# ArrayUtils Exercise 10

Download the ArrayUtils.java file from learn.cnm.edu. This will be your template for the exercise.

Write a java program, ArrayUtils.java (start with the ArrayUtils.java file downloaded), that has the following methods. All algorithms must use for-loops for their implementaion:

1. Method that prints out the values of a one dimensional array of char’s.

Method signature: public static void printArray(char[] array)

2. Method that prints out the values of a one dimensional array of int’s

Method signature: public static void printArray(int[] array)

3. Method that swaps the values of a character array at two indices.

Method signature: public static void swap(char[] array, int i, int j)

For example, given the array before calling swap. After calling swap(array, 0, 2)

Array before Array after calling swap(array,0,2)

|  |
| --- |
| a |
| b |
| c |

|  |
| --- |
| c |
| b |
| a |

You can use the printArray method from step 1 to validate that the swap worked. That is, print the array before calling the swap method and print the array after calling the swap method.

4. Method that shifts the values of a character array down starting at a given index.

Method signature: public static void shiftDown(char[] array, int index)

For example, given the array before calling swap. After calling shiftDown(array, 0)

Array before Array after calling shiftDown(array,0)

|  |
| --- |
| a |
| b |
| c |

|  |
| --- |
| c |
| c |
| b |

5. Method that returns the smallest value in an array of int’s.

Method signature: public static int findMinValue(int[] array)

For example, given the array below, method should return the value 5. Because 5 is the smallest value in the array.

|  |
| --- |
| 10 |
| 5 |
| 8 |

6. Method that returns the index at which the smallest value is located in an array of int’s.

Method signature: public static int findMinIndex(int[] array)

For example, given the array below, method should return the index 1, because the smallest value is at index 1.

|  |
| --- |
| 10 |
| 5 |
| 8 |

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7. Method that copies the values of a given character array into a new array and returns the new array.

Method signature: public static char[] copy(char[] fromArray)

For example, given the array below, method should return a copy of the array, toArray

fromArray toArray

|  |
| --- |
| a |
| B |
| C |

|  |
| --- |
| a |
| B |
| C |