Add two numbers

This ASP.NET application is built using MVC framework that allows user to enter script (i.e. A set of instructions).

The application simulates a compiler that allows user to enter a script that can be a combination of instructions from the following instruction set.

Instructions
The machine has 3 instructions: • Z n = zero cell #n (*memory[n]=0*) • I n – increment cell #n by one (*memory[n]++*) • J n,m,label – if value of cell #n is different from value of cell #m, jump to the program address "label" (*if (memory[n]!=memory[m]) goto label;*)

The application internally has a virtual machine working with memory of unlimited size. Memory consists of cells, each containing an integer number. When the machine is started, memory contains random integer values. When this application is run then memory of first 5 cells is displayed.

The application does the following:

- Allows user to enter a script using the script syntax above. Empty lines and lines starting with # must be ignored.
- Allows user to execute the script in the virtual machine, printing the state of the machine memory after executing the script.
- The script is executed in a sequence and stops automatically at the last instruction.
- State of the machine memory must be preserved between web page invocations
- There is a function to reset the machine into the initial state with memory containing random values

The following two sample scripts shows that a meaningful program can be build.

The script-1 puts value 3 into cells #0 and #1

```
Script-1

# This program puts value 3 into cells #0 and #1
      Z 0
      Z 1
      I 0
      I 0
      I 0
Loop: I 1
      J 0,1,Loop
```

The script-2 adds two non-negative numbers in cells #0 and cell #1, and put the result into cell #2

```
Script-2
       Z 2
       Z 3
# assign cell-1 in cell-2
Loop1: I 2
       J 1,2,Loop1

# increment cell-2 unless cell-3!=cell0
Loop2: I 2
     I 3
       J 0,3,Loop2
```

For example, when the script-1 is executed first, and the script-2 is executed next, the cell #2 will contain 6.