Files to submit: triMatMult.cpp
Time it took Matthew to complete: ?

- All programs must compile without warnings when using the -Wall and -Werror options
- Submit only the files requested
  - Do **NOT** submit folders or compressed files such as .zip, .rar, .tar, .targz, etc
- If submitting in a pair please make sure to mark your partner.
  - Only one of you
- Your program must exactly to receive credit.
  - Make sure the output match mine exactly.
  - Easiest way to and paste them
- All input will be otherwise
- Print all real numbers places unless otherwise stated
- The examples provided in the prompts do not represent all possible input you can receive.
- All inputs in the examples in the prompt are underlined
  - You don't have to make anything underlined it is just there to help you differentiate between what you are supposed to print and what is being given to your program
- If you have questions please post them on Piazza

An upper triangular matrix is a special type of matrix where all the values below the main diagonal are 0. In order to save space we can store this matrix without the zeros. For example

1	2	3
0	4	5
0	0	6

Would be stored as

1	2	3	4	5	6

We would also like to be able to work with these matrices in their compressed format, again to save space. Write a C++ program called, **triMatMult.cpp**, that accepts as arguments two files that contain these compressed upper triangular matrices. The program should multiply the two matrices together and then display the resulting compressed matrix in its compressed form.

- The names of the files will be given on the **command line**
- All matrices will be square, ie N X N
- All values will be integers
- File format:
  - N (dimension of the matrix)
  - number1
  - number2
  - number3 ...
- For help on matrix multiplication see http://www.purplemath.com/modules/mtrxmult.htm.
- **Restrictions**: You cannot expand the compressed matrices to do the multiplication. If you do this you will receive no credit for this portion of the assignment. Again the whole point is to save space.
- In the examples on the next page the values are shown on 1 line to save space

```
Cat mat1.txt
4
1 2 3 17 4 51 25 6 31 9

cat mat2.txt
4
25 73 -4 -17 -99 [illegible] -10

./triMatMult.out [illegible] .txt
25 -125 191 13 -[illegible] 382 90
```


This is equivalent to doi[illegible]

A =

1	2	3	17
0	4	51	25
0	0	6	31
0	0	0	9

B =

25	73	-4	-17
0	-99	81	-88
0	0	11	12
0	0	0	10

C =

25	-125	191	13
0	-396	885	510
0	0	66	382
0	0	0	90