addn.spim

1: # addn.spim
2: # Input: A number of inputs, n, and n integers.
3: # Output: The sum of the n inputs.
4: # Demonstrates reading and writing integers.
5: #
6: # Register usage:
7: # $t0: how many integers remain to be read.
8: # $t1: sum of the integers read so far.
9: #
10: .data                         # Constants.
11: prmpt1:     .asciiz "How many inputs? 
12: prmpt2:     .asciiz "Next input: 
13: sum:        .asciiz "The sum is 
14: nl:         .asciiz "\n"
15: #
16: .text                   # Main.
17: .globl main
18: main:       li $v0, 4       # Syscall to print prompt string.
19: la $a0, prmpt1
20: syscall
21: #
22: li $v0, 5       # Syscall to read an integer.
23: syscall
24: move $t0, $v0  # n stored in $t0.
25: # Read n integers.
26: li $t1, 0      # sum stored in $t1 -- clear it.
27: #
28: .globl while
29: while:      blez $t0, endwhile # Read n integers.
30: li $v0, 4       # Prompt for next integer
31: la $a0, prmpt2
32: syscall
33: #
34: li $v0, 5       # Read next integer.
35: syscall
36: add $t1, $t1, $v0 # Increase sum by new input.
37: #
38: sub $t0, $t0, 1  # Decrement n.
39: #
40: b while
41: #
42: endwhile:    li $v0, 4       # Print result string.
43: la $a0, sum
44: syscall
45: move $a0, $t1 # Print sum.
46: li $v0, 1
47: syscall
48: #
49: li $v0, 4     # Print a newline character.
50: la $a0, nl
51: syscall
52: #
53: li $v0, 10    # Syscall to exit.