MIPS Assembly Workshop

Fall - 2018

This workshop exercise is to allow you to practice your skills at the art of assembling MIPS Assembly Language program code.

The following page has a small copy routine written in MIPS Assembly Language.

Please fill in the spaces in the table as my example shows:

Please use decimal values for the OpCode row, and Hex digits for the Instruction rows. Use your Green Card to lookup the required values.

Location Counter							Program Counter
		ADD	$t4	$s6	$s1	# $t4 = $s6 + $s1	
			12	22	17		
		Opcode	Rs	Rt	Rd	Immediate field	
		0 / 32	22	17	12		
	000000 10110 10001 01100 00000 100000						
32	02D1 6020						36

Additionally, use the Left margin to keep track of the Location Counter, and the right margin to note the value that would be in the Program Counter.

The initial value of the Location Counter should be zero.

The first instruction below is worked.

LC		ADDI	$v0,	$zero,	0	# Initialize counter	PC
		8	2	0	0		
	001000 00000 00010 0000000000010000						
0	2002 0000						4
	next:	LW	$t9,	0	($a0)	# read the next word	
		35	25	0	4		
	100011 00100 11001 0000000000010000						
4	8C99 0000						8
		ADDI	$v0,	$v0,	1	# count the copied word	
		8	2	2	1		
	001000 00010 00010 0000000000000001						
8	2042 0001						12
		SW	$t9,	0	($a1)	# copy / store	
		43	25	0	5		
	101011 00101 11001 0000000000000000						
12	ACB9 0000						16
		ADDI	$a0,	$a0,	4	# next source word	
		8	4	4	4		
	001000 00100 00100 0000000000000100						
16	2084 0004						20
		ADDI	$a1,	$a1,	4	# next destination	
		8	5	5	4		
	001000 00101 00101 0000000000000100						
20	20A5 0004						24
		BNE	$t9,	$zero,	next	# if not zero value	
		5	25	0	4		
	000101 11001 00000 1111111111111011						
24	1720 FFFB						28
		JR	$ra			# return to caller	
		8	31				
	000000 11111 0000000000000000 01000						
28	03E0 0008						32

Correct

Corrections highlighted in yellow