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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: prmp1:   .ascii "How many inputs? "
12: prmp2:   .ascii "Next input: "
13: sum:     .ascii "The sum is "
14: nl:     .ascii "\n"
15:
16:          .text                # Main.
17:          .globl main
18:
19: main:    li $v0, 4             # Syscall to print prompt string.
20:          la $a0, prmp1
21:          syscall
22:
23:          li $v0, 5             # Syscall to read an integer.
24:          syscall             # Result returned in $v0.
25:          move $t0, $v0        # n stored in $t0.
26:
27:          li $t1, 0            # sum stored in $t1 -- clear it.
28:
29:          .globl while
30: while:   blez $t0, endwhile   # Read n integers.
31:          li $v0, 4             # Prompt for next integer
32:          la $a0, prmp2
33:          syscall
34:
35:          li $v0, 5             # Read next integer.
36:          syscall
37:          add $t1, $t1, $v0     # Increase sum by new input.
38:
39:          sub $t0, $t0, 1      # Decrement n.
40:
41:          b while
42:
43: endwhile: li $v0, 4           # Print result string.
44:          la $a0, sum
45:          syscall
46:
47:          move $a0, $t1        # Print sum.
48:          li $v0, 1
49:          syscall
50:
51:          li $v0, 4             # Print a newline character.
52:          la $a0, nl
53:          syscall
54:
55:          li $v0, 10           # Syscall to exit.
56:          syscall

```