

# Homework 4

1.  $t0 = F \times 4$

int\* A; Base address in \$56

int\* B; Base add in \$57

int F, g; Values in \$50 and \$5

int temp1 = A[F];

int temp2 = A[F+1];

int result = temp1 + temp2;

B[g] = result

Sll \$t0, \$50, 2

add \$t0, \$56, \$t0

Sll \$t1, \$5, 2

add \$t1, \$57, \$t1

lw \$50, 0(\$t0)

addi \$t2, \$t0, 4

lw \$t6, 0(\$t2)

add \$t0, \$t0, \$50

sw \$t0, 0(\$t1)

2. table 1 register values

Register	Initial value	11	12	13	14	15	16	17
R1	4							
R2	16							
R3	12	10						
R4	20		10					
R5	12							
R6	14							

table 2 memory values

address	Initial values	11	12	13	14	15	16	17
6	10							
4	10							
8	18							
12	30							
16	50							
20	24							
24	16						14	
28	0							

2.

b.

int A[3]

int B[4]

A[0] = Memory[0]

B[0] = Memory[4]

if (A[0] == B[0]) {  
    B[0] = 14

}

3. addi \$t, \$zero, 0

Loop: lw \$s1, 0(\$s0)

add \$s2, \$s2, \$s1

addi \$s0, \$s0, 4

addi \$t1, \$t1, 1

slti \$t2, \$t1, 100

bne \$t2, \$zero, Loop

for(i=0; i<100; i++)

result += MemArray[i]

4.

a) Bits 25 to 21: RS

Bits 20 to 16: Rt

Bits 15 to 11: Rd

Bits 10 to 6: O

Bits 25 to 21: RS = 10000 binary = 50

Bits 20 to 16: Rt = 10000 binary = 50

Bits 15 to 11: Rd = 10000 binary = 50

instruction is ADD 50 50 50

b. SW \$t1, 32(\$t2)

Bits 31-26: 101011

Bits 25-21: 01010

Bits 20-16: Rt = 201001

Bits 15-0: 000000000010000

101011 01010 10000 1001 000000000010000  
SW \$t2 \$50 \$t1 OFFSet

1010 1101 0100 1001 0000 0000 0010 0000  
A D 4 9 0 0 2 0

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5.  $a = A[0];$   
 $b = B[1];$

if ( $a \neq b$ )

$a = a + b;$

else

$a = a - b;$

$B[0] = a;$

lw  $\$S0, 0(\$S2)$

lw  $\$S1, 4(\$S3)$

beq  $\$S0, \$S1, eval$   
and  $\$S0, \$S0, \$S1$   
jend

eval:

sub  $\$S0, \$S0, \$S1$

end:

sw  $\$S0, 0(\$S3)$