# **CIS 36A :: LAB 5 - Arrays**

#### **Student Name: Esmatullah Nickzad**

### **Task 1: Definitions & Concepts**

1. What are some differences between regular arrays and ArrayList (We have not technically discussed ArrayLists)?

Answer:

### **Task 2: Understanding Programming**

Instructions: Answer each question below. Try to understand and explain the code. **Do not put an IDE code screenshot.**

**Exercise 18:** Can you have an array length of 0? If so, how would you create one?

Answer => 1) Array have fixed size while Arraylists are dynamic and can grow or shrink as needed.

2) Array can hold primitive types and objects directly, while Arraylists can only hold objects.

3) Arrays are immutable in size, meaning their size cannot be changed after creation. ArrayLists are mutable and can be dynamically resized.

4) Accessing elements in arrays is generally faster than in ArrayLists due to their fixed size and contiguous memory storage.

5) Arrays offer less flexibility in terms of adding or removing elements. ArrayLists provide built-in methods for these operations, making them more flexible.

6) Arrays can contain a mixture of different types or primitives. ArrayLists support generics, providing type safety at compile time.

### **Task 3: Programming Exercises**

**Instructions:** Use Sublime to write and execute below exercises from the book chapter 5. Attach screenshots of your source code and execution of the code in the command line. Make sure to create separate Java files for each exercise.

**Chapter Exercises: Do the following chapter exercises.**

* Exercise 03: Average of 10 numbers

Answer:

A computer screen shot of a program

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* Exercise 16: Filling arrays

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* Exercise 22: Triangular Array

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* Exercise 23: Reversing an Array

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* Exercise 26: Merging Arrays

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* Exercise 27: Sorter or Not Sorted

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### **Task 4: Programming Application**

**Instructions:** Use Sublime to write and execute below exercises from the book chapter 5. Attach screenshots of your source code and execution of the code in the command line.

**Data Entry:** Write a program to ask for some user input, save the user input in an array. Allow users to either tell you how many items to enter or a sentinel value to indicate that there are no more data items. After that, use the data stored in the array to generate at least two different statistical values (such as total, average, min/max) and print as output.

Here is a good example: Ask for the weight and height of a group of people. Store the values in two separate arrays. Then, calculate things such as the BMI of each person, average weight/height of everyone, etc.

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