Arab Academy for Science, Technology & Maritime Transport
College of Computing and Information Technology

Course: Object-Oriented Programming
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Sheet: Lab 2 Revision (Methods and Arrays)

Book Reference:

- Methods (Chapter 6)
- Arrays (Chapter 7 & 8)

Objectives:

- Define and invoke methods with formal parameters.
- Define methods with/without a return value.
- Declare, create, and initialize, and access elements of single dimension array.
- Declare, create, initialize, and access elements of multidimension array.

Exercises

6.9: (Conversions between pounds and kilograms) write a class that contains the following two methods:

```
/** Convert from pounds to kilograms */
public static double poundToKilogram(double pound)
/** Convert from kilograms to pounds */
public static double kilogramToPound(double kilogram)
```

The formula for the conversion is:

pound = 0.453 * kilogram
kilogram = 2.204 * pound

Write a test program that invokes these methods to display the following tables:

Kilograms	Pounds		Pounds	Kilograms
1	2.2	|	20	9.09
3	6.6	|	25	11.36
...				
197	433.4	|	510	231.82
199	437.8	|	515	234.09

7.26: (Check whether array is sorted) an array **list** is required to be sorted in ascending order. Write a method that returns **true** if **list** is sorted, using the following header:

public static boolean isSorted(**int**[] list)

Write a test program that prompts the user to enter a list of integers. Note the first number in the input indicates the number of elements in the list. This number is not part of the list.

```
Enter list: 5 2 5 6 9 10 Enter
The list is sorted
```

```
Enter list: 5 2 5 6 1 6 Enter
The list is not sorted.
```

8.1: (Sum elements row by row) write a method that returns the sum of all the elements in a specified row in a matrix using the following header:

public static double sumRow(**double**[][] m, **int** rowIndex)

Write a test program that reads a 3-by-4 matrix and displays the sum of each row. Here is a sample run:

```
Enter a 3-by-4 matrix row by row:
1.5 2 3 4 Enter
5.5 6 7 8 Enter
9.5 1 3 1 Enter
Sum of the elements at row 0 is 10.5
Sum of the elements at row 1 is 26.5
Sum of the elements at row 2 is 14.5
```