

PROGRAMMING CHALLENGE

A is a matrix of dimensions with n rows and columns with entries of “1” in some of the elements below the diagonal in a spreadsheet. The other entries are empty. The file is exported as a .csv comma delimited file, which is basically a text file. The challenge is to create a new .csv file that can be imported into the spreadsheet which will be a new matrix **B** where $\mathbf{B} = \mathbf{A} + \mathbf{A}^T + \mathbf{I}$ where \mathbf{A}^T is the transpose of \mathbf{A} and \mathbf{I} is the identity matrix. The program should have as its inputs the value n and the .csv file for **A** and the output will be the .csv file for **B**. For this exercise, here is the sample data:

$$n = 24$$

A =

$$A^T =$$

1

$$B = A + A^T + I =$$

The text in the .csv file for A is:

The output of the program for this example will be a .csv comma delimited file that when opened with the spreadsheet will result in the data for the matrix B.

NOTE: the entries which are not “1” should be empty, not zero or anything else.