# HW2. (Programming) Matrix Addition using Linked List

Construct a program that calculates addition of two matrices using *linked lists*. The non-zero elements of a matrix are expressed in order of row and column numbers. For example, a matrix is expressed by (1 1 2 3 2 4 3 3 5). The program reads its inputs from the input file “matrix.in”, and outputs its output to the output file “matrix.out”.

In “matrix.in”, the first line denotes the number of instances of addition. In the below example we have to do two additions, and . The next line denotes the number of non-zero elements of the first matrix in the first instance. The successive lines denote the non-zero elements of the first matrix of the first instance. We proceed similarly for the second matrix of the first instance and two matrices of the second instance.

In “mult.out”, we have to output two matrices, and .

The first line denotes the number of instances of additions. The next line denotes the number of non-zero elements of a calculated matrix of the first instance. The successive lines denote the non-zero elements of the calculated matrix of the first instance. We proceed similarly for the result matrix of the second instance.

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matrix.in.

2

3

1 1 2

3 2 4

3 3 5

2

1 1 1

2 1 3

2

2 1 1

2 2 2

1

2 1 3

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matrix.out

2

4

1 1 3

2 1 3

3 2 4

3 3 5

2

2 1 4

2 2 2

Notes: You have to make matrix?...?.c for a source code file, matrix?...?.exe for an execution file, and matrix?...?.doc for an explanation file of your algorithm. ?...? denotes your student ID. For example, a student with a student ID, 2001571010, has to make three files, matrix2001571010.c, matrix2001571010.exe, and matrix2001571010.doc. And then you have to upload matrix2001571010.zip which is a compressed file of the three files. The score is given to the student who outputs the exact results according to the output format. Good Luck !