CON 101
Memory Assignment

Consider a program consisting of a sequence statements (no conditional branches) of the type:

<var> = <var><op><var>

and

<var> = <op><var>

Where <var> is a variable and <op> is a unary or binary operator.

For example:

a = b + c
d = a + b
e = c + b
t = -e

The Memory Assignment problem is to assign memory locations to program variables in such a way that the total amount of memory needed is minimised. In the example above, we could store both a and e in the same memory location, since both variable are never *alive* at the same time. That is, at any point in the program, we will need to store either the value of a, or e, but never both.

Write a program that takes the above input, and generates the Memory Assignment using minimum total memory.