

7. (12 points) Consider the following MIPS program. For clarity the addresses have been written using only 4 hexadecimal digits. Leading hexadecimal digits are all zeroes (the real start address is 0x00003000).

0x3000	start:	<b>addi</b>	\$s0,	\$0,	4
0x3004		<b>xor</b>	\$s1,	\$s1,	\$s1
0x3008		<b>addi</b>	\$s2,	\$0,	10
0x300C		<b>sw</b>	\$s2,	0(\$s1)	
0x3010		<b>addi</b>	\$s2,	\$s2,	6
0x3014		<b>add</b>	\$s1,	\$s1,	\$s0
0x3018		<b>sw</b>	\$s2,	0(\$s1)	
0x301C		<b>addi</b>	\$a0,	\$0,	11
0x3020		<b>sll</b>	\$t1,	\$a0,	1
0x3024		<b>and</b>	\$a1,	\$a0,	\$t1
0x3028		<b>jal</b>	absdiff		
0x302C		<b>sw</b>	\$v0,	4(\$s1)	
0x3030		<b>lw</b>	\$a0,	0(\$0)	
0x3034		<b>lw</b>	\$a1,	0(\$s0)	
0x3038		<b>jal</b>	absdiff		
0x303C		<b>lw</b>	\$t3,	8(\$0)	
0x3040		<b>sub</b>	\$t2,	\$t3,	\$v0
0x3044	done:	<b>j</b>	done		
0x3048	absdiff:	<b>sub</b>	\$t1,	\$a0,	\$a1
0x304C		<b>slt</b>	\$t2,	\$t1,	\$0
0x3050		<b>beq</b>	\$t2,	\$0,	pos
0x3054		<b>sub</b>	\$t1,	\$a1,	\$a0
0x3058	pos:	<b>add</b>	\$v0,	\$0,	\$t1
0x305C		<b>jr</b>	\$ra		

We are interested in determining the value of some registers at the end of the program execution when the program reaches line 0x3044. Fill in the following table, writing the value of the indicated registers at the end of the program, and at which line these values have been written into these registers.

As an example: at the end of execution the register \$s0 will have the value 4. This value has been written into the register while executing line 0x3000.

Register	Value	Assigned on line
\$s0	4	0x3000
\$s2	16	0x3010
\$t1	6	0x3054
\$t2	3	0x3040
\$t3	9	0x303C
\$ra	0x303c	0x3038