Lab 7 - Arrays

CSE 110 Principles of Programming with Java
Spring 2021
Due March 26th 2021, 11:59PM Arizona Time

1   Lab Objectives

The following objectives will be met at the end of this lab -

- Declare and create arrays

- Traverse an array

- Search an array for a particular element

- Apply functions to make your program modular

1.1   Arrays

For this lab we will be working with arrays. Remember that an array is a collection of variables of the same datatype and is referenced by a common name. The size of the array must be known prior to creating an array in JAVA. The index of an array ranges from 0 to (size - 1).

For this lab we will accept an array from the user (user will define the size and the elements of the array). We will then define a couple of functions to simulate two specific operations on the user defined array. The first function will display the elements of the array when called. The second function will search the array and display only the negative numbers in the array.

1.2   Lab Objectives

The source code file **Lab7.java** that you will create in this section, is what you will upload as your submission file to Canvas by the due date for this lab. Please ensure that the source code runs on your machine and produces the correct output as required.

Overall Objective: **For this lab, you will write a JAVA program that accepts the size of an integer array from the user. Create an integer array of the user input size and then accept the elements of the array from the user. You will then define two functions to do the following - the first function will display the elements of the array when called. The second function will search the array and display only the negative numbers in the array.**

For this section, you will create a new project in your IDE called **Lab7** and create a source file called **Lab7.java** inside that project. The following requirements must be met to successfully complete this section -

Obj.1 **[(1+4) points]** Define a **static void** function called **displayArray(int arr[])** that displays the elements of the array i.e. you are to print all the values stored inside the array. You can choose how to format the output.

Obj.2 **[(1+4) points]** Define a **static void** function called **displayNegativeElements(int arr[])** that will search for and display only the negative numbers in the array. You can choose how to format the output.

Obj.3 **[1 point]** Within the **main()** function create and object of the **Scanner** class for user input.

Obj.4 **[1 point]** Within the **main()** function you must accept the size of the array from the user.

Obj.5 **[1 point]** Within the **main()** function you must create an integer array of the size given by the user in objective 4.

Obj.6 **[3 points]** Within the **main()** function you must use a loop to accept the elements of the array.

Obj.7 **[4 point]** Within the **main()** function you must call both functions you defined to display the array and the negative numbers in the array.

Note: You can use extra functions as you see fit. There is no limitation on how many functions you use to achieve the end result.

Once you are done editing your source code, make sure to save it (save often to prevent loss of data and work) and then compile your source code. The next step is to follow the submission guidelines in Section 2 of this document and turn your lab in.

1.3   Comment Header

Please include the following comment lines at the top of your **Lab7.java** file. Make sure you fill in the required fields as well.

Listing 1: Comment Header

```
1  // ================================================
2  // Lab7.java
3  // Name :
4  // ASU ID:
5  // Time taken to complete this lab:
6  // ================================================
```

2 Submission Guidelines

Please follow the guidelines listed below prior to submitting your source code file **Lab7.java** on Canvas -

1. Make sure that your source code file is named as **Lab7.java** prior to submitting.

2. Make sure that you have completed all the objectives listed in section 1.2.

3. Include the completed comment header shown in section 1.3 at the top of your source code file

4. Submit your **Lab7.java** file only to the Canvas link for Lab 7 by **March 26th 2021, 11:59PM Arizona Time**.

3 Grading Rubric

As noted in Section 1.2, each of the five objectives have their own points. They are independent of each other and you will be scored for each objective that you complete successfully. Partial points will be awarded for partially completing objectives.