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COS 109 Toy Machine Simulator

(You must have Javascript enabled.) Type your program in the left window. **It's good style to put labels in the first column and operators like GET or ADD after the first column, i.e., one or more spaces before them.** The simulator does not distinguish upper case from lower case, and is not robust, so be sure to spell instructions correctly and format code carefully.

Push RUN to run your program. A dialog box will appear when a GET is executed, and output from PRINT will appear in the right window. The simulator will stop if you Cancel a GET or don't enter anything.

```
  get
  print
  store num
  get
  print
  add num
  print
d stop

num 0
```

```
5
3
8

[stopped]
```

Accumulator: 8

Run Clear output

Syntax reminder

```
get       get a number from keyboard into accumulator
print     print contents of accumulator
load Val  load accumulator with Val (Val unchanged)
store M   store contents of accumulator into memory location called M (accumulator unchanged)
add Val   add Val to contents of accumulator (Val unchanged)
sub Val   subtract Val from contents of accumulator (Val unchanged)
goto L    go to instruction labeled L
ifpos L   go to instruction labeled L if accumulator is >= zero
ifzero L  go to instruction labeled L if accumulator is zero
```

```
   stop      stop running
M Num        before program runs, set this memory location (called M) to numeric value Num
```

If *Val* is a name like Sum, it refers to a labeled memory location. If *Val* is a number like 17, that value is used directly. So add Sum means to add the contents of the memory location named Sum to the value in the accumulator (leaving Sum's contents unchanged), while add 1 means to add 1 to the value in the accumulator.

You can also try a single-step version of the simulator, which does one instruction at a time so you can see what happens more easily.

If you want to see how the simulator works, Tools / Web Developer / Page Source in Firefox, Customize / Tools / View source in Chrome, or Developer / View Source in Safari.

There is a limit of 1000 instructions by default, to make it easier to prevent infinite loops.