

# Assignment lab1 Report

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Q1. Done through in class check.

Q2.

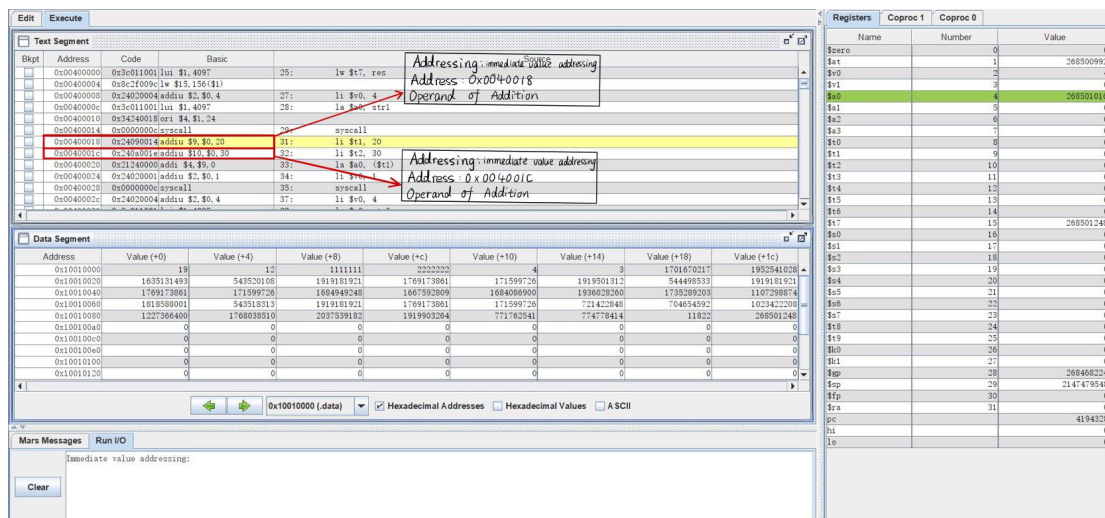


Fig1. screen shot of data segment before running addition

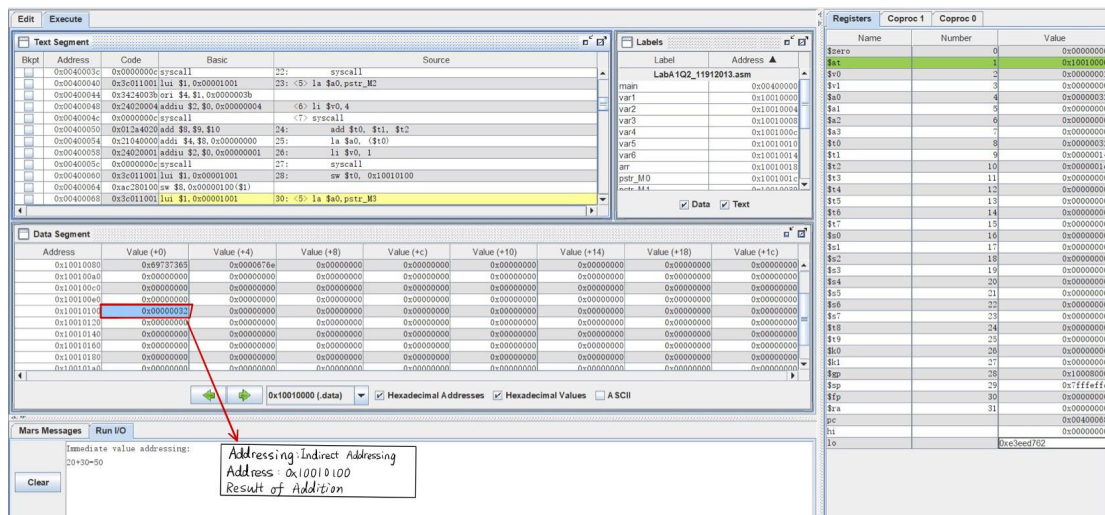


Fig2. screen shot of data segment after running addition

**Text Segment**

Block	Address	Code	Basic	Source
0x0400008	0x3c011001	lui \$1, 0x00001001	64:	lw \$t1, var1
0x0400090	0x8c290000	lw \$t2, 0x00000000(\$t1)	65:	lw \$t2, var2
0x0400094	0x3c011001	lui \$1, 0x00001001	66:	la \$a0, (\$t1)
0x040009c	0x12400000	addi \$t2, \$t1, 10	67:	li \$v0, 1
0x04000a0	0x24020001	addiu \$t2, \$t2, 0x00000001	68:	syscall
0x04000a4	0x00000000	syscall	69:	li \$v0, 4
0x04000aa	0x24020004	addiu \$t2, \$t2, 0x00000004	70:	la \$a0, str7
0x04000ac	0x3c011001	lui \$1, 0x00001001	71:	syscall
0x04000b0	0x34240079	ori \$t4, \$t1, 0x00000079	72:	li \$a0, (\$t2)
0x04000b4	0x00000000	syscall	73:	
0x04000b8	0x21440000	addi \$t4, \$t4, 0x00000000	74:	

**Data Segment**

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)	Value (+14)	Value (+18)	Value (+1c)
0x10010000	0x00000001	0x00000000	0x0010f447	0x0021e88e	0x00000004	0x00000003	0x558d6d49	0x74616964
0x10010020	0x61762065	0x2065756c	0x72644461	0x69737365	0x0a3a670e	0x72944400	0x20746365	0x72646461
0x10010040	0x69737365	0x0a3a670e	0x546e4900	0x63657269	0x64612074	0x73657264	0x676e6973	0x42000a3a
0x10010060	0x6c657365	0x2065e499	0x72644461	0x69737365	0x0a3a670e	0x3b000a00	0x2a002400	0x34002100
0x10010080	0x49282000	0x696c206e	0x79726104	0x72666200	0x2400296d	0x2a2e2a2e	0x00002a2e	0x10010100
0x100100a0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100c0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100e0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010100	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010120	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000

**Registers**

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x10010000
\$v0	2	0x00000004
\$v1	3	0x00000000
\$a0	4	0x10010035
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$a0	8	0x00000000
\$t1	9	0x00000013
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x10010100
\$t0	16	0x00000000
\$t1	17	0x00000000
\$t2	18	0x00000000
\$t3	19	0x00000000
\$t4	20	0x00000000
\$t5	21	0x00000000
\$t6	22	0x00000000
\$t7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$t0	26	0x00000000
\$t1	27	0x00000000
\$t2	28	0x10000000
\$t3	29	0x7ffffeff
\$t4	30	0x00000000
\$t5	31	0x00000000
\$ra	31	0x00000000
\$pc		0x040009c
\$hi		0x00000000
\$lo		0x00000000

**Mars Messages**

Immediate value addressing:  
20+30=50

Direct addressing:  
Addressing: direct addressing  
Address: 0x10010000  
Operand of subtraction

Addressing: direct addressing  
Address: 0x10010004  
Operand of subtraction

Fig3. screen shot of data segment before running subtraction

**Text Segment**

Block	Address	Code	Basic	Source
0x0400008	0x3c011001	lui \$1, 0x00001001	64:	lw \$t1, var1
0x0400090	0x8c290000	lw \$t2, 0x00000000(\$t1)	65:	lw \$t2, var2
0x0400094	0x3c011001	lui \$1, 0x00001001	66:	la \$a0, (\$t1)
0x040009c	0x12400000	addi \$t2, \$t1, 10	67:	li \$v0, 1
0x04000a0	0x24020001	addiu \$t2, \$t2, 0x00000001	68:	syscall
0x04000a4	0x00000000	syscall	69:	li \$v0, 4
0x04000aa	0x24020004	addiu \$t2, \$t2, 0x00000004	70:	la \$a0, str10
0x04000ac	0x3c011001	lui \$1, 0x00001001	71:	syscall
0x04000b0	0x34240079	ori \$t4, \$t1, 0x00000079	72:	li \$a0, (\$t2)
0x04000b4	0x00000000	syscall	73:	
0x04000b8	0x21440000	addi \$t4, \$t4, 0x00000000	74:	

**Data Segment**

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)	Value (+14)	Value (+18)	Value (+1c)
0x10010000	0x00000001	0x00000000	0x0010f447	0x0021e88e	0x00000004	0x00000003	0x558d6d49	0x74616964
0x10010020	0x61762065	0x2065756c	0x72644461	0x69737365	0x0a3a670e	0x72944400	0x20746365	0x72646461
0x10010040	0x69737365	0x0a3a670e	0x546e4900	0x63657269	0x64612074	0x73657264	0x676e6973	0x42000a3a
0x10010060	0x6c657365	0x2065e499	0x72644461	0x69737365	0x0a3a670e	0x3b000a00	0x2a002400	0x34002100
0x10010080	0x49282000	0x696c206e	0x79726104	0x72666200	0x2400296d	0x2a2e2a2e	0x00002a2e	0x10010100
0x100100a0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100c0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100e0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010100	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010120	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000

**Registers**

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x10010000
\$v0	2	0x00000004
\$v1	3	0x00000000
\$a0	4	0x00000007
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$a0	8	0x00000000
\$t1	9	0x00000013
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x10010100
\$t0	16	0x00000000
\$t1	17	0x00000000
\$t2	18	0x00000000
\$t3	19	0x00000000
\$t4	20	0x00000000
\$t5	21	0x00000000
\$t6	22	0x00000000
\$t7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$t0	26	0x00000000
\$t1	27	0x00000000
\$t2	28	0x10000000
\$t3	29	0x7ffffeff
\$t4	30	0x00000000
\$t5	31	0x00000000
\$ra	31	0x00000000
\$pc		0x040009c
\$hi		0x00000000
\$lo		0x00000000

**Mars Messages**

Immediate value addressing:  
20+30=50

Direct addressing:  
Addressing: baseline addressing  
Address: 0x00101004  
Result of subtraction

Fig4. screen shot of data segment after running subtraction

**Text Segment**

Block	Address	Code	Basic	Source
0x0400154	0x00000000	syscall	116:	syscall
0x0400158	0x74640000	mul \$t0, \$t3, \$t4	117:	mul \$t0, \$t3, \$t4
0x040015c	0x00002010	mfhi \$a0	118:	mfhi \$a0
0x0400160	0x00000000	mfhi \$t5 = 将高位的值存入寄存器	119:	
0x0400164	0x00000000	sw \$t0, 0(\$t5)	120:	sw \$t0, 0(\$t5)
0x0400168	0x00000000	li \$v0, 1	121:	li \$v0, 1
0x040016c	0x24020003	addiu \$t2, \$t2, 0x00000003	122:	sw \$t5, 12(\$t5)
0x0400170	0x00000000	syscall	123:	li \$v0, 35
0x0400174	0x00000000	mflo \$a0	124:	syscall
0x0400178	0x00000000	mflo \$a0	125:	
0x040017c	0x24020004	addiu \$t2, \$t2, 0x00000004	126:	li \$v0, 4
0x0400180	0x3c011001	lui \$1, 0x00001001	127:	li \$a0, str11

**Data Segment**

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)	Value (+14)	Value (+18)	Value (+1c)
0x10010000	0x00000001	0x00000000	0x0010f447	0x0021e88e	0x00000004	0x00000003	0x558d6d49	0x74616964
0x10010020	0x61762065	0x2065756c	0x72644461	0x69737365	0x0a3a670e	0x72944400	0x20746365	0x72646461
0x10010040	0x69737365	0x0a3a670e	0x546e4900	0x63657269	0x64612074	0x73657264	0x676e6973	0x42000a3a
0x10010060	0x6c657365	0x2065e499	0x72644461	0x69737365	0x0a3a670e	0x3b000a00	0x2a002400	0x34002100
0x10010080	0x49282000	0x696c206e	0x79726104	0x72666200	0x2400296d	0x2a2e2a2e	0x00002a2e	0x10010100
0x100100a0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100c0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100e0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010100	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010120	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000

**Registers**

Name	Number	Value
\$zero	0	0x00000000
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\$v0	2	0x00000004
\$v1	3	0x00000000
\$a0	4	0x10010035
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$a0	8	0x3e4d6d2
\$t1	9	0x10010008
\$t2	10	0x1001000c
\$t3	11	0x0010f447
\$t4	12	0x0021e88e
\$t5	13	0x0000023a
\$t6	14	0x00000000
\$t7	15	0x10010100
\$t0	16	0x00000000
\$t1	17	0x00000000
\$t2	18	0x00000000
\$t3	19	0x00000000
\$t4	20	0x00000000
\$t5	21	0x00000000
\$t6	22	0x00000000
\$t7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$t0	26	0x00000000



