Example 4.

Calculate 13+12+11+10+9+8+7+6+5+4+3+2+1, store sum in $3, and return.

MIPS Machine code:

binary	hex	location meaning
		; initialize $2 to 13
00000000 00000000 00010000 00010100	00001014	00000000 lis $2
00000000 00000000 00000000 00001101	0000000d	00000004 .word 13
		; clear $3
00000000 00000000 00011000 00100000	00001820	00000008 add $3, $0, $0
		; add $2 to $3
00000000 01100010 00011000 00100000	00621820	0000000c add $3, $3, $2
		; decrement $2
00000000 00000000 00001000 00010100	00000814	00000010 lis $1
11111111 11111111 11111111 11111111	ffffffff	00000014 .word -1
00000000 01000001 00010000 00100000	00411020	00000018 add $2, $2, $1
		; if $2!=0, loop
00010100 01000000 11111111 11111011	1440fffb	0000001c bne $2, $0, -5
		; return to OS
00000011 11100000 00000000 00001000	03e00008	00000020 jr $31

PC

PC

$2 = 12

$3 = 13

$1 = -1