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1- For the following C statement, what is the corresponding MIPS assembly code? Assume that the variables *f*, *g*, *h*, *i*, and *j* are assigned to registers *\$s0*, *\$s1*, *\$s2*, *\$s3*, and *\$s4*, respectively. Assume that the base address of the arrays *A* and *B* are in registers *\$s6* and *\$s7*, respectively.

$B[8] = A[i-j];$

sub \$t0, \$s3, \$s4

lw \$t1, \$t0(\$s6)

sw \$t1, 32(\$s7)

2- For the MIPS assembly instructions below, what is the corresponding C statement? Assume that the variables *f*, *g*, *h*, *i*, and *j* are assigned to registers *\$s0*, *\$s1*, *\$s2*, *\$s3*, and *\$s4*, respectively. Assume that the base address of the arrays *A* and *B* are in registers *\$s6* and *\$s7*, respectively.

```
sll $t0, $s0, 2
add $t0, $s6, $t0
sll $t1, $s1, 2
add $t1, $s7, $t1
lw $s0, 0($t0)
addi $t2, $t0, 4
lw $t0, 0($t2)
add $t0, $t0, $s0
sw $t0, 0($t1)
```

temp = $f * 4$;

temp = $\&A[f]$;

temp2 = $g * 4$;

temp2 = $\&B[g]$;

$f = A[f]$;

temp3 = $\&A[f+1]$;

temp = $A[f+1]$;

temp = $A[f+1] + A[f]$;

$B[g] = A[f+1] + A[f]$;

Overall

$B[g] = A[f+1] + A[f];$

$f = A[f];$

3- Translating the MIPS assembly instructions in question 2 to a machine instruction

4- Assume that k correspond to register \$s0 and the base of the array v is in \$s1. What is the MIPS assembly code corresponding to this C segment?

```

if ( V[k] < V[k+1] )
{
    temp = v[k];
    v[k] = v[k+1];
    v[k+1] = temp;
}
else {
    v[k] = k;
    v[k+1] = k+1;
}

```

```

add $t0, $s0, 4
lw $t1, $s0($s1)
lw $t2, $t0, ($s1)
bgt $t1, $t2, ELSE
sw $t2, 0($t1)
sw $t1, 0($t2)

```

EXIT: ...

```

ELSE: sw $s0, 0($t1)
      sw $t0, 0($t2)

```

EXIT:

sll	0	0	16	8	2	0
add	0	21	8	8	0	32
sll	0	0	17	9	2	0
add	0	22	9	9	0	32
LW	35	8	16		0	
addi	8	8	10		4	
LW	35	10	8		0	
add	0	16	8	8	0	32
sw	43	9	8		0	