Exercises 6 Arrays

Exercise 6.1 array of integers

In this exercise, we will work with an array of integers initialized like this:

```
int[] tab = {12, 15, 13, 10, 8, 9, 13, 14};
```

Question 6.1.1

Write a program that takes an integer from the keyboard and search if it belongs to the table (answer **yes**/**no**).

Question 6.1.2

Write a program that takes an integer from the keyboard and search if it belongs to the table the index of the integer in the table is displayed. If there are multiple occurrences, the last index is displayed.

Question 6.1.3

Same question, but if there are multiple occurrences, the first index is displayed.

Question 6.1.4

Write a program that takes an integer and its index and writes this integer in the table at the given index. You should check that the index corresponds to a cell in the table (eg. 0 or 3 are correct, but -1 or 123 are not valid indexes for this table). The program will display the contents of the table before and after the transformation.

Question 6.1.5

Write a program that takes two indices and exchanges the values contained in the table under these two indices. The program will display the contents of the table before and after the transformation.

Exercise 6.2 - Array - keyboard input

Question 6.2.1
Write a program that captures and stores 6 integers in a array, and then displays the contents of the array once it is completed.

Question 6.2.2
Resume the prevoius program to write a new program that researches and displays the largest element of the array.

Question 6.2.3
Same question, ie a array entry and search of the greatest element, but this time for an array of characters.

Question 6.2.4
Write a program that takes an array of 6 integers and calculates the average of these six integers. Please note that the average of the integers **is not an integer**.

Question 6.2.5
Write a program that first reads a number **n**, then it takes **n** characters and puts them into a array.

Exercise 6.3 number of letters in an array

Write a program that takes 10 characters on the keyboard, and then calculates the number of uppercase letters, and the number of letters in this table. Character is not necessarily a letter: it can be a number, a punctuation mark, or a special character.

Question 6.3.1
For this question, we consider only the letters without accents. To determine whether a character is a letter, use the order of the characters. A letter is any character between 'a' and 'z' and between 'A' and 'Z'. Any character is an uppercase letter between 'A' and 'Z'.

Question 6.3.2
Write the same program using the following two methods to determine whether a character is a letter and a capital letter.
- `Character.isLetter()` - takes a character parameter and returns a boolean.
- `Character.isUppercase()` - takes a character parameter and returns a boolean.