

Exercise 2: Operations on arrays

1) Make sure you have read and understood the sections of notes numbered 3-5 (“Arrays in Java” Parts 1, 2 and 3).

2) Download the file `useArrays1.java` from the course code directory (subdirectory `arrays`). Check you can compile and run this code. You can make use of the support code here to test the methods on arrays of integers you have to write for the rest of this exercise.

3) Write a method which takes an array of integers and returns the result of adding them together. So if the array is

8	11	3	12	5	10
---	----	---	----	---	----

the method should return 49.

4) Write a method which takes an array of integers and returns the largest one. So if the array is

21	9	13	47	5	10	19	36	20	11	13
----	---	----	----	---	----	----	----	----	----	----

the method should return 47.

5) Write methods which take an array of integers and an integer, and multiply all the integers in the array by the integer argument. So, for example, if the array argument is

7	11	13	8	5	10
---	----	----	---	---	----

and the integer argument is 5, the result will be the array:

35	55	65	40	25	50
----	----	----	----	----	----

You should write one method which performs this operation destructively, and another method which performs it constructively.

6) Write a method which takes two arrays of integers and returns an array of integers representing the two argument arrays joined together, that is it contains all the integers from the first array followed by all the integers from the second array. So if the arrays are

7	11	13	8	5	10
---	----	----	---	---	----

and

8	27	30	11	5
---	----	----	----	---

the result should be:

7	11	13	8	5	10	8	27	30	11	5
---	----	----	---	---	----	---	----	----	----	---

7) Write a method which takes an array of integers and an integer and filters the array so that the resulting array has the elements of the argument array in the same order except that those lower than the argument integer are removed. For example, if the argument array is

17	11	20	34	5	10	8	19	55	11	13
----	----	----	----	---	----	---	----	----	----	----

and the integer is 12, the resulting array should be:

17	20	34	19	55	13
----	----	----	----	----	----

8) Write a method which is similar to that for part 6), except that it only adds to the first array those elements in the second array which are not also in the first array. So with the two arguments given in part 6), the result would be the array:

7	11	13	8	5	10	27	30
---	----	----	---	---	----	----	----