

**Computer Science or Information Technology**

Instructor: **Dawei Li, Ph.D.**

Day, Month, Year

Day

CSIT 501

Department of CSIT

Assessment

Module-8

Hidalgo, Rafael

Exercise 8.1

Which of the following are valid declarations? Which instantiate an array object? Explain your answers.

int primes = {2, 3, 4, 5, 7, 11};

This is Incorrect because the bracket [] is missing.

float elapsedTimes[] = {11.47, 12.04, 11.72, 13.88};

This is incorrect because in Java, every floating point number is of double type. The numbers need to be cast as float, or elapsedTimes[] need to be made into a double.

int[] scores = int[30];

This is not a valid declaration since “new” is not used before int[30]

int[] primes = new {2,3,5,7,11};

This is not valid since new is not needed in an array that is being declared with values inside the curly braces.

int[] scores = new int[30];

This is valid and instantiates an array object.

char grades[] = {'a', 'b', 'c', 'd', 'f'};

This is valid and instantiates an array object.

char[] grades = new char[];

This is wrong since no value is put into the [] operator

Exercise 8.3

Describe how an element in an array is accessed in memory. For example, where is myArray[25] stored in memory?

Array stores elements contiguously. Each element in an array can be accessed by its index location. Therefore to access myArray(25), we have to access the 26th element of the array since arrays start at index 0.

Exercise 8.4

Describe what problem occurs in the following code. What modifications should be made to it to eliminate the problem?

**float**[] values = { 5.2, 10.5, 15.1, 20.87, 25.23, 30.01 };

**for** (**int** total = values.length - 1; total >= 1; total--)

System.***out***.println(values[total]);

The working modified code is as follows.

**double**[] values = { 5.2, 10.5, 15.1, 20.87, 25.23, 30.01 };

**for** (**int** total = values.length - 1; total >= 1; total--)

System.***out***.println(values[total]);

The problem was that values should have been declared as a float, not as a double.

Exercise 8.5 (a and b)

Write an array declaration and any necessary supporting classes to represent the following statements:

a. students’ names for a class of 25 students

String[] studentNames = **new** String[25];

b. students’ test grades for a class of 40 students

**int**[] studentGrades = **new** **int**[40];

Exercise 8.8

Write code that sets every element of a boolean array called multiples to true, whose position in the array is a multiple of 3.

**public** **class** TestCode {

**public** **static** **void** main(String[] args) {

**boolean**[] multiples = **new** **boolean**[50];

**int** arrayCount = 0;

**for** (**int** index = 0; index < multiples.length; index++)

**if** (((index + 1) % 3) == 0) {

multiples[index] = **true**;

} **else** {

multiples[index] = **false**;

}

**for** (**boolean** multiple : multiples) {

arrayCount++;

System.***out***.print(arrayCount + ": " + multiple + " ");

**if** (((arrayCount) % 3) == 0) {

System.***out***.println();

System.***out***.println();

}

}

}

}