TOBB University of Economics and Technology
Department of Computer Engineering

BİL141 Computer Programming (Java)
Spring 2016

Homework 5

Due by Mar 8 (Tuesday) 24:00

Subject: Arrays

Write MatrixOperations class. This class should have the following methods (no data):

- Matrix addition (*add*): Given two matrices (A and B), it checks their compatibility, and then adds them (A+B) and makes a new matrix and returns the new matrix.
- Scalar multiplication (*multiply*): Evaluates c.A, multiplies c with matrix elements and return the new matrix.
- Transposition (*transpose*): Returns the transpose of a given matrix (A^T).
- Multiplication (*multiply*): Given two matrices (A and B), it checks their compatibility, and then multiples them (A.B) and makes a new matrix and returns the new matrix.
- Find (*find*): Given a double value, searches and returns the row and column of the cell containing the value in the form of "row#;col#" such as "1;2".
- Count (*count*): Given a double value, searches and returns the number of cells containing the value.

Assume that matrices hold double values with two digits precision after the point (for example, 1.23) and integer values can also be entered and searched (with double casting).

Notice that there two *multiply* methods (overloading).

Write also a test program MatrixOperationsTest.java to evaluate and test each one of the methods in MatrixOperations class.

Help: https://en.wikipedia.org/wiki/Matrix_(mathematics)

In each program have the following comments at the top.

```
/*
 * BİL141 Spring 2016
 * HW#
 *
 * NameOfTheProgram (ex: GradeCalculator)
 * Explanation (ex: Given a number of grades (0-100),
 * Counts the number of letter grades)
 *
 * @author      Firstname Lastname (Student number)
 * @email  ....@etu.edu.tr
 * @date        yyyy/mm/dd
*/
```