method. Sample usage of each method is also provided in the comment. The methods you must declare are as follows:

- `public static int sum(int[] anArray)`
 - ◆ Sums the values in `anArray`, then returns that sum
- `public static int product(int[] anArray)`
 - ◆ Multiplies the values in `anArray` by each other, then returns that product
- `public static int maxValue(int[] anArray)`
 - ◆ Returns the largest value in `anArray`

- `public static int minValue(int[] anArray)`
 - ◆ Returns the smallest value in `anArray`
- `public static int indexOf(int[] anArray, int value)`
 - ◆ Returns the index of the first occurrence of `value` in `anArray`, or `-1` if it could not be found
- `public static int lastIndexOf(int[] anArray, int value)`
 - ◆ Returns the index of the last occurrence of `value` in `anArray`, or `-1` if it could not be found
- `public static boolean equals(int[] anArray, int[] anotherArray)`
 - ◆ Returns `true` if both arrays are equal, and `false` if they are not
- `public static String toString(int[] anArray)`
 - ◆ Returns a `String` representation of `anArray`

Requirements

You are required to create one class, `IntArrayUtils`, that follows the specifications outlined above. It is to be held in a file called `IntArrayUtils.java`.

NOTE: you may *not* use the `Arrays` class, the `Collections` class, or any other Java collections in your implementation. Attempting to do so will waste a submission in Vocareum.

Submission

Submit your file, `IntArrayUtils.java`, to Vocareum *through Blackboard*. Keep in mind that only your latest submission will be considered.

Rubric

- `IntArrayUtils` class — 100 points total
 - 12.5 points each (8 total)
 - `sum()`
 - `product()`
 - `maxValue()`
 - `minValue()`
 - `indexOf()`
 - `lastIndexOf()`
 - `equals()`
 - `toString`