Course Code : IE 310	Assignment 1
Course Title : Operations Research	Due Date : 16 October 2016
Semester : Fall 2016	Due Time : 23:59
Lecturer : Asst. Prof. Dr. Hakan Yaşarcan	

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In this assignment, you will write a JAVA code that accomplishes the following tasks:

1. Read the values given in a text file named "input.txt". Note that, the values will be given in the format of the following example. The following is just an example. Thus, the numbers may change.

    n (# of all variables; # of columns in matrix A):
    8

    m (# of constraints excluding the sign restrictions; # of rows in matrix A):
    4

    vector c transpose (objective function coefficients):
    3 4 2 1 0 0 0 0

    matrix A (technological coefficients):
    9.4 -8.8 3 4.2 1 0 0 0
    16.7 -15.9 5.5 8.1 0 1 0 0
    -4.3 4.1 -1.5 -1.9 0 0 1 0
    -13.9 13.3 -4.5 -6.7 0 0 0 1

    vector b (right-hand side coefficients):
    20
    100
    200
    40

    basic variables (assume that m different numbers from 1 to n are selected):
    2 3 5 6

2. Obtain the following based on the current basic variables and report them in a text file named "output.txt" in the following order:
    2.1. B (basis)
    2.2. N (non-basis)
    2.3. B^{-1} (the inverse of the basis)
    2.4. $B^{-1} \cdot N$
    2.5. $B^{-1} \cdot b$
    2.6. $c_B^T \cdot B^{-1} \cdot b$
    2.7. $c_B^T \cdot B^{-1} \cdot N - c_N^T$

Remarks: * The next assignment will depend on this one. Therefore, we encourage you to do it perfectly.
   * Note that, we will use different input files to test your code.
   * The basis (i.e. the basic variables) can be given in a mixed order (e.g. 5, 4, 6, 2).
   * Do not forget to format your output. An example that satisfies this requirement is uploaded to the moodle page of the course.
   * The example input file is also uploaded to the moodle page of the course.
   * For the platform for your assignments, see the related announcement on the moodle page of the course.
   * The Java project folder including your Java code must be uploaded to the moodle page of the course.
   * Use only ".zip" format to archive your assignment files. Please do not use other compression methods such as ".rar".
   * Example zip file names: Group 5 lacivert.zip; Group 12 oldies but goldies.zip; Group 7 EFI.zip
   * Your zip file will include project folder and information.txt
   * Project folder is the Eclipse project folder including your Java code.
   * You need to write a text file as a part of your assignment. The ".txt" file should contain the following information:
       a. The number and name of the group.
       b. The names, surnames, student IDs, and the contribution percentages of the group members.