Question:
Consider an algorithm for finding the largest integer in an array:

```c
max = a[0]
for (i = 1; i < a.size; i++){
    if (a[i] > max){
        max = a[i]
    }
}
```

Here is some MIPS code which implements this algorithm.

```mips
la $t1, size
lw $s0, 0($t1) # $s0 = size
la $t1, a
lw $s1, 0($t1) # $s1 = max (initialized to a[0])
addi $s2, $zero, 1 # $s2 is i, initialize to 1
addi $s3, $zero, 0 # -------INSERT HERE $s3 is index of max-------
loop: bge $s2, $s0, endloop # how many times through the loop ?
addi $t1, $t1, 4 # pointer to a[i]
lw $t2, 0($t1) # $t2 holds value of a[i]
bgt $t2, $s1, newmax # branch if a[i] > max
j label
newmax: move $s1, $t2 # assign new value to max
move $s3, $s2 # -------INSERT HERE: save current index i into $s3 -------
label: addi $s2, $s2, 1 # increment i
j loop
endloop:
```

1. (2 points)
Which registers are used to hold variables max and i?

SOLUTION: max is in $s1
i is in $s2

2. (2 points)
Provide exactly two more MIPS instructions so that the code computes the array index where the maximum value occurs. Use register $s3 to hold this index. For each of the two new instructions, indicate with an arrow where it should be inserted.