CON 101 - Assignment 4

(Memory Assignment)

Name : Aditi Singla
Entry No : 2014CS50277

Algorithm:

I am supplying a text file with the given equations "statement.txt".

First of all, one by one, each line of the text is read and from each line, the variables are stored in a hashmap where the key is a string (variable name) and the value is a vector of ints which stores the equation numbers which contain this variable. As the lines are read, the equation numbers are added corresponding to the string variable. After this, I create a 2 dimensional array of integers of size n*n where n is the number of variables, initially all filled with 0's.

Now, the crossing out technique is used where we start filling this array such that for each variable, starting from 1st row of array, if all the indices starting from its first occurrence equation number till the index corresponding to the last occurrence equation number have 0's, they are all replaced by 1. Else we move to the next row. Every time a new row is accessed(containing all 0's), count is increased by 1. This count is maintained separately using a variable.

To be clear, if, for example, a variable occurs in equation 1,2,4, then in the array, all the positions from first to fourth are checked (including third), i.e. indices 0,1,2,3.

Eg.

0	0	0	0	0

1	1	1	1	0

Finally the total count is the answer.